# WOMEN LANDOWNER RESOURCE GUIDE

CENTER *for* RURAL AFFAIRS

# CONTENTS

# I. INTRODUCTORY LETTER

Dear Landowner,

If you are a woman landowner in Nebraska, you are part of the 42 percent of women who own or co-own land. In working with women landowners across the state of Nebraska at the Center for Rural Affairs, we have been sharing the opportunity to be empowered in land ownership. Perhaps you have newly inherited land, or have been managing your land for quite a while. Either way, we've discovered that many resources exist to assist you in planning your land management goals and to assess areas of your operation that might be at risk. However, they may not be reaching you or may be difficult to access or navigate.

We created this resource based upon our project, "Introduction to Risk Management: Empowering Absentee Women Landowners in Nebraska." This project was aimed at arming women with knowledge to look at areas of risk and feel empowered to talk with their operators through a series of farm tours, workshops, and learning circles. Women non-operator landowners face a variety of decisions, and often reply on the advice of others to meet their goal, though that well-intended advice may not reflect the best options.

We hope you'll find this bound copy of curriculum used during this project useful in examining risk in your own operations and utilize it as something to refer to, take notes, and keep with your other important documents.

Please also feel free to give our hotline a call if you are in need of additional assistance at 402.687.2100 ext. 1009.

Sincerely,

Sandra Renner
Women landowner outreach associate
Center for Rural Affairs

# II. UNDERSTANDING AND ASSESSING RISK

# What is risk management?

Risk Management involves choosing among various risk management strategies and tools designed to reduce the financial effects of the uncertainties of weather, yields, prices, government policies, global economies, human factors, and other conditions that can cause dramatic fluctuations in farm income.

Risk Management Education provides training that improves the ability of agricultural producers and their families to effectively manage risk. Training addresses five general types of risk associated with farm and ranch businesses:

- Production Risk is a result of uncertain natural growth processes of crops and livestock. Weather, disease, pests, and other factors affect both the quantity and quality of commodities produced.

- Price or Market Risk is created by the variability of prices producers receive for their production, the access they have to markets for their products, and the prices and the availability of inputs.

- Financial Risk occurs due to the capital-intensive nature of farming and ranching businesses. Volatility of prices, yields and income impact the debt-repayment ability and a business's cash liquidity. Changing interest rates, credit rules, and the availability of credit are also aspects of financial risk. Financial risk is often intensified by the lack of detailed financial analysis and planning.

- Legal/Institutional Risk is generated by uncertainties surrounding and resulting from government policies and regulations related to tax laws, food safety, labeling and marketing, protected species, water use, animal health and welfare, chemical use, animal waste, other environmental issues such as clean air and water, government commodity and income support programs, and the legal liabilities of a variety of litigious issues faced by farms and ranches.

- Human Risk refers to human relationships that impact the viability of farm and ranch businesses including communication, labor management and supply, business succession and intergenerational transfer of assets and management, estate planning, and human health and relationship issues including accidents, illness, disability, death and divorce.

Source: extensionrme.org/

USDA

United States Department of Agriculture

Risk Management Agency

# Risk Management Checklist

Print out this checklist. Answer yes or no to the following questions. Review your answers with your family and/or your business team and employees.

You may identify some risk exposure. On the other hand, you may find that you are protected against risk enough so that you have the resources to explore some new venture.

If you do not know all the dates in the "Deadlines" section, you should contact your crop insurance agent for help. If you need assistance locating an agent, go to the agent locator at http://www3.rma.usda.gov/apps/agents/.

Farm-Risk-Plans.USDA.gov

*Helping farmers & ranchers find success*

RMA

## Production

_____1. Have you recently evaluated your risk in the event of the loss of your crops?

_____2. Have you recently evaluated your risk in the event of the loss of your animals?

_____3. Have you investigated other alternative production methods and their consequences?

_____4. Do you have the necessary knowledge to consider an additional or alternative enterprise?

_____5. Have you investigated which crop insurance alternative (PLC, ARC) best fits your needs?

_____6. Is your crop insurance protection adequate to cover a severe crop loss?

_____7. Have you reviewed all of your crop insurance options with your agent?

_____8. If you are producing crops not covered under a crop insurance program, have you considered the Farm Service Agency program Noninsured Disaster Assistance Program (NAP)?

_____10. If you are considering NAP, do you know the sales closing deadlines?

_____11. Have you conducted a **S**trengths, **W**eaknesses, **O**pportunities, and **T**hreats (SWOT) analysis for your operation within the past 5 years?

_____12. Are you in an area capable of supporting irrigation?

_____13. Do you know the irrigation system that best suits your needs and its cost?

## Marketing

_____1. Do you have a current, written marketing plan?

_____2. Have you coordinated your marketing plan with your goals and objectives and your financial and production plans?

3. Managing marketing risks:

_____a) Are you comfortable with your knowledge of marketing opportunities?

_____b) Have you reviewed your marketing options within the past 6 months?

_____c) Do you understand how crop insurance revenue guarantees can enhance marketing opportunities?

_____d) Do you proactively manage input prices?

_____e) Do you know where you are on the value chain and have you considered any value-added opportunities?

_____f) Do you have difficulty meeting quality requirements?

## Financial

_____1. Do you have a current written business plan?

_____2. Have you planned for a best-case scenario and developed a plan for how additional income will be used?

_____3. Have you planned for a worst-case scenario and considered an alternative plan?

_____4. Have you generated enterprise budgets for each of your production segments?

_____5. Do you know your break-even costs and production levels?

_____6. Do you have the knowledge to create a balance sheet, cash flow, and income statement?

_____7. Do you have the knowledge to interpret important financial ratios?

_____8. What is your debt-to-asset ratio?

_____9. Is the growth of your net worth exceeding inflation?

_____10. Have you reviewed your ratio trends with your lender?

11. Is your insurance protection adequate to:

_____a) Repay current operating loans?

_____b) Allow you to take advantage of marketing opportunities?

_____12. Have you reviewed your tax liability within the past 3 months to determine your tax strategies?

_____13. Have you investigated all of your potential financing options?

_____14. Have you investigated all available government programs?

_____15. Have you considered trade-offs between maintaining your current investments (certificates of deposit/ savings/etc.) and/or reinvesting in expanding your own operation?
_____16. Do you consult a financial management consultant, lender, accountant, insurance provider, or other professional when making major financial decisions?
_____17. Are you comfortable with your level of debt?
_____ 18. Do you manage working capital from year to year?

## Legal

*This list does not cover every legal risk exposure faced by farmers and ranchers, and is not meant as legal advice. You should consult an attorney to review your legal risk exposure.*

_____1. Is your will up to date?
_____2. Do you have a living will or advanced directive?
_____3. Have you designated health and financial powers of attorney?
_____4. Do you have a farm transfer plan or exit strategy that has been reviewed within the past 3 years?
_____5. Have you recently reviewed your farm owner's policy?
6. Have you recently evaluated your risk exposure to:
    _____a) Liability covering the public entering your property?
    _____b) Liability of direct marketing?
    _____c) Liability of any value-added enterprises?
    _____d) Your State department of agriculture's direct marketing regulations?
    _____e) Livestock breaking through fences?
    _____f) Environmental (including spreading manure) and pesticide issues?
    _____g) Land use issues with neighbors?
_____7. Do you understand the provisions of all of your contracts, leases, and loans?
_____8. Have you recently evaluated all of the different business entity options for your operation?
_____9. Do you have a working relationship with your attorney and accountant and have you reviewed your goals and objectives with each?
_____10. Are you in compliance with such regulations as worker protection, pesticide use records, vehicle registrations, and necessary safety inspections?

## Human

1. Is your personal insurance coverage current?
    _____a) Do you have adequate medical and disability insurance?
    _____b) Do you have adequate life insurance to cover your wishes and farm transfer at current values?
_____2. Have you calculated your risk exposure to employee accidents or dishonesty?
_____3. Have you provided all employees with comprehensive safety training?
_____4. Are all mandated employee safety and pesticide trainings up to date?
_____5. Do you have an employee handbook?
_____6. Are your goals **S**pecific, **M**easurable, **A**ttainable, **R**easonable, and **T**imed (SMART)?
_____7. Have you conveyed the goals and objectives of the business to all family members, business team, and employees?
_____8. Are your goals written?
_____9. Is everyone in your family (or on your team) employed to the full extent of his or her Education, training, and experience?
_____10. Do you have a plan to manage stress, exhaustion, and burnout for yourself and employees?

## General

_____1. Do you have a confident relationship with your risk management advisors?
_____2. Do you have the knowledge to evaluate mew technologies?
_____3. Are you planning for your children's educational needs and are these savings protected?
_____4. Are your savings for retirement on course with your plans?
_____5. Do family members know the location of all important documents?
_____6. Do you have the knowledge and skills to assess all areas and levels of risk?
_____7. Are you constantly looking for ways to increase your profitability?

## Crop, Revenue, and Livestock Insurance Deadlines

*If you do not know all the dates in this section, you should contact your crop insurance agent for help.*

_____1. Do you know all critical dates and sign-up deadlines?

2. **Sales closing date** – *last date to apply for crop insurance coverage is:* _____
3. **Sales closing date** - *last date to apply for NAP coverage is:* _____
4. **Cancellation date** – *give notice if I do not want crop insurance next year:* _____
5. **Production reporting date** – *actual production history must be reported by:* _____
6. **Final planting date** – *if unable to plant, I must contact my agent by:* _____
7. **Acreage reporting date** – *I must report my acreage planted to my agent by:* _____
8. **Payment due date** – *interest charges will be incurred after:* _____
9. **Final date to file notice of crop damage** – *any perceived damage must be reported No later than:* _____
10. **End of insurance period** – *latest date of coverage for currents year's crop:* _____
11. **Debt termination date** – *insurance coverage for next year will be canceled if payment is not made by:* _____

Developed by Dr. Laurence M. Crane, National Crop Insurance Services with contributions from Lynn F. Kime and Winifred W. McGee, Penn State Extension.

Farm-Risk-Plans.USDA.gov
*Helping farmers & ranchers find success*

USDA United States Department of Agriculture
Risk Management Agency

RMA

# One-page Risk Management Plan:

## The 5 Key Areas of Risk Management

FARM CREDIT
FARMCREDIT.COM

| Follow the 5 step process for each area of risk management | People | Financial | Production | Marketing | Legal |
|---|---|---|---|---|---|
| **#1- Identity:** What are the risks on my farm? | Key man-keep your help | Capital availability/cash flow | Weather risk/crop failure | Food safety/access to market | Liability/retail trip and fall incidents |
| | | | | | |
| | | | | | |
| | | | | | |
| **#2- Prioritize:** What will have the biggest impact on my farm? | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| **#3- Evaluate:** What risk management tools are available? | Bonus | Line of credit | Crop insurance | Training | Insurance |
| | Engagement | Working capital | Irrigation | Certification | Mitigation |
| | Profit Sharing | | Crop selection | Wash+pack equipment | Education |
| | | | | | |
| | | | | | |
| **#4- Select:** This is the one (or more!) strategies to mitigate the risk | Engagement | Savings | Crop selection | Certification | Insurance |
| | | | | | Mitigation |
| | | | | | Education |
| | | | | | |
| | | | | | |
| **#5- Review:** How did your strategy work? | Happy key man | Money in the bank | Sales across the season | Sales to regional chain | No lawsuits! |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

## One-page Risk Management Plan:

### The 5 Key Areas of Risk Management

FARM CREDIT
FARMCREDIT.COM

| Follow the 5 step process for each area of risk management | People | Financial | Production | Marketing | Legal |
|---|---|---|---|---|---|
| **#1- Identity:** What are the risks on my farm? | | | | | |
| **#2- Prioritize:** What will have the biggest impact on my farm? | | | | | |
| **#3- Evaluate:** What risk management tools are available? | | | | | |
| **#4- Select:** This is the one (or more!) strategies to mitigate the risk | | | | | |
| **#5- Review:** How did your strategy work? | | | | | |

# III. SOIL HEALTH AND COVER CROPS

USDA United States Department of Agriculture


unlock the SECRETS IN THE SOIL

**More farmers, ranchers and others who rely on the land are taking action to improve the health of their soil. Many farmers are actually building the soil.** How? By using soil health management systems that include cover crops, diverse rotations and no-till.

When they're building the soil they're doing something else – they're also building the land's production potential over the long-term.

But how do landowners know if their tenants are doing everything they need to do to make and keep their soil healthy? Barry Fisher, an Indiana farmer and nationally recognized soil health specialist with the USDA's Natural Resources Conservation Service, recommends that they ask their farming partner these five questions.

## #1

### DO YOU BUILD ORGANIC MATTER IN THE SOIL?

Organic matter (carbon) may be the most important indicator of a farm's productivity. The amount of soil organic matter often determines the price farmers will pay to rent or buy land. Finding a farmer who is interested in building organic matter by using practices like no-till and cover crops is like finding a bank with a better rate on a Certificate of Deposit, Fisher says.

## #2

### DO YOU TEST THE SOIL AT LEAST ONCE EVERY 4 YEARS?

Fisher says maintaining fertility and pH levels are important to your farm's productivity. Regular soil testing can give an indication of trends in soil fertility, pH and organic matter levels in each field. These tests will determine the amount of fertilizer each field needs. If a field has a history of manure application and very high fertility, a farmer could save money by planting cover crops to keep those nutrients in place rather than applying more nutrients that may not be needed.

#3

## DO YOU USE NO-TILL PRACTICES?

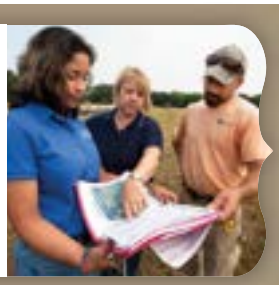
Some landowners like the look of a clean-tilled field in the springtime. That "nice look" is short lived, though. "The reality is a field that has bare soil is subject to erosion and loss of organic matter, since it no longer has the protective cover from the crop residue on the surface," Fisher says. "No-till farming utilizes the crop residue to blanket the soil surface to protect it from the forces of intense rainfall and summer heat. This protective blanket will conserve moisture for the crop and prevent loss of soil from wind erosion, water erosion and carbon that could be burned off by summer heat."

#4

## DO YOU USE COVER CROPS?

"Like no-till, cover crops provide a green, protective blanket through the winter months or fallow times. The green-growing cover is collecting solar energy, putting down roots and providing habitat when the soil would otherwise be lifeless and barren," says Fisher. This habitat provides food and shelter for a broad population of wildlife above ground and beneficial organisms below ground. As the new life emerges, cover crops hold onto the nutrients left from the previous crop and in turn releases them to the next crop. The solar rays these plants collect are powering photosynthesis, taking in carbon dioxide from the atmosphere to produce food for the plant and the organisms living in the root zone. This same process also releases clean oxygen to the air and builds nutrient rich organic matter in the soil.

#5



## WHAT CAN WE DO TOGETHER TO IMPROVE SOIL HEALTH ON MY LAND?

To improve soil health, landowners and tenants need to think long-term. According to Fisher, the duration of the lease agreement is perhaps the most critical matter in encouraging the adoption of these soil health management systems. "Farmers can actually build the production capacity and resiliency of their landowner's soil, but it may take several years to realize the full benefits of doing so," Fisher says. He suggests that landowners consider multiple-year leases that provide tenure security for the tenant. Longer tenures give both landowners and tenants more opportunities to improve soil health and realize the resulting longer-term production and profitability gains through sustainable conservation practices.

## LEARN MORE

"Improving soil health can provide long-term, stable dividends for you, your family and your farming partner," Fisher says. "Improving soil health also can decrease the effects of flooding, make food production more resilient to weather extremes, and improve the health of water and wildlife, as well," he adds.

Fisher encourages landowners to learn more about the basics and benefits of soil health management systems and to begin the soil health discussion with their farming partner right away. "Even if you're not a farmer or landowner, everyone has a great stake in improving the health of our soil," he says.

**Landowners can also learn more about the benefits of soil health by visiting the "Unlock the Secrets in the Soil" section of the NRCS web site at www.nrcs.usda.gov.**

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*Soil Health Resource Series*

# SOIL HEALTH AND COVER CROP FACTS

# Ten Ways Cover Crops *Enhance* Soil Health

*Photo Credit: Rob Myers, North Central SARE*

## ABOUT SOIL HEALTH

**Soil health is a hot topic these days,** one that is justifiably receiving considerable attention from farmers and their farm advisors.

Whereas in the past, soil testing and evaluation focused more on chemical and physical measures, new research has shown that the biology of the soil is very important to its overall health and productivity.

An incredible diversity of bacteria, protozoa, arthropods, nematodes, fungi and earthworms create a hidden food web in the soil that affects how crops grow, how soil nutrients are cycled and whether rainfall is quickly absorbed into the soil and stays where crop roots can access that moisture.

**The USDA Natural Resources Conservation Service (NRCS) has identified four basic principles or approaches for maintaining and improving soil health:**

- **Keep the soil covered as much as possible**
- **Disturb the soil as little as possible**
- **Keep plants growing throughout the year to feed the soil**
- **Diversify crop rotations as much as possible, including cover crops**

Farmers can support these principles by using cover crops, which are conservation plantings of fast-growing annuals such as rye, clovers, vetches and radishes. Cover crops protect and improve the soil when a cash crop is not growing. In the case of summer commodity crops like corn and soybeans, cover crops can keep the soil covered in fall, winter and early spring. They make it easier to use no-till or other conservation tillage approaches that disturb the soil less, and they help with weed control. Plant diversity is helpful for soil organisms because it gives them a greater variety of food sources, and cover crops are an easy way to diversify a crop rotation that may otherwise see only one or two crops grown in a field. Adding cover crops to a rotation can greatly increase the portion of the year when living roots are present for soil organisms to feed on.

## 10 Key Impacts of Cover Crops on Soil Health

Besides contributing to the four basic goals or principles for soil health, there are a number of specific ways that cover crops lead to better soil health and potentially better farm profits.

### 1 Cover crops feed many types of soil organisms

Most fungi and bacteria that exist in the soil are actually beneficial to crops. Many of these soil fungi and bacteria feed on carbohydrates that plants exude (release) through their roots. In return, some fungi and bacteria will trade other nutrients, such as nitrogen or phosphorous, to the crop roots. While cover crops directly feed bacteria and fungi, many other soil organisms eat the fungi and bacteria, including earthworms and arthropods (insects and small crustaceans like the "roly poly"). Thus cover crops can help support the entire soil food web throughout the year.

### 2 Cover crops increase the number of earthworms

Earthworms are usually the most visible of the many organisms living in the soil. Cover crops typically lead to much greater earthworm numbers and even the types of earthworms. Some earthworms, like nightcrawlers, tunnel vertically, while other smaller earthworms, like redworms, tunnel more horizontally. Both create growth channels for crop roots and for rainfall and air to move into the soil.

### 3 Cover crops build soil carbon and soil organic matter

Like all plants, cover crops use sunlight and carbon dioxide to make carbon-based molecules. This process causes a buildup of carbon in the soil. Some of that carbon is rapidly cycled through the many organisms in the soil, but some eventually becomes humic substances that can gradually build soil organic matter. A higher level of soil organic matter improves both the availability of nutrients and soil moisture for crops.

www.sare.org/covercrops

## 4 Cover crops contribute to better management of soil nutrients

By building soil organic matter, cover crops can gradually impact the need for some types of fertilizer. Just as important to nutrient management is the way cover crops can scavenge or collect any nutrients left at the end of a growing season, such as nitrogen left in the field after corn is done growing. The cover crop will hold that nitrogen rather than letting it escape into tile lines leading to rivers and lakes or drain away into groundwater. Eventually that nitrogen will be released the next season to help the next year's cash crops.

## 5 Cover crops help keep the soil covered

When it rains on bare soil, the soil is much more likely to erode, form an impermeable crust and then overheat in summer when exposed to direct sun. Some bare soils can reach 140 degrees, hot enough to kill soil organisms and stress the crop from both heat and excessive soil moisture evaporation. The residue of a cover crop like cereal rye can protect the soil while cash crops are getting established and keep it from getting too hot.

## 6 Cover crops improve the biodiversity in farm fields

Generally, the more plant diversity in a field and the longer that living roots are growing, the more biodiversity there will be in soil organisms, leading to healthier soil. Growing mixes of cover crops or adding a few different cover crop species to an overall crop rotation—such as cereal rye before soybeans, and oats, radishes or crimson clover before corn—improves diversity. Many Corn Belt commodity farmers are adding a third cash crop to their rotation, usually a small grain such as wheat, and then using the earlier harvest of wheat to grow a more diverse mix of covers for several months. They sometimes graze those cover crop mixes for extra profit and because animal manure benefits soil biology.

## 7 Cover crops aerate the soil and help rain go into the soil

It's not just earthworms that open up soil channels for rain, but also the roots of the cover crops themselves. This is particularly the case where soil disturbance is minimal from tillage. The extra rain that gets into the soil instead of running off can make a big difference for crop yields, such as in mid-to-late summer in the Midwest, when the rain can come fast in thunderstorms and be followed by long dry spells. The extra aeration created by cover crop roots and earthworms also benefits crop roots and other soil organisms.

## 8 Cover crops reduce soil compaction and improve the structure and strength of the soil

The typical solution to compaction from heavy farm equipment has been more tillage, but that provides only the briefest of benefits while compounding the problem in the long term. Excess tillage destroys soil structure, while cover crops and the soil organisms they feed create the glue (glomalin) that binds soil particles together, leading to better soil aggregation and strong soil structure. Research has shown that cover crops (with an assist from earthworms) help loosen compacted soil even more effectively than subsoiling equipment, which takes a lot of diesel fuel. A field with cover crops and minimal tillage, or better yet no-till, will lead to much better soil structure without compaction issues.

## 9 Cover crops make it easier to integrate livestock with field crops

Beef cattle and other livestock are usually kept in pastures and out of crop fields, which has some conveniences but is not ideal for soil health. Think of buffalo herds foraging on prairies and you can see how natural systems evolved to have an integration of plants and grazing animals. The manure from livestock grazing on cover crops in a grain field can be beneficial for building organic matter and soil health. It is also a great way to get immediate profit from cover crops, as certain cover crop species can be very high-quality forage in late fall or early spring.

## 10 Cover crops greatly reduce soil erosion and loss

On many fields that have some slope to them, half the topsoil has already been lost from the days when they were first farmed. The future success of farming and our food supply depends on keeping the topsoil we still have, and cover crops are exceptional at helping stop erosion. Using no-till with cover crops can reduce erosion to a tiny fraction of what it would otherwise be in a conventional corn and soybean system. Even with some light tillage, a field with cover crops is still much better protected, especially with winter annual cover crops like cereal rye.

# Summary

Methods of improving soil health come back to the core principles identified by NRCS, including a greater diversity of plants, keeping the soil covered, having living roots in the soil throughout the year and disturbing the soil less. As we learn more about soil biology, it's clear that even modest use of cover crops makes a big difference for soil health. Further information on cover crops, including publications and videos of farmers talking about cover crops and soil health, are available from SARE at www.sare.org/covercrops. More information and fact sheets on soil health are available from NRCS at www.nrcs.usda.gov/wps/portal/nrcs/main/national/soils/health and from the Soil Health Institute at www.soilhealthinstitute.org.

SARE Sustainable Agriculture Research & Education

USDA United States Department of Agriculture National Institute of Food and Agriculture

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SOIL HEALTH INSTITUTE

The Soil Health Institute is a national non-profit organization working to safeguard and enhance the vitality and productivity of soil through scientific research and advancement.

December 2017

# DIY Soil Tests

Supplies needed:
2 Mason Jars
Loose weave mesh (potato bag, turkey bag)
½ c of vinegar
½ c of baking soda
Shovel
Distilled water (this water has a neutral ph, some city or well waters can change your test results)
Tarp, cardboard or paper bag

**Test #1 - Soil Health**

- You need to find 2 samples of soil. One from your field, try to get away from the field drive or end rows where it's compacted, and one that's been under grass for a while like a fencerow or road ditch.
- When you drop the soil into the water, watch what happens.

Unhealthy soil falls apart because it's been degraded over time by tillage and cropping history that degrades the soil bacteria. This problem of soil dissolving quickly in a rain produces run-off that carries soil with it that gets into streams and lakes. Nutrients that plants need to grow stick to the soil and are carried away along with amendments used on the soil. If your soil falls apart look at options like cover crops that can help bring back the soil health.

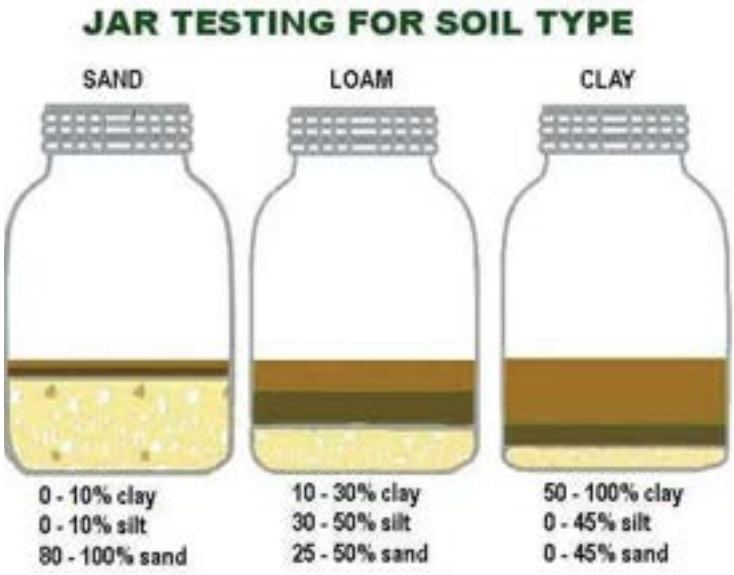
**Soil Test #2, part 1: The Squeeze Test**

One of the most basic characteristics of soil is its composition.
In general, soils are classified as clay soils, sandy soils, or loamy soils. Clay is nutrient rich, but slow draining. Sand is quick draining, but has trouble retaining nutrients and moisture. Loam is generally considered to be ideal soil because it retains moisture and nutrients but doesn't stay soggy.
To determine your soil type, take a handful of moist (but not wet) soil, and give it a firm squeeze. Then, open your hand. One of three things will happen:

1. It will hold its shape, and when you give it a light poke, it crumbles. Lucky you—this means you have luxurious loam!
2. It will hold its shape, and, when poked, sits stubbornly in your hand. This means you have clay soil.
3. It will fall apart as soon as you open your hand. This means you have sandy soil.

**Soil test #2, part 2: Composition profile**

1. Fill the jar about half full of soil. You can use soil from different areas to get an overall view or make a test for different areas you grow in.
2. Fill the jar nearly to the top with water. Leave room for shaking.
3. Tighten the lid and shake the jar for several minutes so that all the particles are in suspension.
4. Set your mason jar soil test aside for several hours, so the particles have a chance to settle. (24 hours is best) They will separate into clay, silt, and sand layers.
5. Use the following information to read the results of your test.




- The bottom layer will be the heavier particles, sand, and rocks.
- The next layer will be the silt particles.
- Above that are the clay particles.
- Organic matter may be floating on the surface of the water.
- The color of the soil gives a clue to its character – light colors usually have less organic content than dark soil and dark soil warms faster in the spring.

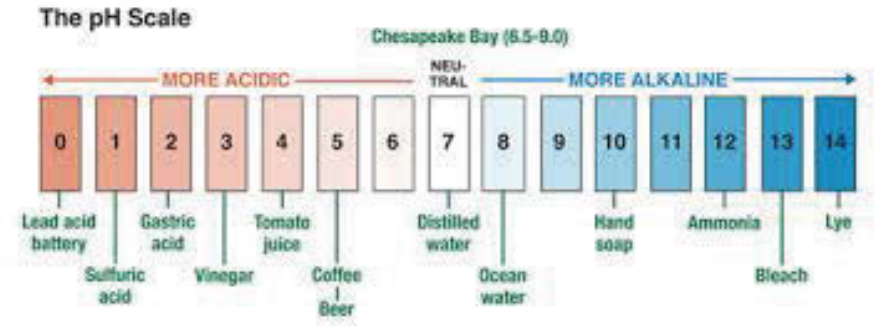
If your jar test is 20% clay, 40% Silt, 40% sand = Loam, you have the perfect combination. You've been working hard on your soil!
30% clay, 60% silt, 10% sand = Silty Clay Loam
15% clay, 20% silt, 65% sand = Sandy Loam
15% clay, 65% silt, 20% sand = Silty Loam

**Test #3 - Acidic or Alkaline**

You can test your garden soil pH with vinegar and baking soda

1. Collect 1 cup of soil from different parts of your garden and put 2 spoonfuls into separate containers.
2. Add 1/2 cup of vinegar to the soil. If it fizzes, you have alkaline soil, with a pH between 7 and 8.
3. If it doesn't fizz after doing the vinegar test, then add distilled water to the other container until 2 teaspoons of soil are muddy.
4. Add 1/2 cup baking soda. If it fizzes you have acidic soil, most likely with a pH between 5 and 6.

If your soil doesn't react at all it is neutral with a pH of 7 and you are very lucky!
The Ph (acidity level) of your soil has a large part to do with how well your plants grow. Ph is tested on a scale of zero to fourteen, with zero being very acidic and fourteen being very alkaline. Most plants grow best in soil with a fairly neutral Ph, between six and seven.
When the Ph level is lower than five or higher than eight, plants just won't grow as well as they should.You can lower the alkalinity of your soil by adding organic materials like pine needles, peat moss, and composted leaves




**Soil Test #4: The Percolation Test**

It is also important to determine whether you have drainage problems or not.
Some plants, will eventually die if their roots stay too wet. To test your soil's drainage:

1. Dig a hole about six inches wide and one foot deep.
2. Fill the hole with water and let it drain completely.
3. Fill it with water again.
4. Keep track of how long it takes for the water to drain.

If the water takes more than four hours to drain, you have poor drainage.

**Soil Test #5: The Worm Test**

Worms are great indicators of the overall health of your soil, especially in terms of biological activity. If you have earthworms, chances are that you also have all of the beneficial microbes and bacteria that make for healthy soil and strong plants. To do the worm test:

1. Be sure the soil has warmed to at least 55 degrees, and that it is at least somewhat moist, but not soaking wet.
2. Dig a hole one foot across and one foot deep. Place the soil on a tarp or piece of cardboard.
3. Sift through the soil with your hands as you place it back into the hole, counting the earthworms as you go.

If you find at least ten worms, your soil is in pretty good shape. Less than that indicates that there may not be enough organic matter in your soil to support a healthy worm population, or that your soil is too acidic or alkaline.

Source: https://preparednessmama.com/testing-your-soil-ph-without-a-kit/

**Soil Test #6: The Cotton Brief Test**

An indicator of high level of soil health is high microbial activity.

1. Bury a pair of cotton briefs up to the waist band in an area where you'd like to see the microbial activity. (T-shirts and socks work well, too!)
2. Come back in 48-72 hours, dig up, and see the difference!

In places of high microbial activity, only the waistband is left and a bit of stitching.

See an example by watching this video on YouTube:
*What Underwear Can or Cannot Tell You About Soil Health*
https://www.youtube.com/watch?v=SSgP9WxBvyg
(this is the source along with the written instructions provided to me by a USDA NRCS staff.)


Understanding Soil Health
and the Impacts on Soil Function by Dual Purpose Cover Crops
By Aaron Hird, State Soil Health Specialist, Nebraska USDA/NRCS


What do we have?
Weather Extremes
No Cover
Cover
What do we need?
Resilient Soil


We also have Tillage Induced Restrictive Layers

## What is Soil Health?

- The continued capacity of a soil to function as a vital, living ecosystem that sustains the soil, plants, animals and humans.
- Soil function is the result of many physical and biological factors, when combined in different places and at different times yield different results. Collectively I call this Soil Health.

## USDA/NRCS - 4 Soil Health Management Principals

- **1. Keep the soil covered**
- **2. Disturb the soil less or not at all**
- **3. Keep a living root in the soil 10 or more months**
- **4. Allow for lots of plant and root diversity**

## Is the Soil Healthy?

- Soil Health is changed through time with Management Practices and Natural Processes.
- Every Soil has Unique Physical Properties which set it's potential. 5 Soil Forming Factors: Time, Aspect, Parent Material, Climate, Biology
- The functions of the soil are influenced by management which impacts Biology.
- Supporting the biological activities can reduce or improve the Soils function up to it's potential.

## Soil Health based on Soil Properties

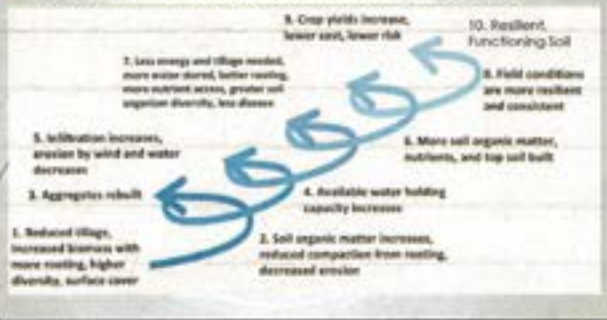
- "Dynamic Soil Properties" or "Soil Health Indicators"
  - Soil Organic Matter – Humus, Water Storage/Filtering
  - Bulk Density – Compaction, Stability
  - Soil Structure – Horizons, Rooting, Water Infiltration, Aggregate Stability
  - Soil Fertility – Nutrient Cycling/Storage
  - Soil Biota – Food Web, Organism Diversity, Smell

## What Soil Functions do you Expect?

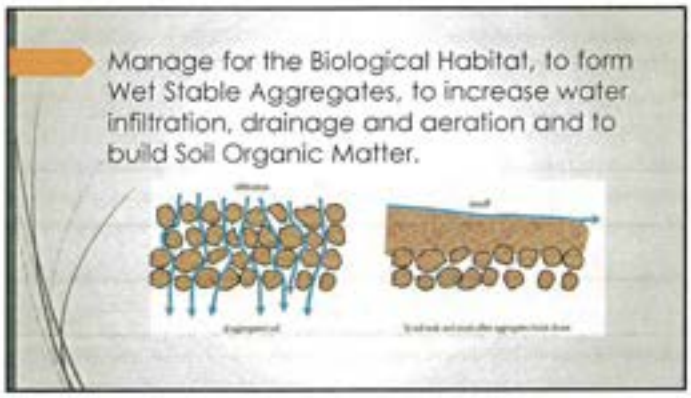
- Nutrient Cycling
- Water Infiltration, Storage & Supply
- Physical Stability and Support
- Water Filtering and Buffering
- Resiliency to reduce Plant Stress & Disease
- Biological Habitat

- 90% of all Soil Function is mediated by biological activity in the soil.

## Soil Resiliency is achieved by taking "Step #1" to care for the Soil's Health.




Example: After a Field Pea Harvest
SOIL HEALTH!


Manage for the Biological Habitat, to form Wet Stable Aggregates, to increase water infiltration, drainage and aeration and to build Soil Organic Matter.


Plant ASAP After Cash Crop Harvest
Every day counts!
One day in September is like a week or more in October
Use shorter season hybrids/varieties
It costs the same for seed and establishment no matter when you plant
Maximize growing degree days!

## There is an Accumulation of Benefits! Compounding and Cascading Effects

- Soil Health Management Planning involves residue management, No-Till, cover crops and other necessary structural conservation practices (Good Farming Practices)
- There are **Short Term Benefits** of managing for Soil Health improvements. Ways to environmentally and monetarily capitalize in the short term.
  - Scavenging residual nitrogen, fixing nitrogen, stabilizing the top soil (preventing erosion), stabilizing crop residue, composting crop residue, and providing **animal forage**.
- There are **Long Term Benefits** of managing for Soil Health improvements. These benefits accumulate over time and provide bigger environmental and monetary results.
  - Building Soil Organic Matter, Soil Stability, Soil Aggregation, Decreasing Bulk Density, Increasing Water Infiltration Rates, Supporting Soil Biology, and Building/Regenerating Top Soil.

## A Dual Purpose Cover Crop: Forage/Cover

- Cover Crops require an upfront capital investment of time and money.
- Grazing offers the quickest return on the investment, short term.
- Cover Crops do pay for themselves over time with their benefits, if We Let Them Work!
  - Seeding Date, Diversity of the mix, Winter Hardy vs Frost Kill, Residue/Grazing Management
- Grazing cover crops offers a different opportunity to improve soil health!
- Over grazing is robbing Peter to pay Paul. Its almost as bad as tillage.
- Cover crop below ground and above ground biomass can regrow after grazing.
- You must create a grazing plan and establish stocking rates.




## Stocking Rates and Grazing Heights


Supplement for Fall Grazing With Winter Hardy
Insurance for Spring Growth


No Cover Crop
~500#/ac


Lots of Cover Crop
~1500#/ac
1 Bale of stalks & shucks/Bu Corn avail. @ 50% Use
= ~2 AUM/Ac

## Alleviate Risk during the Learning Curve

- The USDA/NRCS is offering incentives for you to use cover crops which reduce the financial risk during your "Start Up" years
- EQIP – up to 3 years of 50% cost share to apply cover crops within your crop system
- CSP – 5 years of Stewardship Payments providing cost share for applying cover crops in your cropping system.
- CTA – Advice and Cover Crop Mix Designs




## The Nebraska NRCS Soil Health Initiative

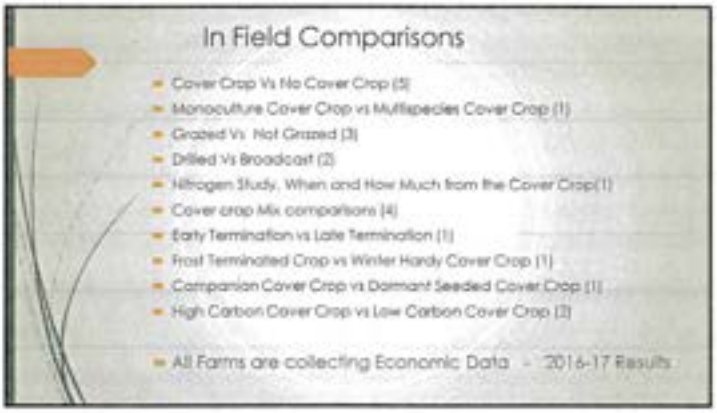
- Partnerships remain our central focus.
- Geographically distributing key outreach and educational resources
- Partner with key land owners to establish distributed demonstration farm fields
- Developing skilled employees with knowledge and tools to provide service locally

- The Goals of the Demonstration Farms
  - Focus on outreach, education, training and partnership opportunities
  - Provide a local source of information to answer common questions
  - Validate Soil Health Management Systems locally via field days & publications
  - Facilitate the demonstration of 4 Key Soil Health Principals
  - 5 year EQIP contracts to implement Soil Health comparison cover crop treatments

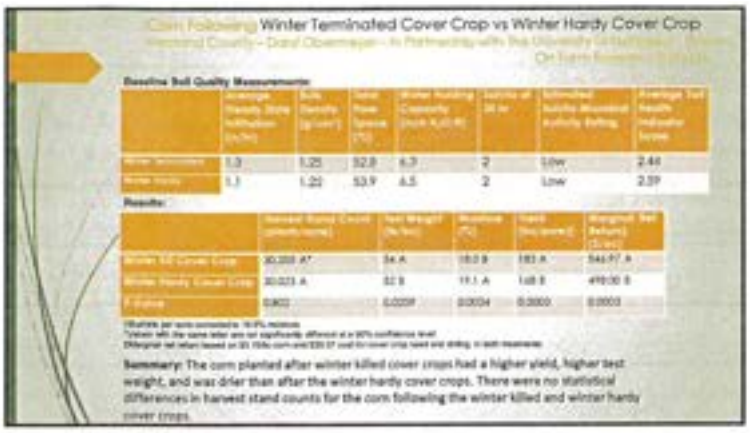
## Demonstration Farms

- A 5 year, field scale, comparison of two Cover Crop Adaptive Management Activities
- A system comparison throughout an expanded crop rotation
- Randomized and Replicated Plots
- Soil Health Assessments, Soil Lab Reports and Economic evaluations will be measured


Nebraska NRCS
Soil Health Initiative EQIP Demonstration Fields
PH
NC
NE
SW
SC
SE
5 - 2017 Demonstration Fields
12 - 2016 Demonstration Fields


In Field Comparisons
Cover Crop Vs No Cover Crop (5)
Monoculture Cover Crop vs Multispecies Cover Crop (1)
Grazed Vs Not Grazed (3)
Drilled Vs Broadcast (2)
Nitrogen Study, When and How Much from the Cover Crop(1)
Cover crop Mix comparisons (4)
Early Termination vs Late Termination (1)
Frost Terminated Crop vs Winter Hardy Cover Crop (1)
Companion Cover Crop vs Dormant Seeded Cover Crop (1)
High Carbon Cover Crop vs Low Carbon Cover Crop (2)
All Farms are collecting Economic Data - 2016-17 Results


Corn Following Winter Terminated Cover Crop vs Winter Hardy Cover Crop
Agronomic Data:
Planting Date: 4/11/17
Harvest Date: 9/19/17
Population: 33,000
Row Spacing: 30"
Hybrid: Pioneer P0636AM
Reps: 4
Previous Crop: Soybeans
Tillage: No-Till
Seed Treatment: PPST 250
Foliar Fungicides:
Irrigation: None


Winter Terminated Cover Crop vs Winter Hardy Cover Crop
Baseline Soil Quality Measurements
Results:
Summary: The corn planted after winter killed cover crops had a higher yield, higher test weight, and was drier than after the winter hardy cover crops. There were no statistical differences in harvest stand counts for the corn following the winter killed and winter hardy cover crops.


Looking for ways to maximize profitability in 2018?
Nebraska On-Farm Research Network
2018 Annual Results Update
EXTENSION
https://cropwatch.unl.edu/on-farm-research


Final Thoughts
The "work" for Soil Health needed in Nebraska is between 4 & 8 inches underground. Dig a hole and check it out.
Will you start growing and building your Soil?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(2) fax: (202) 690-7442; or
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**CONTENTS**

This bulletin is a companion to SARE's Cover Crop Topic Room, an online collection of select, mostly SARE-based resources on cover crops. Information is available at www.SARE.org/Cover-Crops on the following topics:



SARE's Topic Rooms contain dozens of publications, videos and other educational materials on a wide range of topics, including local food systems, high tunnels, small ruminants and more. Visit www.SARE.org/Topic-Rooms.

Written by Andy Clark, SARE

Sustainable Agriculture Research & Education

# Cover Crops for Sustainable Crop Rotations

*Photos (clockwise)* **Guihua Chen and Univ. of MD researchers demonstrated that brassica cover crops help reduce soil compaction.** *– Ray Weil* **Forage radish.** *– Edwin Remsberg* **Sunn hemp on Cedar Meadow Farm in Pennsylvania.** *– Abby Massey*

COVER CROPS ARE AN INDISPENSABLE TOOL. They are planted to slow erosion, improve soil health, enhance water availability, smother weeds, help control pests and diseases, increase biodiversity, and bring a host of other benefits to your farm.

Cover crops have also been shown to increase crop yields, break through a plow pan, add organic matter to the soil, prevent leaching of nutrients and attract pollinators. There is a growing body of evidence that shows cover crops improve resilience in the face of erratic and increasingly intensive rainfall, as well as under drought conditions. Cover crops help when it doesn't rain, they help when it rains, and they help when it pours!

## Cover Crops Increase Yield

SARE.org/Cover-Crops/Survey

MANY RESEARCH STUDIES AROUND THE world demonstrate that cover crops can increase yield. The yield benefit is often apparent after just one year of using cover crops and farmers will start to see other benefits, such as improved soil health, after several years of using them in crop rotation. Two years of survey results from over 2,500 farmers in the United States have clearly demonstrated the yield benefits of using cover crops. In 2012, corn yields increased 9.6 percent when planted after a cover crop, compared to side-by-side fields with no cover crops, and soybean yields improved 11.6 percent following cover crops. In 2013, corn yields were 3.1 percent higher and soybean yields were 4.3 percent higher after cover crops.

Whether you are just starting with cover crops, or have some experience growing them, the SARE Cover Crop Topic Room has a wealth of information you can use. Here we summarize some of it and provide an introduction to many of the benefits of growing cover crops. Visit the web page listed with each section for in-depth resources.

## Selection and Management

SARE.org/Cover-Crops/Selection

TO SELECT COVER CROPS FOR YOUR operation, first identify your primary objectives for adding them to your system. Do you want to add nitrogen (N) to your soil, increase soil organic matter, reduce erosion, provide weed control, manage nutrients or conserve soil moisture?

06/15

## COVER CROPS AND NO-TILL INCREASE DAIRY PROFITS AND SOIL HEALTH

New England dairy farmers have a short window of time for planting and harvesting high-quality forage, which leaves little room to plant cover crops to replenish the soil. But a University of Maine Cooperative Extension research team, led by Extension Educator Rick Kersbergen, found that shorter-season silage corn and no-till planting gives farmers time to use cover crops and improves forage quality, resulting in increased milk production and farm profitability.

The research team found that no-till reduced farmers' fuel use by 5.7 gallons per acre and labor by 2.75 hours per acre, saving on average $50 per acre. Cover crops provided nitrogen, lowering the amount of fertilizer they needed. "Winter cover crops were not something we used on every field before no-till, but now they are essential," say farmers Jeffrey and Penny Stevens, who participated in the project.

For more information, go to www.SARE.org/Project-Reports and search for LNE09-287.

**A cover crop grows in no-till corn residue on a Maine farm.** *- Photo by Rick Kersbergen*


**Buckwheat has been used to suppress weeds on Northeastern farms for 400 years. Read how to use it on your farm in the Buckwheat Cover Crop Handbook at www.SARE.org/Buckwheat-Handbook.**

While all cover crops provide many benefits, some species or "cocktails" (cover crop mixes) are better than others, depending on your specific objectives.

Next, identify the best time and place to fit cover crops into your rotation (see **Crop Rotations**). Are you looking for winter cover crops to scavenge N, summer cover crops to break soil compaction, a window in a small-grain rotation to supply much-needed nutrients, or even a full-year cycle to improve soil or suppress weeds? Consider creating a new rotation or modifying an existing one to accommodate your long-term objectives for planting cover crops. Also remember that there is likely no single cover crop that is right for your farm (see **Mixtures or Cocktails**).

Finally, think through exactly how and when you will seed, terminate and plant into your cover crop. Do you know a reliable source for cover crop seeds, what will the weather be like, can you get into the field, do you want it to winterkill, and what labor and equipment will you need? Find information to help you answer these questions in the Cover Crop Topic Room or *Managing Cover Crops Profitably* (see page 4 sidebar), but above all, consult local expertise, including other farmers.

### Legumes

Legume cover crops (clovers, vetch, peas, beans) can fix a lot of N for subsequent crops, generally ranging from 50-150 pounds per acre, depending on growing conditions. You can usually reduce your N fertilizer inputs following a legume, but they are not very good at scavenging N left over after cash crops.

Legumes also help prevent erosion, support beneficial insects and pollinators, and can increase the amount of organic matter in soil, although not as much as grasses. Legumes differ in their productivity and adaptability to soil and climatic conditions.

### Non-Legumes

Non-legume cover crops include the cereals (rye, wheat, barley, oats, triticale), forage grasses (annual ryegrass) and broadleaf species (buckwheat, sunflower, mustards and brassicas). While the species vary considerably, non-legumes are most useful for scavenging nutrients, providing erosion control, suppressing weeds and producing large amounts of residue that add organic matter to the soil.

Plant a non-legume whenever a field has excess nutrients, particularly N. When planted as a fall cover crop, non-legumes consistently take up 30-50 pounds of N per acre. If large amounts of N are left in the soil from the summer crop or due to a history of manure applications, non-legumes can scavenge upwards of 150 pounds per acre. Depending on your conditions—including soil residual N status—you may not be able to reduce your N fertilizer inputs for the subsequent crop, particularly in the first few years of cover cropping.

### Mixtures or Cocktails

Although seeding and managing cover crop mixes or "cocktails" can be more complicated, they allow you to attain multiple objectives at once. Cover crop mixtures offer the best of both worlds by combining the benefits of grasses and legumes, or using the different growth characteristics of several species to fit your needs. Compared to pure stands of legumes or non-legumes, a mixture of two or more species—a cocktail—usually produces more overall biomass and N, tolerates adverse conditions, increases winter survival, provides ground cover, improves weed control, attracts a wider range of beneficial insects and pollinators, and provides more options for use as forage. However, cocktails often cost more, can create too much residue, may be difficult to seed and generally require more complex management.

## Crop Rotations

SARE.org/Cover-Crops/Rotation

ONE OF THE BIGGEST CHALLENGES OF COVER cropping is to fit them into your current rotations, or to develop new rotations that take full advantage of their benefits. There may be a role for cover crops in almost all rotations, but the diversity of cropping systems precludes addressing them here. Learn more by reading *Crop Rotation on Organic Farms*, visiting the Cover Crop Topic Room, reviewing SARE grant results and consulting local expertise.

Whether you add cover crops to your existing rotations or totally revamp your farming system, you should devote as much planning and attention to your cover crops as you do to your cash crops. Failure to do so can lead to failure of the cover crop and cause problems in other parts of your system.

## Cover Crops for No-Till Farming

SARE.org/Cover-Crops/No-Till

NO-TILL FARMING OR OTHER CONSERVATION tillage systems are good opportunities to plant cover crops. A cover crop mulch can increase water infiltration and also improve moisture availability by preventing evaporation. Cover crop residue helps control weeds, which is especially important in organic no-till agriculture.

## Cover Crops for Organic Farms

PLANT COVER CROPS ON ORGANIC FARMS TO provide N, manage weeds and improve soil health. In organic no-till farming, use a roller-crimper to kill the cover crop and leave the mulch on the soil surface to conserve water. Or, incorporate the cover crop into the soil (sometimes called a green manure) before planting your main crop.

## Economics

SARE.org/Cover-Crops/Economics

COVER CROP ECONOMICS ARE ROOTED IN N dynamics (how much N you save or produce with cover crops), fuel costs (the cost of N and trips across the field) and commodity prices. Given wide fluctuations in commodity and energy prices in recent years, it is difficult to generate accurate economic analyses or to predict economic returns for future growing seasons. We do know that cover crops can help you increase yield, save on N costs, reduce trips across the field and reap many agronomic benefits. Cover crops clearly improve overall soil health—usually within only a year or two, and increasingly over time—and generally help improve profitability over time, though the impact on your bottom line will vary.

## Soil and Fertility Management

SARE.org/Cover-Crops/Soil

COVER CROPS MAINTAIN AND IMPROVE SOIL fertility in a number of ways. Protection against soil loss from wind and water erosion is perhaps the most obvious soil benefit, but providing organic matter is a more long-term and equally important goal. Cover crops contribute indirectly to overall soil fertility and health by catching nutrients before they can leach out of the soil profile or, in the case of legumes, by adding N to the soil. Their roots can even help unlock some nutrients in the soil, converting them to more available forms. The amount and

*In 2014, leading soil health experts and farmers convened at North Central SARE's National Conference on Cover Crops and Soil Health. Watch presentations on a variety of topics at www.SARE.org/CoverCropConference.*

**Brian (left) and Keith (right) Berns at a cover crop field day in Pennsylvania.** - *Photo by Mandy Rodrigues*

## DRYLAND FARMERS FIND COVER CROPS CONSERVE MOISTURE

When it comes to incorporating cover crops into a dryland rotation, many farmers hesitate, wondering: "How much moisture is the cover crop going to demand, and will I pay for it later in lost cash-crop yields?"

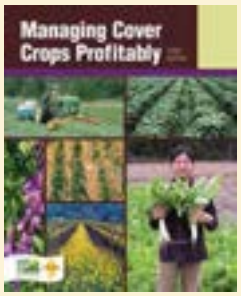
This is the "first question and major concern any dryland farmer has about cover crops," says Bladen, Neb., farmer Keith Berns, who conducted research with his brother on their 2,000-acre farm—about two-thirds of it dryland. Keith and Brian Berns found that, in fact, cover crops can significantly boost corn yields in a non-irrigated setting.

In one trial, they planted corn after a cover crop mix of grasses, legumes and brassicas, and saw a corn yield that was about 10 percent better than planting straight into wheat stubble.

In their trials, the Bernses tested both cover crop monocultures and mixes—including sunflowers, soybeans and oilseed radish—but found that mixes were the best performers, in part because they were more frugal with water. They found that the cover crop mixes used far less water than the cover crop monocultures, and were on par with water use in wheat stubble alone.

Through their SARE-funded research, the Berns brothers developed the Cover Crop SmartMix Calculator, an online spreadsheet that calculates seed quantities and cost, carbon-to-nitrogen ratio (C:N), nitrogen-fixation potential and other factors for mixes of nearly 40 cover crop species.

Visit www.SARE.org/Keith-Berns to hear Keith Berns talk about his experience with SARE.




**SARE's *Managing Cover Crops Profitably* will provide you with the information needed to incorporate cover crops into your rotation.**

**Visit www.SARE.org/MCCP for a free download.**

availability of nutrients from cover crops will vary widely depending on such factors as species, planting date, plant biomass and maturity at termination date, residual soil fertility, and temperature and rainfall conditions. See *Building Soils for Better Crops* for more information on building soil health by using cover crops and other practices.

## Water Management

SARE.org/Cover-Crops/Water

EVIDENCE IS MOUNTING THAT COVER CROPS help stabilize yields and improve moisture availability in the face of increasingly erratic weather. Is it too wet in spring? Cover crops take up water (via evapotranspiration) and usually allow you onto the field earlier than if you did not have a cover crop growing. Alternatively, if facing drought or practicing dryland farming, cover crops still help boost yields while being very efficient with water use. If you use no-till, the cover crop mulch increases water infiltration and conserves moisture into the summer. Added carbon and root channels, in addition to increased soil pore space, help improve soil water-holding capacity—in any tillage system.

## Pest Management

SARE.org/Cover-Crops/Pests

COVER CROPS CAN CREATE HABITAT FOR pests, such as seed corn maggots that are attracted to decaying residues, or tarnished plant bugs that feed on the flowers. They also reduce infestations by insects, diseases, nematodes and weeds. Cover crops that attract and retain beneficial insects—when allowed to flower—include buckwheat, clovers and brassicas. Cover crop mulches suppress weeds and reduce splashing of soilborne pathogens onto leaves, while some, such as sudangrass, brassicas and mustards, reduce populations of verticillium wilt and other soil pathogens. In Michigan, for example, some potato growers report that two years of radish improves potato production and lowers pest control costs. Pest-fighting cover crop systems help minimize pesticide use, and as a result cut costs and reduce your chemical exposure.

## Pollinators

FLOWERING COVER CROPS CAN SUPPORT the habitat requirements of bees and other pollinating insects by providing a food source (pollen and nectar), a refuge from insecticides, and—in some cases—enhanced nesting opportunities for wild bee species and other native pollinators. In many cases, cover crops are flowering at times when other farm plants are not, extending the feeding opportunities for pollinators. Cover crops that support pollinator populations—when allowed to flower—include buckwheat, clovers and brassicas.

## Conclusion

REGARDLESS OF YOUR OBJECTIVES FOR growing cover crops, there are many viable and tested options available for you to try. Consult the many resources available, talk to other farmers and start with small plots as you fine-tune your system. Be sure to read the book *Managing Cover Crops Profitably*, browse around the SARE Cover Crop Topic Room, review SARE grant results and consult local expertise for more information on cover crops.

## WHY COVER CROPS? SEE AND HEAR FROM FARMERS, IN THEIR OWN WORDS.

*"We lose less than 100 pounds of soil per year [to erosion] because of cover crops."*
- Dave Brandt, Carroll, Ohio

*"The biggest benefit we are seeing from cover crops is the regeneration of our soil. ... Because we have gone to this type of production model, we are able to produce our cash commodities at a fraction of the cost."*
- Gabe Brown, Bismarck, N.D.

*"Every species [of cover crop] is giving a different benefit to the soil, it just depends on what prescription you want for that particular field."*
- John Burk, Bay City, Mich.

Watch cover crop innovators speak about their experiences with cover crops at www.SARE.org/Cover-Crop-Innovators.

*Photos (left to right):* **Dave Brandt.** *- Photo by Dena Leibman* **John Burk driving a tractor on his Michigan farm.**

CONTENTS



Available at www.sare.org/cover-cropping-for-pollinators, or order free hard copies at (301) 779-1007.

SARE
Sustainable Agriculture Research & Education

# Cover Cropping for Pollinators and Beneficial Insects



**Doug Crabtree uses many tools to make his Montana farm bee friendly.** – *Photo by Jennifer Hopwood;* **Phacelia is an attractive pollinator cover crop.** – *Photo by John Hayden;* **Clover fixes nitrogen and provides bee forage.** – *Photo by Judson Reid*

DOUG AND ANNA CRABTREE'S VILICUS FARM RESTS on more than 2,000 acres in northern Montana, and it is a model of how cover crops can be a foundation of pollinator and beneficial insect management. Like many farmers, their approach to cover cropping began with an interest in soil health and quickly grew to encompass much broader goals as they recognized the additional benefits cover crops could provide.

"We want to implement pollinator conservation at the field-level scale," Doug says. "Anyone can create a small wildflower strip, but as we scale up, we need conservation areas distributed across the entire operation."

While the Crabtrees have established permanent native wildflower strips around many of their fields to provide a skeleton of habitat throughout the farm, extensive cover crop rotations provide the muscle that makes their operation a rich landscape for bees and other beneficial insects.

This commitment to cover cropping is having clear and positive impacts. Flax, sunflower and safflower are just a few of the Crabtrees' regular crops that either require or strongly benefit from insect pollination. And, because of their commitment to integrating habitat for wild pollinators throughout their holdings, the Crabtrees have never needed to bring honey bee hives onto the farm for pollination. Instead, a walk through their fields quickly reveals an abundance of wild bumble bees, longhorn bees, sweat bees and more—all supported by the farm's habitat. A farm's ability to support its own pollinator community provides security, especially if managed honey bee hives become scarce or expensive.

In addition to supporting the pollinator community, cover crops have many traditional uses on a farm. These range from preventing erosion and improving soil health to managing weeds and serving as an additional source of income when part of a double-crop system. With cover

8/17

**Relative Value of Cover Crop Species to Bees and Other Beneficial Insects**

| Cover Crop | Life Cycle | Seeding Rate (pounds/acre single species) | Seeding Depth (inches) | Honey Bee Value | Wild Bee Value | Beneficial Insect Value (predators and parasitoids) | Alternative Host of Crop Pests | Notes |
|---|---|---|---|---|---|---|---|---|
| **GRASSES** | | | | | | | | |
| **Annual ryegrass** | Annual | 10-20 | ½ | None | None | Low | Unknown | Probably only useful to beneficial insects when included as part of a diverse seed mix |
| **Barley** | Annual | 60-125 | 1½ | None | None | Low | Oat and Russian wheat aphids, various small grain diseases | Best adapted to dry, cool (but not cold) climates |
| **Millet (foxtail, proso and pearl)** | Annual | 5-25 | ½ | None | None | Low | Unknown | Seeding rates for foxtail millet can be reduced to the lower end of the described range |
| **Oats** | Annual | 60-120 | 1½ | None | None | Low | Oat and Russian wheat aphids, various small grain diseases | Cool-season plant; limited cold tolerance with most varieties subject to winter kill in cold climates |
| **Rye, cereal** | Annual | 60-120 | 1 | None | None | Low | Russian wheat aphids, various small grain diseases | Potentially allelopathic to other crops |
| **Sorghum/ sudangrass** | Annual | 10-40 | 1 | None | None | Moderate | Corn aphids | Attractiveness to grass-specific aphids may make this a useful insectary plant for attracting aphid predators (in non-grass crop systems); lower end of seeding rates are appropriate for sorghum and sorghum-sudangrass hybrids; potentially allelopathic to other crops |
| **Teff** | Annual | 5-10 | ¼ | None | None | Low | Unknown | Seed may have limited availability |
| **Triticale** | Annual | 60-120 | 1 | None | None | Low | Russian wheat aphids, various small grain diseases | Potentially allelopathic to other crops |
| **LEGUMES** | | | | | | | | |
| **Alfalfa** | Perennial | 10-25 | ¼ | High | High | Moderate | Pea aphids | Top honey plant, also attractive to large numbers of diverse wild bees |
| **Birdsfoot trefoil** | Perennial | 5-10 | ¼ | Moderate | Moderate | Moderate | Spittlebugs, alfalfa plant bugs, potato leafhoppers and others | Can be weedy and invasive |
| **Clover, berseem** | Annual | 8-20 | ¼ | High | High | Moderate | Likely a host for various leafhoppers, true bugs and generalist aphids | Best adapted to Mediterranean climates |
| **Clover, crimson** | Annual | 15-25 | ¼ | High | High | Moderate | Pea aphids, tarnished plant bugs | Grows very well in combination with cereal rye and other cool season grasses |
| **Clover, kura** | Perennial | 5-15 | ¼ | High | High | Moderate | Various leafhoppers, true bugs and generalist aphids | Poor seedling vigor and slow to establish; considered a top honey plant |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Clover, red** | Perennial | 5-20 | ¼ | Moderate | High | Low | Various leafhoppers, true bugs and generalist aphids | Typically short-lived; high value for bumble bees |
| **Clover, rose** | Annual | 10-25 | ¼ | Moderate | High | Moderate | Various leafhoppers, true bugs and generalist aphids | Excellent bumble bee plant |
| **Clover, strawberry** | Perennial | 5-15 | ¼ | High | High | Moderate | Unknown | Can be weedy and invasive |
| **Clover, subterranean** | Annual | 10-20 | ¼ | None | None | Low | Pea aphids, tarnished plant bugs | Flowers are inconspicuous and do not attract pollinators |
| **Clover, white** | Perennial | 5-15 | ¼ | High | High | Moderate | Various leafhoppers, true bugs and generalist aphids | Considered a top honey plant |
| **Chickpea** | Annual | 80-120 | 1½ | Low | Low | Low | Pea borers, wireworms | Beneficial insects are attracted to extrafloral nectaries |
| **Cowpea** | Annual | 30-90 | 1 | High | High | High | Various stink bugs, leaf-footed bugs, aphids | Extensive extra-floral nectaries attract large numbers of beneficial parasitoid wasps as well as other beneficial insects |
| **Fava bean** | Annual | 80-160 | 3 | Low | Moderate | Moderate | Unknown | |
| **Lablab** | Annual | 30-40 | 1-4 | Moderate | Moderate | Moderate | Unknown | Vining growth habitat; more common in subtropical climates |
| **Lupin** | Annual | 40-120 | 1-2 | Low | Moderate | Moderate | Unknown | |
| **Medic** | Annual (a few species are perennial) | 10-20 | ½ | Low | Low | Low | Alfalfa weevils, pea aphids, tarnished plant bugs | Small, nondescript flowers attract few beneficial insects |
| **Partridge pea** | Annual | 10-20 | ¼-¾ | Moderate | High | High | Various leafhoppers | Extensive extra-floral nectaries attract large numbers of beneficial parasitoid wasps |
| **Pea, field** | Annual | 50-100 | 2 | Low | Low | Low | Tarnished plant bugs | |
| **Sainfoin** | Perennial | 40-80 | ½ | High | High | Moderate | Unknown | Considered a top honey plant |
| **Soybean** | Annual | 35-120 | 1 | Moderate | Moderate | Moderate | Wireworms, bean leaf beetles, potato leafhoppers and various others | |
| **Sunn hemp** | Annual | 20-40 | ¾ | Moderate | High | Moderate | Unknown | Attracts wild carpenter and leafcutter bees in tropical farm systems; supports parasitoids of corn earworm in the Pacific Islands region |
| **Sweet clover** | Biennial | 6-20 | ½ | High | High | High | Unknown | Considered a top honey plant; may be weedy or invasive in some areas |
| **Vetch** | Annual; perennial | 15-30 | ½-2½ | Moderate | High | High | Pea aphids, tarnished plant bugs, two-spotted spider mites | Standard options include common vetch, hairy vetch and purple vetch; may be weedy or invasive in some areas |

**Relative Value of Cover Crop Species to Bees and Other Beneficial Insects cont.**

| Cover Crop | Life Cycle | Seeding Rate (pounds/acre single species) | Seeding Depth (inches) | Honey Bee Value | Wild Bee Value | Beneficial Insect Value (predators and parasitoids) | Alternative Host of Crop Pests | Notes |
|---|---|---|---|---|---|---|---|---|
| **FORBS/BROADLEAVES** | | | | | | | | |
| **Beet** | Biennial | 6-10 | 1 | Low | Low | Low | Unknown | Wind-pollinated flowers are only marginally attractive to bees |
| **Buckwheat** | Annual | 30-80 | 1 | High | High | High | Tarnished plant bugs | Top honey plant with nectar flow typically occurring in the morning; shallow flowers attract parasitoid wasps |
| **Canola** | Annual | 3-10 | ½ | High | High | High | Flea beetles | Excellent honey plant |
| **Chicory** | Perennial | 3-5 | ½ | Low | Low | Low | Unknown | Flowers are considered self-fertile and attract few insects |
| **Flax** | Annual | 25-50 | ¾-1½ | Moderate | Moderate | Moderate | Unknown | Reports of bee attractiveness vary; probably most valuable to pollinators as part of a diverse mix |
| **Kale** | Biennial | 3-10 | ½ | High | High | High | Cabbage loopers, flea beetles, cabbage aphids | Aphid-susceptible varieties likely support the more predatory insects such as lady beetles and lacewings; rapid-blooming varieties most beneficial to bees |
| **Mustard, tame** | Annual | 5-20 | ½ | High | High | High | Flea beetles | Can be weedy and invasive in California |
| **Phacelia** | Annual | 5-15 | Surface | High | High | High | Tarnished plant bugs | Major honey bee nectar plant; produces volunteer seedlings in moderate climates |
| **Radish** | Biennial | 8-20 | ¼ | High | High | High | Club root of brassicas, flea beetles, cabbage aphids, root maggots | Deep-rooted varieties are promoted for reducing compaction and adding soil organic matter; not tolerant of prolonged freezing |
| **Safflower** | Annual | 25-35 | 1 | Moderate | Moderate | Moderate | Sunflower head moths, tarnished plant bugs, wireworms | Relatively drought tolerant with surprisingly deep tap roots (in some cases exceeding 8 feet) |
| **Sunflower** | Annual | 4-6 | ½ | High | High | High | Sunflower head moths, various beetles, tarnished plant bugs | Both flowers and extra-floral nectaries attract huge numbers of pollinators and beneficial insects, in most cases outweighing any risk of attracting pests |
| **Turnip** | Biennial | 2-12 | ½ | High | High | High | Club root of brassicas, flea beetles, cabbage aphids, wireworms, cabbage loopers | Turnips tend to be more cold tolerant than radishes, allowing them to flower in the spring unless terminated |

## Limitations of Cover Crops

YOU MAY BE ASKING YOURSELF, "IF COVER CROPS ARE so great, why doesn't everyone use them?" While some farmers may not know where to start, perhaps the greater barrier to adoption is that the financial and environmental benefits of cover cropping oftentimes accrue gradually [22, 23, 24], while the startup costs in time and money are immediate. State and federal agricultural incentive programs which offset this initial investment can be very successful in encouraging the use of cover crops [22].

Of course, not all systems are equally suited to cover cropping. In some cases, existing long-season cash crop rotations may not be compatible with cover crops. In other regions, a cover crop's water usage may hurt cash crop yields [23]. This impact can be mitigated to some extent by terminating a cover crop well prior to establishing a cash crop, allowing soil water to recharge. Additionally, over the long term, cover crops increase soil organic matter, soil water infiltration and soil water capacity. Initial declines in available water are often offset by later, long-term increases [23].

Other limitations of cover crops include expenditures for new equipment, more complicated management practices and time spent seeding and terminating cover crops rather than managing cash crops [23]. It is important to run the figures for your own operation to decide if cover crops are right for you. Should you decide that the benefits outweigh the drawbacks, plan to ease into cover cropping, starting with a small area and gradually expanding your cover cropped land as you get the hang of it.

**John Hayden tested a summer cover crop of buckwheat for its ability to suppress weeds and attract bumble bees, an important pollinator on his Vermont fruit farm. It worked well, and after going to seed did not return in the spring as a weed.** *– Photo by Nancy Hayden*

## Beyond Cover Crops

ALTHOUGH COVER CROPS CAN PROVIDE SIGNIFICANT pollen and nectar resources for bees, they do have constraints. For example, because most cover crop species have a short bloom period, single species cover crops typically offer a feast-or-famine situation for bees. A shortage of food is followed by abundance, followed by another shortage. Under such circumstances wild pollinators may have trouble sustaining their populations. (Honey bees may be more resilient under such conditions due to their ability to store food reserves.)

Moreover, because most cover crop plants are non-native species, their attractiveness to wild native bees may be highly variable. The cover crops highlighted in this bulletin will attract mostly generalist species of wild bees that are relatively common in most landscapes. Less common species of native bees often require more permanent plant communities comprised primarily of native plant species. In general, to maximize the diversity and abundance of beneficial wild insects, flowering cover crops should be combined with the restoration and maintenance of permanent, high-quality, pesticide-free native plant habitat in other areas of the farm. Adding pollinator hedgerows, establishing pollinator plantings on marginal lands and borders, and other practices to boost habitat can all fit into other USDA conservation practices.

Regarding pollinator borders specifically, two SARE-funded research projects in Michigan demonstrated the value of permanent native wildflower strips adjacent to crops. In one of these studies [25], researchers found that corn borer egg parasitism was measurably higher in fields adjacent to perennial native wildflower strips. In the other study [26], researchers found that blueberries planted adjacent to perennial wildflower strips had berries that were 22-40 percent heavier, due to enhanced pollination by wild bees.

# Insecticides and Insect Conservation

*You can reduce risk to pollinators and beneficial insects by implementing IPM on your farm and only applying insecticides when the threshold for economic damage has been crossed.*

INSECTICIDES SHOULD NOT BE APPLIED TO COVER CROPS where pollinator and beneficial insect conservation is a priority. In most cases it is unnecessary, regardless of your cover crop objectives. Both organic and conventional pesticides can harm pollinators and other beneficial insects. Cover crops are themselves often used to break pest cycles and manage nematodes, and can help reduce your overall use of insecticides.

However, where cover crops are planted in rotation with insecticide-treated cash crops, the residual impact of cash crop insecticides may still be a concern. You can reduce risk to pollinators and beneficial insects by implementing IPM on your farm and only applying insecticides when the threshold for economic damage has been crossed. You can also start your course of treatment with the least harmful insecticide that will accomplish your management need. You can reduce harm to good bugs from insecticides by following label instructions, avoiding the application of insecticides to flowering plants, spraying at dawn or dusk and by using chemicals that have low residuals and do not accumulate in the soil or plant.

Unfortunately for beneficial insect conservation, there are a number of widely used systemic insecticides with persistent chemical residues in soil and plant matter. Systemic insecticides are those which are absorbed into the plant tissue and move through the vascular system of the plant, making most parts of it toxic to insect pests. In some cases the insecticide may even be present in flower nectar, resulting in the lethal or sublethal poisoning of bees and other pollinating insects.

The most common class of systemic insecticides currently in use is neonicotinoids. These include the active ingredients imidacloprid, thiamethoxam, clothianidin, acetamiprid, thiacloprid and dinotefuran. These insecticides may be applied in crop fields as foliar sprays, root drenches and as seed treatments (the latter commonly used for corn and soybeans). They can persist in the soil and crop residue for multiple years, and can be reabsorbed by later crops that were not treated. Due to a growing body of research demonstrating the potential risk posed to pollinators and beneficial insects from neonicotinoid insecticides [27, 28, 29, 30, 31], and our knowledge of neonicotinoid crop residues, farmers should avoid planting cover crops in rotation with neonicotinoid-treated cash crops where possible, especially when bee and beneficial insect conservation is a goal. Instead, producers should focus their conservation efforts on other areas of the farm which are untreated.

Following the precautionary principle means that we should not put beneficial insect habitat on lands contaminated by systemics—that is to say, in the absence of scientific proof that residue from previous use of systemic insecticides does not harm pollinators, it is safer to assume that it does. Growers of conventional corn and soybeans could instead focus their insect conservation efforts on hedgerows, roadsides and other areas not sprayed with systemic insecticides. They could also make their preference for untreated seed known to their supplier. In 2014 the Environmental Protection Agency (EPA) confirmed that there is little to no benefit from pre-treating soybeans; if enough growers request untreated seeds, then it is likely more will become available.

Similarly, cover crops should not be directly treated with any class of insecticide. An exception would be in the case of a cover crop being used for another primary purpose, such as livestock forage, where it must be protected from catastrophic pest damage. However, treatment of cover crops with insecticides is rare. Furthermore, it is critical to protect cover crops from adjacent insecticide drift. Any use of insecticides should fully adhere to label recommendations.

### Avoiding Pest Increases

WHILE ADDITIONAL RESEARCH IS NEEDED, THERE IS strong evidence that diverse cover crop cocktails will routinely reduce pests, by increasing populations of beneficial predatory and parasitoid insects. In contrast, single-species cover crops may increase populations of undesirable crop pests, by providing a more limited range of resources than plantings which can support a diverse population of predators.

To further reduce the possibility of increasing crop pests, use caution when considering cover crops that are closely related to cash crop species. For example, if brassicas such as broccoli or cabbage are primary cash crops, minimize the use of cover crops such as turnip, radish or mustard, all of which may host the same pests and diseases as the cash crops.

During their SARE-funded project, the Haydens observed that the pure stand of phacelia provided habitat for the tarnished plant bug, a pest of tree fruits and berries. “From what we have learned, we will continue to plant multi-functional cover crops timed to bloom in July and August,” Nancy Hayden says. “Our seeding mix will include buckwheat and phacelia, as well as mustard and annual white sweet clover."

### RESEARCH CASE STUDY: USING COVER CROPS TO INFLUENCE NATURAL PREDATION OF COTTON PESTS

AMONG LARGE-SCALE FIELD CROPS, COTTON IS high on the list for susceptibility to multiple major pests. Cotton bollworm, tobacco budworm, cotton aphid, tarnished plant bug and various stink bugs are some of the biggest offenders for cotton growers in the Southeast. Any management strategy that can make a dent in the populations of these pests without relying on insecticides is good news.

One such successful strategy came about through a SARE-funded research project in Georgia [32] that investigated the use of cover crops to increase the number of insect predators that prey upon some of those pests. This research was based on the fact that many beneficial insects need alternate food sources, such as nectar, to sustain themselves when prey are absent. These beneficial insects also typically need vegetation on which to lay eggs or hibernate over the winter. In this study, researchers hypothesized that various cover crops might provide those habitat requirements.

Starting with standard cotton fields where cover crops were not used, the researchers compared pest and beneficial insect populations to those in cotton fields where cover crops of crimson clover, cereal rye and a legume mix were used in rotation and as intercropping cover. For a few beneficial insects like the predatory minute pirate bug, there was not a significant population difference between traditional cotton fields and those with cover crops. However, most pest and beneficial insect population responses strongly indicated that cover crops had a measureable and positive impact on pest management. For example, predatory big-eyed bug numbers were demonstrably higher in cotton fields following a crimson clover cover crop. Aphid-eating lady beetles also seemed to move directly from cover crops into cotton.

In the case of pests, researchers also found that cotton bollworm and tobacco budworm were the only two pests that exceeded economic thresholds in both the cover cropped fields and the regular cotton fields. Interestingly however, the pests exceeded those damage thresholds more often in regular cotton fields than those where crimson clover and rye cover crops were used.

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# Resources

*SARE's Cover Crops Topic Room*
This online collection of educational materials was developed out of decades of SARE-funded cover crop research. www.sare.org/cover-crops.

*Attracting Native Pollinators*
Illustrated with hundreds of color photographs and dozens of specially created illustrations, this book provides rich detail on creating and managing pollinator habitat. www.xerces.org/store/#books.

*The USDA-NRCS Cover Crop Economics Decision Support Tool*
This user-friendly economic assessment tool helps determine the costs and benefits of incorporating cover crops into a crop rotation. www.nrcs.usda.gov/wps/portal/nrcs/detailfull/il/soils/health.

*Manage Insects on Your Farm: A Guide to Ecological Strategies.*
A guide on how to apply ecological pest management principles to your farming system. www.sare.org/manage-insects.

*Managing Cover Crops Profitably, 3rd Edition*
This definitive book explores how and why cover crops work and provides all the information needed to build cover crops into any farming operation. www.sare.org/mccp.

*Bees and Cover Crops*
This four-page Penn State bulletin describes the use of flowering cover crops for native pollinator conservation. www.sare.org/native-bees-and-flowering-cover-crops.

*Habitat Management in Vineyards*
This University of California manual provides practical steps for managing pests by improving biodiversity at the field and landscape levels. www.sare.org/habitat-management-in-vineyards.

This bulletin was co-written by Xerces Society for Invertebrate Conservation staff members Eric Lee-Mader, Anne Stine, Jarrod Fowler, Jennifer Hopwood and Mace Vaughan, with contributions from the USDA Natural Resources Conservation Service (NRCS).

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crops planted on more than 10 million acres annually, many farmers already appreciate the role diverse agro-ecosystems play in improving crop productivity. In the 2012 and 2013 growing seasons, corn yields increased 9 percent and 3.1 percent, respectively, when following a cover crop, and soybean yields increased 10 percent and 4.3 percent, according to a two-year survey of farmers conducted by North Central Region SARE and the Conservation Technology Information Center (CTIC). While the CTIC-SARE survey revealed that 38 percent of cover crop users already choose plants in order to support pollinators [1], cover crops reap many additional benefits.

Flowering cover crops can fulfill their original purpose as a conservation practice while at the same time providing valuable forage for wild bees and beneficial insects. This added benefit can be significantly enhanced with some fine-tuning of management practices and thoughtful plant selection.

This bulletin will help you use cover crops to encourage populations of pollinators and beneficial insects on your farm while you address your other resource concerns. It begins with a broad overview of pollinator and beneficial insect ecology, then describes cover crop selection and management, how to make cover crops work on your farm, and helpful and proven crop rotations. It will also touch on the limitations of cover crops and pesticide harm reduction, among other topics.

**Cover crop mixes can offer multiple benefits. This mix of sunn hemp and radishes in South Dakota provides livestock grazing, pollinator forage and brooding cover for pheasants.**
*– Photo by Ben Lardy, USDA NRCS in cooperation with Pheasants Forever Inc.*

## Basic Pollinator Ecology

IN ADDITION TO THE DOMESTICATED EUROPEAN HONEY bee, roughly 4,000 species of wild bees can be found in the United States. Among these, honey bees and bumble bees are social animals, living in complex family units with a single queen, female workers (the daughters of the queen) and a few male bees called drones. In contrast, most wild bees (except for bumble bees) are solitary animals, with each female locating and provisioning her own nest.

Honey bees and wild bees alike are considered important agricultural pollinators, and both groups of bees share many of the same habitat requirements necessary to thrive. Both require reliable and abundant pollen and nectar resources throughout the growing season. In the case of honey bees, nectar demands can be significant, requiring large-scale flowering habitats to produce surplus honey.

In addition to the availability of food, honey bees and wild bees require protection from pesticides. While large doses of pesticides may be directly lethal to bees, smaller doses can result in sublethal impacts, such as reduced reproduction or foraging. Interestingly, research suggests that diverse pollen and nectar resources may help improve the overall health of bees and increase their chances of detoxifying low doses of some pesticides.

Along with food availability and pesticide protection, wild bees have a third habitat requirement: undisturbed areas for nesting. In the case of many wild bee species, the preferred nesting areas are undisturbed soils. These soil-nesting wild bees excavate underground tunnels and provision them with pollen clumps, onto which they lay their eggs. Other wild bee species nest in the hollow stems of plants, including the stems of some trees, shrubs, large grasses and even large wildflowers. A few species, including bumble bees, typically nest in the abandoned underground burrows of small rodents, or in other similar cavities.

With appropriate plant selection and proper management, flowering cover crops can support the habitat requirements of bees through pollen and nectar resources to maximize their health and reproductive potential, an abundance of nectar to produce surplus honey, a refuge from insecticides, and sometimes enhanced nesting opportunities for wild bee species.

## Other Beneficial Insects

THE NATURAL ENEMIES OF CROP PESTS THAT SOMETIMES inhabit farms include a diverse range of predatory beetles, aphid-eating flower flies, lacewings, small solitary parasitic wasps and many others.

In addition to preying upon crop pests, most of these predatory and parasitoid insects either need or benefit from alternative food sources during at least one stage of their life. In some cases that alternative food source is nectar or

pollen. Consequently, like pollinators, many of these natural pest enemies also benefit from flowering cover crops.

A SARE-funded group of University of California researchers demonstrated that mixed species of flowering cover crops in vineyards increased beneficial insect populations [2]. The increase in beneficial insects, brought about by a mix of annual buckwheat, lacy phacelia, sweet alyssum, bishops weed and wild carrot, resulted in fewer pests, such as the vine mealy bug.

In other cases, cover crops can support beneficial insect populations even when they do not flower. Some predators and parasitoids do not feed on nectar and pollen, but rather need a continuous supply of prey insects to maintain their local populations at an effective level. So when cash crops are absent, non-flowering cover crops can support pests to the extent that they become a stable food source for beneficial insects. For example, ground beetles, which are generalist predators of slugs, caterpillars and grasshopper eggs, can be sustained by leaving some areas unmowed or by creating a "beetle bank" of perennial grasses outside crop fields. Beetles can overwinter in this augmented habitat and their prey can breed in it. Thus, these grassy refuges can keep the beetle population high by providing both habitat and a food source outside the cropping period.

Similarly, even if prey insects found in cover crops are not pests of your cash crops, they can still be an important food resource for predator and parasitoid insects that will switch their prey preference once cash crop pests become available.

Finally, like pollinators, predatory beneficial insects need protection from insecticide applications and vegetative structures for egg-laying or overwintering. Well-managed cover crop systems can help meet these habitat requirements.

### PERENNIAL COVER FOR ORCHARDS AND VINEYARDS

FAST-GROWING ANNUAL COVER CROP SPECIES SUCH AS RYE AND CRIMSON CLOVER ARE the most common choice for rotation with annual field crops. However, in perennial farm systems such as orchards and vineyards, longer-term ground cover may be desired. In these settings, the ground cover may have multiple demands placed upon it, including erosion control, nutrient management, and pest and disease suppression. As long as these perennial ground covers are combined with a thoughtful and careful approach to pesticide use, pollinator conservation can be very compatible with other goals.

For example, perennial turf grass in orchards can be enhanced for pollinators simply by tolerating non-invasive weeds such as violets or dandelions. To go a step further and actively increase pollen and nectar resources, such perennial turf grass systems can be over-seeded with various low-growing perennial clovers. Where these approaches are used, it is critical that insecticides not be over-sprayed and allowed to drift down onto flowering plants in the ground cover. Some farmers with these types of ground covers simply mow them to remove flowers before spraying. Although a mowed ground cover without flowers may significantly reduce the landscape value for pollinators, it is preferable to killing bees that might otherwise move on to areas where no spraying is taking place.

In perennial crop systems where no insecticides are used, ground cover options may be even more diverse and expansive. In such cases it may be possible to establish an entirely native grassland, meadow or diverse prairie as an understory. These systems typically provide maximum benefits to pollinators and other beneficial insects, and they are well adapted to the local climate and do not require routine mowing or irrigation.

## Cover Crops On Your Farm

BEYOND SUPPORTING BEE AND BENEFICIAL INSECT populations, cover crops can reduce your costs for herbicide, insecticide and fertilizer, and improve overall soil health [3]. Many cover crops can be included in a double-crop system or used as animal forage. Cover crops can be integrated into most crop or crop-livestock systems, including no-till, conventional till, rotational no-till and livestock grazing or haying systems. In the CTIC-SARE survey, farmers who plant cover crops identified these top five reasons for doing so (in order): increase soil organic matter, reduce soil erosion, reduce soil compaction, manage weeds and provide a nitrogen source [1].

The economic benefits associated with cover crops can be both significant and realized in year one. On a Georgia cotton farm, a grower reduced costs by $200 per acre by implementing conservation tillage and cover cropping. His cover crop cocktail combined crimson clover, an excellent nectar plant and nitrogen source; and rye, a soil-builder and nitrogen scavenger. Between the savings on fertilizer from the clover's nitrogen enrichment and

**Strips of flowering cover crops such as lacy phacelia and sweet alyssum (pictured) can manage vineyard pests such as the vine mealy bug by supporting beneficial insects.**
*– Photo by Miguel Altieri*

**Cotton growing in a system using cover crops and conservation tillage. A cover crop mix of rye and crimson clover can improve the profitability of cotton because the clover adds nitrogen to the soil and the rye attracts beneficial insects.**
*– Photo by Stephen Kirkpatrick, USDA NRCS*

reduced insecticide costs thanks to beneficial insect activity, this farmer observed that many pests were no longer a problem in his fields [3]. Similarly, a Pennsylvania vegetable farmer cut pesticide costs by 40 percent (saving $125 per acre) by using a combination of cover crops [4], and a North Dakota farmer saw net profits on his barley harvest increase by $109 per acre on cover cropped fields. He was also able to harvest his cover crops as forage for his cattle [5].

There are many tools available to farmers as they weigh the economics of adding cover crops to their system. The USDA Natural Resources Conservation Service's (NRCS) *Cover Crop Economics Decision Support Tool* (see Resources) provides a number of cropping system scenarios that explore the costs and benefits of cover crops over time. While some systems, like a soybean/corn rotation in the absence of cost share, only became profitable in the long run, other systems realized a net profit in the first year, such as a cotton/corn rotation that led to a net profit increase of $38.50 per acre [6]. All of the default scenarios were immediately profitable with a modest cost share. A webinar explaining how to use this tool is available through the www.conservationwebinars.net portal.

While a 2005 survey in the Corn Belt found that more than half of all farmers said they would use cover crops if they received cost-share funds [7], the more recent CTIC-SARE survey found that farmers are increasingly likely to try cover crops without any sort of financial assistance. This survey found that 63 percent of farmers said they had never received cost-share funds, and only 8 percent restricted their cover cropping to times when they received funding [1]. Although cost-share programs improve the profitability of cover crops, many farmers who use them—perhaps the majority—look beyond the balance sheet when assessing their value. It seems that financial assistance can open the door to cover cropping, but many farmers with experience cover cropping do not require it [1]. The less easily quantified conservation benefits of cover crops, such as their role in soil health and pollinator promotion, are the important consideration for many.

### Opportunities to Use Cover Crops

ONE OF THE FIRST STEPS WHEN INCORPORATING COVER crops in your system is identifying available niches. You may already have periods in your cropping systems which are open to cover crops. Common niches for cover crops include during the winter fallow, during a summer fallow between cash crops, during a small-grain rotation or during a full year of improved fallow [3]. Cover crops are often used in a corn/soybean rotation, with specialty crops or following small grains [1].

Cover crops sown after the cash crop in the winter fallow niche serve multiple purposes. They both prevent soil erosion and—if they are nitrogen scavengers—can prevent nutrient leaching [3]. Available cover crop niches will vary with the local climate and the cash crops in your rotation. For example, in Minnesota, many growers plant cover crops after corn harvest in September for winter cover [8]. Meanwhile, in North and South Carolina, cover crops are often used to absorb excess nutrients after manure applications [9].

John and Nancy Hayden grow 30 varieties of tree fruit and berries at The Farm Between in Jeffersonville, Vt., and maintain a pollinator sanctuary of perennials, trees and brush piles on their property. Even with such an abundance of flowering plants and habitat, they identified a need for summer cover crops. "We notice in July and August here in the Northeast there's a dearth of floral resources," John says. "So for us, it was seeing if we can fill a gap that we can't with our perennials using annual cover crops."

The next step in getting the most out of your cover crop is to identify your conservation needs. You may need to break up a plow pan (daikon radish), prevent nutrient leaching (non-legumes, cereals), boost soil fertility with a green manure (legumes), out-compete weeds with a fast-growing plant (buckwheat), provide forage for livestock (crimson clover, canola, cereals), manage nematodes (brassicas), or prevent erosion (cowpea, clovers). Increasingly, farmers are turning to cover crops in "prevented planting" situations—that is, when the soil is too wet to plant in the spring [1].

The Haydens used a 2013 SARE grant to evaluate three cover crop options—phacelia, buckwheat and a commercial bee forage mix—for their ability to support bumble bees and suppress weeds in vegetable beds where weed pressure had built up [10]. The phacelia and buckwheat established well,

suppressed weeds and attracted pollinators, but the commercial mix was outcompeted by weeds and did not establish well. "The phacelia we liked a lot," John says. "We were able to see that bumble bees had a statistically significant preference for phacelia over buckwheat."

Ideally, your cover crop will be dual-purpose. It should both serve as a conservation practice and also boost beneficial insect populations. Your cover crop mixture must include flowering legumes or forbs to accomplish this objective. See Plant Selection for an in-depth discussion of choosing plants for multiple objectives.

**As a cover crop, fast-growing buckwheat is commonly used to suppress weeds. When allowed to flower, it can provide excellent forage for wild pollinators.**
*– Photo by John Hayden*

### Planting and Managing Your Cover Crops

COVER CROPS CAN EITHER BE SOWN AFTER HARVEST OF a cash crop, or they can be sown into a standing crop (over-seeding). Typically, drilling uses fewer seeds than broadcast seeding and promotes more uniform stand establishment. It can be done post-harvest or into a standing crop, and is the technique most commonly used by farmers in the CTIC-SARE survey [1]. Other farmers aerially over-seed cover crops into a standing crop. Over-seeding is most commonly used to give cover crops a head start before the winter in regions with a short growing season. The CTIC-SARE survey found that the median seed cost in the Midwest was $25 per acre in 2013 [1].

As you decide when to terminate your cover crop, the goal is to do so sufficiently in advance of your cash crop for cover crops to decompose, release nutrients and recharge soil moisture [11, 12]. You need to weigh these demands against the need to minimize the amount of time your fields are bare. Appropriate termination time for cover crops varies by region.

At the time of this writing, federal crop insurance programs have developed region-specific requirements for cover crop termination. These rules are intended to reduce yield losses of cash crops due to water use by previously planted cover crops. They require the termination of cover crops in advance of cash crop planting, from at least 35 days before planting to up to five days after planting, depending on the region. For more information, see Balancing Insect Conservation with USDA Crop Insurance Rules on page 9.

Cover crops can be terminated by mowing, tillage, herbicides, harvesting, rolling or winter kill. An herbicide burn down is the most common termination strategy, followed by tillage and winter kill [1]. You may also opt to graze or hay your cover crop for winter forage. The best option will vary depending on plant selection and growth stage. Deep tillage should be avoided, as it tends to counteract many of the benefits provided by cover crops. These range from improved soil tilth to increased populations of over-wintering beneficial insects.

If pollinators are to benefit from your cover crop planting, you must give it time to flower. This is not a problem for management of legumes or brassicas. Their conservation benefits are maximized after they bloom. Management of some other plantings can be a little trickier, as is the case for buckwheat. Buckwheat must flower for a minimum of 20 days to build up beneficial insect populations [3]. At the same time, buckwheat should be mowed seven to 10 days after flowering to prevent it from reseeding [3]. Because buckwheat is one of the best cover crops for bees and beneficial insects, and because it kills so easily with mowing, it may be advisable to put off cover crop termination until beneficial insects are established, with the expectation of having to mow a field twice to achieve cover crop termination. Note, however, that this practice could result in unwanted buckwheat (weeds) in subsequent crops. Alternatively, a farmer could stagger planting and mowing row by row to lengthen the bloom period while still preventing buckwheat from reseeding.

When the Haydens used buckwheat as a summer cover crop, they allowed it to flower extensively and go to seed, and did not follow it with a fall crop. With unfavorable conditions for germinating through the fall and winter, volunteer buckwheat was not a problem come spring. "From our experience, reseeding would only be a problem if you were planting another crop the same season," John Hayden says. "Neither phacelia nor buckwheat presented any problems with volunteers the year after planting."

Another cover crop practice that may require some additional tweaking to benefit bees and beneficial insects is planting for green manure. Green manure is tilled into the soil to increase soil organic matter in the vegetative stage or at flowering. This practice can be made more insect-friendly by allowing the green manure crop to flower for a few days before tilling, but still tilling before seed set.

# Plant Selection

THE PLANTS THAT BEST FIT YOUR NEEDS WILL VARY BY location and purpose. Different cover crops have different strengths. Flowering broadleaf species are a must when selecting cover crops for pollinators. Grass cover crops do not provide nectar and their pollen typically has lower protein content than the pollen of broadleaf plants, thus making them only marginally attractive to bees. A flowering plant/grass blend may be an ideal solution in situations where a grass crop is needed to achieve other management priorities, such as preventing nutrient leaching.

You have more flexibility when selecting plants in support of predator and parasitoid insects for pest management, with certain grass cover crops supporting alternate prey (such as aphids) to help sustain the beneficial insects when cash crops are absent.

**Cover Crop Services and Examples of Suitable Pollinator-Friendly Plants [1, 13]**

| Conservation Service | Pollinator-Friendly Cover Crops |
|---|---|
| Nitrogen source | alfalfa, white clover, red clover, cowpea, lupin, partridge pea, sunn hemp, vetch |
| Nitrogen scavenger | phacelia, canola, sunflower |
| Erosion control | canola, cowpea, crimson clover, white clover |
| Forage value | crimson clover, canola, white clover, forage radish |
| Weed management | buckwheat, canola, cowpea, sunn hemp, sunflower |
| Nematode management | canola, other brassicas and mustards |
| Reducing compaction | canola, radish, lupines, brassicas and mustards |

Avoid cover crops that serve as alternate host plants for crop diseases and those that support large numbers of crop pests. An alternate host is another species, different from the cash crop, which serves as a reservoir for the pest or is necessary for the pest to complete its life cycle. For example, if you are growing a brassica vegetable crop, do not cover crop with another brassica, as it would support similar pests.

However, cover crops that support low levels of crop pests may be valuable in some cases, as they can provide a consistent food source for beneficial predators. This is well documented in the case of pecan orchards with a clover understory [14]. The legumes attract aphids, which are followed by beneficial insects. When the clover dies back and the aphid population drops, the beneficial insects are driven up into the trees. These insects, in search of other foods, manage pests on the developing pecans [14].

Be sure the cover crop you choose is adapted to local conditions. A good first step is to look around you and see what works for other farmers. Red clover and crimson clover are popular cover crops for nitrogen fixation east of the Mississippi River [3]. Red clover is a low-bloat legume that is excellent forage for grazing animals. Clover is also a high-value honey plant. Rapeseed and other brassicas are used for pest and nematode management in fields (biofumigation). Cowpeas, another legume, are exceptionally heat and drought tolerant. They also have extra-floral nectaries—or nectar-producing glands at leaf stems—which attract beneficial insects. These plants are used for erosion control across the Southeast and coastal California [3]. They are also used for weed suppression in the Deep South. Buckwheat is useful as a rapid-growing smother crop in much of the United States [3], and it is the premier cover crop for attracting beneficial insects.

Of course, buckwheat is not ideal for every situation. Hoping to use buckwheat as a nectar source for predators of the glassy-winged leafhopper, a vineyard pest [15], SARE-funded University of California-Riverside Extension specialists found that the plant struggled to grow during the hot, dry southern California summer. Sustaining the cover crop with irrigation turned out to be an expensive proposition, and actually increased populations of the blue-green sharpshooter, another local vineyard pest. Ultimately the buckwheat did in fact increase predator numbers to help manage glassy-winged leafhoppers, but that benefit became more difficult to justify when balanced against unexpected challenges.

Finally, when considering plants, a strong case can be made for the role of diversity. Using a SARE grant, a graduate student researcher in Florida [16] found significant differences in wild bee abundance and diversity based upon the number of crops present on a farm. At one end of the spectrum, the farm with the fewest number of bees (five species) grew only two crops and mowed directly up to the field edges. The farm with the greatest abundance of bees (14 species) grew nine crop species and maintained open, unmowed buffer areas around the farm. Interestingly, both farms were relatively similar in size. While not explicitly demonstrated in the study, it seems likely that multi-species cover crop mixes are a relatively simple way to expand plant diversity on a farm, with probable benefits to bee abundance and diversity.

## Cover Crop Cocktails

MIXTURES OF COVER CROPS, OR COCKTAILS, HAVE synergy—they generally work better than each single species could alone. In fact, a planting of legumes and grasses can result in an overall increase in available nitrogen [17]. Legumes build up soil nitrogen quickly, but their residue also decomposes quickly, releasing nutrients. A small grain does not add soil nitrogen, but it is an excellent nutrient scavenger. Additionally, its residue decays over a longer period of time, providing a slow-release mechanism for soil nutrients. Small grains are also useful for controlling erosion, preventing nutrient leaching and suppressing winter weeds. Mixing the fertilizing effects of the flowering legume with the soil-building small grain can be a winning combination for winter cover [1, 18].

A pollinator-oriented cocktail may include a mix of plants that have different strengths and which flower at different times. Buckwheat, rapeseed, lupines, phacelia, sunn hemp, cowpeas, partridge pea, sunflowers and many clovers are all cover crops that are also beloved by bees and beneficial insects. Stacking these pollinator plants in one field can lengthen the bloom period. For example, if rapeseed blooms in early spring and is harvested in May or June, then it can be followed by the late-summer blooming sunflower, which can then be over-seeded with a winter legume/small grain mix. The rapeseed serves to manage nematodes, the sunflowers mine nutrients and bring them to the surface, while the legume/grain mix adds nitrogen and prevents winter erosion. This is just one path using an all-pollinator rotation for season-long flowers. All of these plants except the small grain have flowers highly preferred by pollinators and other beneficial insects.

## Common and Suggested Rotations

THERE ARE A NUMBER OF ROTATIONS THAT WORK WELL with common crops, and there is likely to be a proven cover crop rotation that works with your system. The NRCS *Cover Crop Economics Decision Support Tool*, released in 2014, comes pre-loaded with example scenarios to help farmers think about the economics of including cover crops in their system. For example, in a three-year corn/soybean/corn rotation with fall cover crops every year, including a winter cover crop of cereal rye following corn and a cocktail of cereal rye/crimson clover/brassica following soybeans had long-term benefits in terms of fertilizer and pesticide savings, with no reduced yield [6]. In another scenario,



*Photos, from left to right:* **Teff grain, phacelia and a fava bean flower**

### COVER CROP COCKTAIL EXAMPLES

The following examples represent cover crop cocktails for various regions and seasons. They include pollen and nectar-rich plant species that support a diversity of bees and other beneficial insects, as well as vegetative structure that insects may use for egg laying or hibernation. Flowering will vary depending on season, planting date and region; these mixes can provide multiple benefits even when terminated before all species have flowered.

**Sample Cool Season Cocktail (formulated for one acre at 10-15 seeds per sq. ft.)**

| Species | Percent of Mix | Quantity (pounds per acre) |
|---|---|---|
| Phacelia | 8 | 0.2 |
| Crimson clover | 8 | 0.3 |
| Radish (daikon) | 8 | 0.6 |
| Hairy vetch | 8 | 2.2 |
| Field pea | 8 | 17 |
| Turnip | 8 | 0.2 |
| Fava bean | 2 | 29 |
| Rye | 25 | 6 |
| Oat | 25 | 7 |
| **Totals** | **100 percent** | **62 pounds per acre** |

**Sample Warm Season Cocktail (formulated for one acre at 15-20 seeds per sq. ft.)**

| Species | Percent of Mix | Quantity (pounds per acre) |
|---|---|---|
| Buckwheat | 16 | 7 |
| Soybean | 16 | 34 |
| Sunflower | 16 | 3.5 |
| Cowpea | 16 | 28 |
| Sudangrass | 12 | 2.5 |
| Millet | 12 | 1.5 |
| Teff | 12 | 0.1 |
| **Totals** | **100 percent** | **77 pounds per acre** |

**Sample Tropical Cocktail (formulated for one acre at 15-20 seeds per sq. ft.)**

| Species | Percent of Mix | Quantity (pounds per acre) |
|---|---|---|
| Buckwheat | 12 | 7 |
| Sunn hemp | 12 | 7 |
| Sunflower | 12 | 3.5 |
| Cowpea | 12 | 26 |
| Yellow sweet clover | 12 | 0.5 |
| Teff | 12 | 0.1 |
| Sudangrass | 14 | 3.5 |
| Millet | 14 | 2.5 |
| **Totals** | **100 percent** | **50 pounds per acre** |

## NATIVE AND NEARLY NATIVE COVER CROP MIXES

EXTENSIVE RESEARCH DEMONSTRATES THAT NATIVE PLANTS FOSTER MORE abundant and diverse pollinator populations than non-native plant species. Similarly, other benefits of native plants, such as their adaptation to local climate conditions, are well understood. However, the vast majority of cover crop options consist of non-native plants. There are some exceptions, described below.

Phacelia (*Phacelia tanacetifolia*), a vigorous-growing annual native to California, and common sunflower (*Helianthus annuus*), a native of western prairie and desert states, are two species that continue to be more common in cover crop applications. Both are also extremely attractive to honey bees and a variety of native bees. While phacelia (first used as a cover crop in Europe) is sometimes planted as a single-species cover crop, both it and sunflower are increasingly used as part of diverse cover crop cocktails. While those cocktails still do not resemble true native plant communities, the inclusion of these plants within their native range may provide special benefits to local pollinator species.

More work is needed to identify and increase the availability of promising native plant species. Across eastern, southern and Midwestern states, for example, partridge pea (*Chameacrista fasciculata*), a native annual prairie legume, shows particular promise. In addition to its ability to fix nitrogen, partridge pea attracts large numbers of pollinators and beneficial insects with both flowers and extra-floral nectaries (nectar-producing glands located at leaf stems). The abundant biomass production, trailing vetch-like growth habit and low-cost commercial availability also make partridge pea an attractive cover crop choice for warm-season applications.

While additional research is needed, farmers looking to experiment with local native plants as cover crops might seek out readily available, low-cost wildflower species and begin including them in cocktail seed mixes at a low rate. Annual species such as California poppy (*Eschscholzia californica*), Douglas meadowfoam (*Limnanthes douglasii*) and plains coreopsis (*Coreopsis tinctoria*) may soon take their place alongside crimson clover and buckwheat in creating diverse cover crop seed mixes that blur the lines between agriculture and ecology.

## SPECIAL CONCERNS: TERMINATION AND RESIDUE MANAGEMENT FOR GOOD BUGS

WHILE NECESSARY TO PREPARE FOR CASH CROP planting, the process of terminating a cover crop can be very detrimental to pollinators and beneficial insects, especially when the cover crop is actively flowering when terminated. The risks to insects from cover crop termination include direct mortality, such as being crushed by cultivation or roller-crimping equipment; and indirect harm, such as the rapid loss of available food sources. Even when adult insects are not present and active in cover crops, nest sites, eggs and hibernating adults may all be present in the crop canopy or upper soil surfaces.

Adopting cover crops for pollinators takes careful planning and consideration. To reduce some of the impact of cover crop termination, we recommend the following:

- Where possible, wait until most of the cover crop is past peak bloom before termination.
- If waiting until peak bloom is not possible, consider leaving strips of the cover crop standing to prevent the crash of beneficial insect populations. With buckwheat, for example, stagger planting and mowing row by row (or groups of rows) to lengthen the bloom period while still preventing buckwheat from reseeding.
- Terminate with as little physical disturbance as possible. For example, roller-crimping may be less disruptive to pollinator nests in the soil than cultivation.
- Maintain permanent conservation areas on the farm to sustain beneficial insects in the absence of the cover crop.
- Leave as much cover crop residue as possible to protect beneficial insect eggs and any hibernating adults.
- Minimize insecticide use in the cash crops that follow cover crops to avoid harm to beneficial insects that may still be nesting in crop residue. At a minimum you should follow a comprehensive integrated pest management (IPM) plan that includes specific risk mitigation strategies that protect pollinators and beneficial insects.

**Including native flowering species in a cover crop mix can help attract pollinators and beneficial insects, as in this South Dakota field.**
*– Photo by Mieko Alley, USDA NRCS*

a two-year cotton/corn rotation that included winter cover crops of crimson clover following cotton and a cereal rye/crimson clover/brassica cocktail following corn provided immediate financial and environmental savings [6]. Brassicas, such as mustards, oilseed radishes, tillage radishes, canola and others, are often part of vegetable rotations because of their role in managing soil pests.

There are other examples of successful rotations. In Ohio, a typical corn/soybean rotation might include the cover crops cereal rye, wheat, cowpea and sunn hemp [19]. Brassicas are also an option for a winter cover crop. In Missouri, it is possible to double-crop buckwheat or sunflowers after harvesting a winter crop of canola or wheat in early summer [20]. After winter wheat, Michigan State University Extension recommends the soil-improving cocktail of annual ryegrass/red clover/hairy vetch/oilseed radish to add nitrogen, reduce compaction and improve tilth [21]. Alternatively, the cocktail of crimson clover/annual ryegrass provides many of these same benefits, minus the soil aeration, and is also excellent pasture [21].

A new, cost-efficient rotation is meadowfoam (*Limnanthes alba*), a winter annual, following seed grasses. Grown in northern California and Oregon, meadowfoam over-winters as a rosette. Its dense flowers attract pollinators and beneficial insects in the spring. This emerging species is useful as both a cover crop and an oilseed. The oil produced is highly shelf stable, and is quite valuable to the cosmetics industry. However, seeds can be hard to find.

# Balancing Insect Conservation with USDA Crop Insurance Rules

THE USDA'S NRCS, RISK MANAGEMENT AGENCY (RMA) and Farm Service Agency (FSA) came together in 2014 to develop standardized termination recommendations for non-irrigated cover crops in four different regions or zones in the United States [12]. They sought recommendations that would achieve optimal balance between conservation benefits and soil water conservation for cash crops, and would provide consistent guidance for cover crop policy across the three agencies. For the purpose of crop insurance, cover crops must be terminated according to these recommendations in order for the following crop to receive insurance coverage. California and the Intermountain West (zone 1) require the longest gap between cover crops and a cash crop, with a recommended cover crop termination date at least 35 days before planting. For much of the country's bread basket, the Central Plains (zone 2), farmers should terminate the cover crop at least 15 days before planting. In the eastern prairie states and south Florida (zone 3), cover crops can be terminated at planting. Finally, in the eastern states (zone 4), growers can terminate cover crops up to five days after planting, but before cash crop emergence.

A major challenge of these rules is the loss of pollen and nectar resources when cover crops are terminated before they have fully bloomed. Even when partial bloom occurs, rapid termination of that bloom results in boom and bust conditions for insects. To mitigate some of the impact of early termination, consider supplementing cover crops with other pollen and nectar resources such as hedgerows, permanent wildflower meadows, or other high-quality natural areas. Similarly, consider leaving small sections of the field (even a single outer row) in the cover crop, rather than terminating it entirely. Even such small sections can help sustain pollinators in the absence of other forage sources.

For current guidance on cover cropping and federal crop insurance, consult your local NRCS office or crop insurance program agent, or see "NRCS Cover Crop Termination Guidelines" [12] in the References section.


9

# IV. LEASES

# Terminating a Verbal Farm Land Lease

Some farm leases are not written, but are verbal or "handshake" agreements. Because nothing is in writing, the parties may have different recollections of their agreement, making lease disputes more difficult to resolve. The most common legal issue associated with verbal farm leases is how a lease may legally be terminated. For both year-to-year leases and holdover leases, six months advance notice must be given to legally terminate the lease. However, the lease date (the date from which the six months is counted) is different. In contrast, the termination of a written lease is determined by the terms of the written lease.

**Terminating verbal leases**

For year-to-year verbal leases, the Nebraska Supreme Court has ruled that the lease year begins March 1. Notice to a tenant to vacate under a verbal or handshake year-to-year lease (legally referred to as a "notice to quit") must be given six months in advance of the end of the lease, or no later than September 1. This rule applies regardless of the crop planted. Those with winter wheat should consider providing notice before it is time to prepare wheat ground for planting.

For example, for the lease year beginning March 1, 2017, and ending February 28, 2018, notice from the landlord that the lease will be terminated would have to be given to (and received by) the tenant no later than September 1, 2017. The lease would then expire February 28, 2018, with the new tenant (or new buyer) able to take over the lease March 1, 2018. If, however, the notice to quit were given (or received) after September 1, 2017, the existing tenant would have the lease until February 28, 2019.

It is recommended that the farmland lease be terminated by Registered Mail™. This means that the person receiving the letter signs for it, providing evidence that the termination notice was received.

**Pasture Lease Terminations**

Handshake or verbal leases are different for pastures. The typical pasture lease is for the five-month grazing season. The lease is only in effect for that time, so the lease is terminated at the end of the grazing season; however, different lease length arrangements can be made in a written lease, and that would be followed if in effect.

Regardless of the type of lease — written, verbal, or even multiple year — the landlord should have clear communication with the tenant. By sending a termination notice before September 1, even for written leases, you can avoid any miscommunication or pitfalls.

**Written Leases**

In all instances, written leases would be preferred over oral or “handshake” leases. Sample leases are available in the Document Library at aglease101.org and can help both parties start thinking about the appropriate lease conditions for their situation. The site was developed by university extension specialists in the North Central Region.


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# Beef Cow Share Lease Agreements

**Aaron L. Berger, Extension Educator**



## Introduction

Cow-calf enterprises require large investments in capital, labor, and management. These capital investments in breeding livestock, facilities and equipment, feed, and other inputs can keep some individuals from being in cow-calf production. Capital investments are commonly shared among two or more people to reduce one person's capital requirements. A cattle share lease is one way to reduce an operator's capital needs. Typically, these leases provide the person caring for the cattle (operator) and the cow herd owner with a share of the revenue from the calf-crop sale in proportion to the expenses each person contributes. This publication discusses guidelines to consider when establishing a cattle share lease arrangement.

## The Common Cattle Share

A **share rental** arrangement is more common than a **cash rental** arrangement. Rather than the operator paying a set fee to the cattle owner for the use of the breeding herd (cash lease), a share lease divides the calf crop between the operator and owner based on what each person contributes to the production of the calves. The operator typically supplies land, labor, some of the management, and other inputs. The major economic difference between a cash lease and a share lease is that a cash lease "rents" the cows for a set cash price for a period of time, whereas a share lease guarantees each person a portion of the year's calf crop. These lease agreements differ as to which person bears risk. In a share lease agreement, the cattle owner receives a share of the calf crop and therefore shares both the production and price risk with the operator. In a cash lease, the operator is usually bearing the production risk.

## Advantages of a Cattle Share Lease for Cattle Owners (Lessor)

- Continued investment in a cow herd versus selling
- Retained ownership in a cow herd with reduced labor, management and price risk
- Opportunity for transfer of cow herd ownership over an extended period of time

## Advantages of a Cattle Share Lease for Cattle Operators (Lessee)

- Reduced capital investment (beginning operator wanting to expand)
- Shared production, price risk and management with the opportunity to gain experience
- Opportunity for gradually acquiring ownership of the cow herd

## Points to consider when creating a cattle share lease:

- Terms should provide that "individual investment equals compensation."
- Keep it simple. This will make it easier for both parties to uphold the agreement.
- Flexibility is important. Change in production, market, and management practices need to be addressed as they arise.
- Situations are often unique. Develop a lease that best fits the needs of both parties.
- Put the lease in writing and clearly define terms and expectations. A written lease provides clarification for both the cattle owner and the operator.

## Sharing Revenues and Costs

The two parties in the lease arrangement must decide how revenue from the sale of cattle will be divided and who will pay for costs such as feed, veterinary supplies and services, pasture and winter grazing costs, utilities, etc. The responsibilities and contributions of management and labor must be accounted for in the cost estimation. Allocation of expenses should play a key role in determining the percentage split of the calf crop revenue that each party should receive. By sharing revenue in proportion to the share of contributions incurred, the lease arrangement is likely to be "fair" for both the operator and the cattle owner. An electronic spreadsheet that uses an enterprise budget can be a helpful tool for making this determination. The University of Nebraska has developed a spreadsheet that can be used in this process.

## Cow-calf Share Lease Cow-Q-Lator Decision Aid

The downloadable Excel®-based decision aid tool titled "Cow-calf Share Decision Aid" can be helpful in determining what an equitable share lease or cash lease arrangement would be. This spreadsheet, found at www.agmanagerstools.com, prompts the user to enter all inputs that both the operator and owner would be contributing to the production of weaned calves. The worksheet can then be used to calculate both a cash lease value or a percentage share of the calf crop. This decision aid is designed to assist both parties in understanding the value of contributions and determine an equitable agreement.

## Things to Consider Before Finalizing a Cattle Share Lease

Although determining the proportion of expenses and revenue to be shared by the operator and cattle owner can be complex, it is important to keep leasing arrangements as simple as possible. The following topics are included as a help in building a lease agreement.

1.) **Make sure the arrangement is equitable.** It is important that all parties feel adequately compensated for what they contribute. To ensure each party is treated equitably, revenue should be divided proportionately to the contributions that were made. Research and effort from both the operator and cattle owner, along with a nonbiased third party, can be used to determine what an equitable agreement is.

2.) **Goals for both parties need to be compatible.** Cattle owners and operators who have not worked together previously should clearly outline the goals of the share lease agreement. A one-year lease may be considered, as it allows the terms of the lease to be revised annually if needed, or the share lease relationship can be dissolved. A multiyear lease also has its benefits, allowing a relationship to develop between both parties. However, a multiyear makes it difficult to terminate prior to the ending of the lease if issues arise. Therefore, it is common to find parties who write a one-year lease and renew the contract annually. The flexibility in making adjustments each year due to unforeseen situations is advantageous in a share lease agreement.

3.) **Know the financial situation of the other party.** It is important that both the cattle owner and operator have an understanding of the other's financial position. Individuals signing the lease should feel confident that the other person can financially fulfill contractual obligations. Obtaining a credit reference from a third party (e.g., bank) may be appropriate to determine the financial soundness of the other person. Have a plan outlined in the lease that shows steps that will be taken if one party becomes insolvent, or if circumstances call for ending the contract.

4.) **Dividing the calf crop equitably.** There are a number of ways calves can be divided equitably. The objective is that both parties get a share of the calf crop that will generate revenue proportional to the costs and the risk that each incurred. The most common ways will be discussed.

**A.) Percentage Share Lease** — The most straight forward way of dividing the calf crop fairly is to divide the calves in proportion to what each party contributed. For example, a 70-30 share lease implies that the cattle owner will receive 30 percent of the weaned calves (or revenue from their sale) for providing 30 percent of the total production costs. By using this method, both price and production risks are shared between the parties. These leases are the most straightforward way to share the calf crop and the easiest to equitably adapt to the proportional contribution made by each party.

**B.) Fixed Number of Calves Lease** — In this method, the calf crop is divided based upon a minimum guaranteed number of calves to the cow owner. For instance, a lease may require that the cow owner receive a minimum of 30 calves per 100 cows leased. Assuming a 90 percent calf crop, this equates to a 67-33 share lease agreement. The cow owner will receive 33 percent of the calves when the calf crop percentage exceeds 90 head of calves weaned per 100 cows leased. In this example, the operator assumes all of the risk if the calf crop weaned falls below 90 percent. If out of 100 cows only 80 calves are weaned, the cow herd owner still receives 30 calves. With 30 of the 80 calves going to the cow owner, the cow owner is receiving nearly 38 percent of the calves weaned but only paying 33 percent of the total costs. The operator is getting 50 of the weaned calves or approximately 62 percent of the calf crop even though the operator had contributed 67 percent of the costs. Fixed calf leases place all the production risks on the operator when the calf crop percentage weaned falls below some agreed upon level.

**5.) Physically dividing the calf crop.** The method to divide the calf crop should be included in the lease agreement and should specify the sex of the animals to account for revenue differences in the sale of heifers and steers. Examples of calf crop splits are listed below.

**A)** Sell calves at weaning and divide revenue based on prespecified shares.

**B)** In a 67-33 lease, divide all calves into three groups (with an equal number of heifers and steers in each group). The cattle owner then could pick his or her desired group first.

**C)** State that the cow owner's share will be the result of an equal split of steers and heifers from a random sort of weaned calves.

Agreements for dividing calves should take into account potential weight and value differences of calves to ensure both parties are receiving a fair portion of the value of calves produced. A lease agreement should clearly state how a price will be determined if either the cow owner or operator wants to purchase the other party's calves.

**6.) Death loss of cows.** Another detail that should be included is how to prove to the cow owner that a cow has died. Pictures, part of the hide containing the brand of the dead cow or a certificate/receipt of proof from a rendering company are commonly used to prove the death loss. Lease agreements should include a plan for addressing how excessive death loss, beyond some agreed upon value, will be handled.

**7.) Cattle care and health responsibilities.** Cow owners should be confident that their breeding herd will be properly cared for and fed when the operator is responsible for the care of the cattle. Because leases are different and the obligations can vary for each party, it is important that one of the largest obligations, caring for the cattle, is specified clearly in the lease as to the type and amount of care. Identifying a veterinarian who will be involved in developing a herd health plan and consulted for cattle health and treatment needs should be done when entering into the lease agreement.

**8.) Bulls, replacement bred heifers, or bred cows.** How replacement breeding stock will be handled should be specified in the contract. The cow owner usually receives the income from the cull cattle; thus it is most common for the cow owner to be responsible for supplying replacement stock (bulls, bred heifers, or bred cows). Replacement heifers could be taken from the cow owner's share of the calf crop, in which case the cow owner may negotiate for a higher proportion of heifer calves. If, however, ownership of the herd is being transferred to the operator, it may be the operator's responsibility to provide replacement heifers and bulls. It is important that an expected replacement rate be spelled out in the lease agreement and expected age and quality of replacement cattle be defined. If the cow owner requests that the operator develop replacement heifers, it may be best to have an agreement for replacement development that is separate from the basic share agreement. Including heifer development into the share arrangement complicates the contract and makes determining an equitable lease more difficult.

**9.) Determining which cows to cull.** The owner of the cattle frequently decides which cows are to be culled from the herd. This issue should be discussed and included in the written lease. Expected cull and replacement rates should be outlined in the contract. Deciding which cows to cull and when may best be a joint decision between the cow owner and operator.

10.) **Lease agreements as a method to transfer herd ownership.** A share lease agreement can be a good way to transfer ownership of the cow herd from the cow herd owner to the operator over time. This arrangement can be beneficial to both parties. The cow herd owner may find it advantageous from a tax standpoint, and the operator may find it easier to cash flow and reduce borrowed capital. Since all cattle will eventually leave the breeding herd, they can be replaced completely or in part by the operator, gradually transferring ownership. The cow owner would receive income from the sale of owned cull cows and also receive a percentage of the calf crop based on the number of cows owned in the herd. For example, if the herd consisted of 100 cows and 10 cows are culled each year, the cow owner would own 90 cows at the beginning of the second year. If the lease originally involved a 50-50 split, then in the following year the owner would receive 50 percent of the calves from 90 cows. As time passes, the proportion of the herd owned would be reduced until the original cow herd owner no longer had an ownership interest.

11.) **Be aware of tax or social security concerns that may arise from a lease arrangement.** Cow herd owners who have retired from their own farming/ranching operation but who are still active in the cattle share lease are said to have material participation. Income received from material participation in the cow enterprise could have tax implications (cow herd owners should consult their tax preparer).

12.) **Marketing decision responsibility.** Marketing responsibility should be defined as part of the lease agreement. Joint marketing decisions could be an advantage for both parties, depending on the experience of the operator and cow herd owner. For example, an experienced owner or operator could help the other party understand and make good marketing decisions. By pooling resources and knowledge, both parties may be able to improve the overall price received. Because use of marketing tools can greatly reduce unnecessary price risks when used properly or can increase price risk if used improperly, it has potential to be an area of dispute. A written lease can reduce these disputes if it clearly outlines marketing and price risk decision-making responsibilities.

## Cattle Share Lease Checklist

To avoid problems or disputes between cattle owners and operators, lease agreements should include these minimum requirements:

- Put the lease in writing. A written agreement can be used in court if necessary or as a reference if clarification is needed by either party.
- The lease should cover all obligations of both parties, including those of death loss of livestock and termination of the contract (termination may be due to the death of one of the parties). By including all obligations, the parties will reduce problems and concerns that may arise and help maintain a good working relationship.
- The lease should be signed by both parties and include an address of those parties.
- The time period of the lease should be specified.
- An accurate legal description of the property involved with the agreement should be included.
- The amount, dates, and location of the payment should be clearly defined.
- It is vital that both parties understand all terms of the lease and that they agree with it. If either party does not understand or is not comfortable with any part of the lease, it should be discussed and the issue resolved before the lease is signed.

***Special note:*** *The examples and terms described in this publication are designed to provide cattle owners and operators an understanding of beef cattle leases and the advantages and disadvantages of share rental arrangements. All parties entering into the lease must agree upon terms that will allow both parties to sustain a sufficient income for their investments. Changes and variation in agreements are likely and should be expected. The examples are for illustrative purposes and educational use only. The contents of this article are intended for general informational purposes and should not be construed as legal advice. Readers are urged not to act upon the information contained in this article without first consulting an attorney.*


## Acknowledgment

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## Sample Cattle Share Lease

The following is a sample lease. Many of the topics discussed in this publication are outlined in the following lease. It is important to understand that this is only a sample and it is necessary to develop a lease that is unique to individual situations.

This agreement is made and entered into this _____ day of _____, 20____ by and between the following parties:

Cow Owner (lessor): _____

Ranch/Operator (lessee): _____

I. Operator desires to lease from the Owner _____ head of _____ (type of livestock) from _____ (date) to _____ (date). During the term of this lease the Operator agrees to take custody of said livestock, to properly breed, graze, pasture, feed, maintain, and care for the same, and to raise the calves produced thereof and therefrom, all at Operator's expense. This agreement shall automatically renew for succeeding one-year periods if neither party gives notice of termination within _____ days of expiration of this Agreement. Such renewal shall be noted at the end of this Agreement by noting the year of renewal, the initial number of cows, and the signature of both parties signifying acceptance of the renewal terms as well as acceptance of all other terms and conditions contained within this entire Agreement. (This lease may also expire if the lease is under the terms of a transfer from Owner to Operator, and the Owner's share of the cow herd has decreased to zero.)

II. Any barren, open, or unproductive cows will, at Owner's option, be returned to Owner or delivered to the sale barn of Owner's choice for sale. Thereupon Owner shall have the option to replace any such barren, open, or nonproductive cows during the term of this Agreement with replacement cows, which have been bred or are suitable for breeding. Owner shall have the right to place additional stock cows in the custody of Operator under the terms, conditions, and covenants of this Agreement upon the consent of Operator.

III. Division of the calves. Operator is to receive 70 percent of the calves and Owner is to receive 30 percent of the calves. Unless otherwise mutually agreed, the calves will be split with a gate cut. The Owner receives the first 30 percent of calves that walk through the gate. Division of calves is to be done annually or more frequently if necessary and mutually agreed. It is mutually agreed that the division is to be done at weaning time, when the calves are at an age of approximately six months or a weight of approximately 400 pounds. Division may also be done when calves are to be sold.

IV. Operator agrees that all fences, corrals, enclosures, sheds, and such shall be kept in good repair and that they will retain the cattle. Operator also agrees that all corrals, lots, and pastures shall be kept free of debris, trash, and other objects that could be reasonably assumed to be harmful to cattle.

V. In the event of the death of an animal owned by the Owner while in possession of the Operator, Operator agrees to present to Owner a picture(s) of the deceased animal with identification, that portion of the hide containing the brand or a certificate from the rendering company stating the brand on the deceased animal. In any event, Operator agrees to notify Owner in writing of any death, emergency, or unusual event as soon as possible.

VI. Owner and Operator shall share in any loss as a result of death of any calf or calves up to 10 percent of the increase from said cows; any loss in excess of 10 percent shall be borne exclusively by Operator so that Owner will be guaranteed a minimum 30 percent of remaining calf crop from said cows each year.

VII. Operator agrees to allow Owner to inspect the cattle at reasonable times. Operator further agrees to keep Owner informed as to the location of the cattle.

VIII. Operator agrees that if cattle are returned to the Owner prior to the expiration date of this Agreement or any extension thereof, (s)he shall pay Owner the sum of $ _____ per month per head, which amount is agreed to be reasonable cost of feed per month per head.

Owner _____ Phone_____

Address _____

Operator _____ Phone_____

Address _____

FARM COMMONS

# Drafting A Lease: Questions For Farmers And Landowners To Ask

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## Introduction

Using This list

This resource is meant to help both farmers and landowners understand what issues should be addressed before drafting a lease together. The list is organized as a checklist by category to introduce users to the areas that need attention in order to create clear and effective communication.

The best lease between a farmer and a landowner is a lease that accommodates the unique needs and expectations of the parties involved. A good farmland lease develops understanding between the parties and creates pathways to solve any problems that arise while farmer and landowner work together. The most successful lease is the one that never needs to be enforced

Model leases can be useful, but they are best used as a framework on which to make modifications. An attorney is also helpful, but an attorney's strengths are generally in helping the parties memorialize their agreement in concise and accurate language. Many attorneys can help the parties brainstorm solutions to sticky issues, but farmer and landowner may already have all the solutions they need between themselves.

This question sheet is designed to get farmers and landowners started down the path of developing their own lease. A complete lease will address most, if not all, of the issues below. Farmland leases are different from residential leases in that the law allows commercial relationships more latitude than landlords and tenants, so creativity is welcome! Farmers and landowners should feel empowered to create unique working relationships in forming a lease that protects both of their interests.

When starting this process, the parties may not have a solid answer to some of the more difficult questions below. Starting with a statement of the parties' respective goals can help folks work towards a precise procedure. If the parties know where they want to go, it's easier to figure out how to get there. In addition, the parties may find that they cannot come to an agreement about these questions. That might be a disappointing conclusion, but it's much better to figure out that farmer and landowner won't be a good match before investing in the relationship.

Please keep in mind that there isn't a right or wrong answer for each of these questions. For many, the response may be, "yes, if the parties agree to do so," or "yes, if the landowner consents to it," or "yes, but the landlord reserves

the right to revoke said permission if the following circumstances exist..." The right answer is the answer that works best for farmer and landlord.

## Next Steps

"The right answer is the answer that works best for farmer and landlord."

After drafting complete answers to these questions, farmer and landowner will be more than halfway to a terrific lease. The next step will be to put these decisions on to paper. The parties and their attorneys should make sure that the various provisions as a whole work together: no conflicts or procedural holes should exist.

## Questions and Issues to Address

### The Basics

- Who are the parties involved? Are they acting in their personal capacity or on behalf of a business, such as a farm LLC? Is everyone who needs to be represented at the table?
- Exactly what land is being leased? Do we have a precise legal description and map of the premises?
- When does the lease begin?
- When does the lease end?
- What is the rental payment, when is it due, and how should it be paid?
- Is there a late payment fee? If so, what is it and when is it assessed?
- Who is responsible for paying property taxes on the premises?

### What rights does the lease grant to the farmer?

- Is the farmer allowed to engage in any commercial use of the property?
- Is the lease limited only to agricultural use of the property? What are we considering "agriculture?" Are agritourism events allowed? Can the farmer do any processing on the premises?
- Is this also a residential lease? Would the parties prefer to handle the residential lease separate from the commercial farmland lease?

It is often recommended to handle commercial and residential leases seperately

## QUESTIONS

- Can the farmer sublease all or any portion of the premises?
- Is the landlord granting an exclusive right to use, or will the landlord also be using the leased premises? If so, what potential conflicts might arise, and how should we manage them? Schedules of use? Types of use?
- If conflicts do occur, such as damage to property or lost revenue because of the other party's actions, should the party who loses be compensated?

### Production-related issues

- Are there limits on the type of agricultural production allowed? Crops and livestock? Methods such as organic?
- Are there any land stewardship practices the parties would like to require of each other? Do those come with costs, and if so, who pays for those costs?
- If the tenant's voluntary conservation practices increase the value of the land, should the farmer's rent be reduced accordingly? Is there an alternative way to reward the farmer?
- Are there any production standards for the agricultural use of the premises such as a requirement to follow organic practices?
- Do we have specific standards for weed or disease control for either party?

### Facilities

Examples of reources that may be on the property include timber and lumber

- Does the farmer have permission to use of farm equipment or resources (for example, timber, lumber) that may be on the property? If yes, how will equipment breakdown and maintenance be handled? Who pays for it and when does it need to be performed?
- Does the farmer have access to any storage? Are there associated terms on storage use such as types of products stored or timeframe for storage?
- Does the farmer have access to pack shed facilities or refrigerated storage?
- Is water for packing and processing provided in the lease? Where? Are any associated costs included in the rental agreement or are they separate?
- Is water for irrigation provided in the lease? How, and how much? If

"Regularly scheduled communication can help the farmer and landowner avoid problems"

unlimited, what is the expected capacity of the well/water supply? If there are volume limits, do we have a way to measure usage?

- Who pays for any utilities to the property such as electric, trash, etc. If irrigation water is provided, who pays for the running of the pump and any repairs that may be necessary?

## Renewal

- Does the lease renew automatically or do specific steps need to be taken by either party?
- If the lease renews automatically, when and how does either side give notice that they don't want the lease to renew?
- If the tenant decides not to renew, are there any duties he or she must fulfill? For example, planting cover crops.
- If the landlord decides not to renew, is the tenant compensated for any increased land value from improvements (for example, hoophouses constructed, soil amendments added)? If relevant, does the tenant have the right to remove improvements? If the latter, what conditions exist?

A "termination" may follow different, less beneficial procedulres than a non-renewal

- Can the lease be terminated? This often happens on "default," which means either party does something specific, which allows the other party to terminate the lease. Are there acts that you would like to designate as triggering a "default?" For example, using certain chemicals or practices.

## Communication

- Regular communication can help the farmer and landlord avoid problems. Are annual or quarterly meetings appropriate? What things should be discussed at meetings?
- Are there specific issues that the parties agree to communicate to the other? Machinery? Animal health? When specific practices will be undertaken?

### Transfer of lease

- If the farmer dies or decides not to continue farming, may the lease be transferred to another individual?
- What happens if the landlord dies? Most farmers will want to make sure the lease still attaches to any future landowners and so the lease should state as much.

## OTHER CONSIDERATIONS

- Are we contemplating any "right of first refusal" or "option to purchase" if the landowner decides to sell? Is the lease convertible to a land contract? What are the details of this arrangement: how will the land be valued and what is the procedure for exercising the right or option?
- Who provides insurance? Is the tenant added as an additional insured to landowner's policy, or does farmer need her or his own insurance? If landlord provides, are there any coverage thresholds desired by tenant/landowners? If so the lease should state as much.
- How should we manage potential future conflicts? Would the parties like to create a dispute resolution committee of neutral third parties to hear disputes and help suggest a pathway to resolution?
- Do we have any potential concerns about re-zoning of the property or neighboring development? Have we checked the comprehensive plan for the municipality? Is eminent domain a possibility and would the parties like to allocate any potential compensation provided under eminent domain in the future?
- Is the tenant contemplating specific long-term improvements such as building a pack shed or hoop house? Should there be provisions in the lease that create assurance such improvements will be allowed?
- Who is responsible for large-scale capital improvements to the land? For example, who is responsible to maintain access roads? When and how will it be done? Are costs shared?

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# V. ESTATE PLANNING

# Nebraska Farm & Ranch Estate Planning Overview

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*Estate planning requires a careful consideration of facts and laws unique to each situation. This publication is provided for educational purposes only; it is not a substitute for consulting an attorney or other estate planning professional.*

This publication is a overview of Nebraska farm and ranch estate planning issues. It contains references to other publications that provide more details regarding specific agricultural estate planning topics.

Major farm and ranch estate planning challenges include:

1. having sufficient retirement income to fund a comfortable retirement;
2. determining whether or not the farm or ranch will continue to be operated by the next generation;
3. determining whether to leave more property to on-farm or ranch heirs to allow them to continue the operation;
4. developing an estate plan to accomplish your objectives and sharing your estate plan with your family;
5. planning to transition the farm or ranch business to the next generation;
6. planning for incapacity;
7. planning for long-term medical care;
8. planning for end of life medical decisions; and
9. planning to make your death easier for your family.

**Sufficient retirement income**. Your financial advisor can help you determine whether you have sufficient property (including stocks, bonds, savings, IRAs, other tangible assets) to provide for a comfortable retirement. The more property needed to provide retirement income, the less property there may be to pass on to your family members.

**Continue family farm or ranch**. If you have sufficient property, or other source of income, to provide for a comfortable retirement and also to pass the farm or ranch on to the next generation, you need to decide whether that is what all of you want to do as a family. This can be a challenging process–perhaps the most difficult in agricultural estate planning. If you decide not to continue the farm or ranch operation in the family, estate planning becomes much simpler.

**Fair or equal inheritance**. If you decide to try to continue operating the family farm or ranch into the next generation, you have to be pragmatic about how that can be reasonably accomplished without completely disinheriting the off-farm or ranch heirs. Parents may want to treat all children equally, but that may prevent continued operation of the farm or ranch into the next generation. It is certainly legitimate to give the future operating heir a larger portion of the farm or ranch, particularly if the on-farm or ranch heir has contributed to the financial success of the operation. In other words, consider equitable distribution of the assets, which may or may not be equal.

If there is sufficient property in the estate where all children do receive largely equal shares when Mom and Dad have passed, the concern regarding not treating all children the same is significantly reduced. That will not be possible for some farm or ranch families, however. One approach that allows all children to share financially in the farm or ranch's

continued operation is to have the operation rent the land from all of the kids. This way all kids would receive an annual rent payment from the operation even if their ownership shares are not equal. There is no perfect solution for this issue that will fit all families, but cracking this nut will be one of the biggest challenges in developing your estate plan.

**Farm/ranch business transition**. If the farm or ranch operation is going to be operated into the next generation, the on-farm or ranch heirs need to learn how to operate the farm or ranch business before Mom and Dad are gone. Otherwise when it is time for them to take over, they won't be able to hit the ground running. There needs to be a gradual process where farm or ranch management decisions are shared between Mom and Dad and the future operating child.

**Planning for incapacity**. As we age, we may need assistance in doing things we have always done for ourselves. We may need a family financial plan for a child to e.g. be on the checking account, know what bills to pay, etc. Get children's names on the signature card at the financial institution for both financial accounts and the safety deposit box. You can discuss with your attorney options such as powers of attorney to provide a trusted backstop should the time come when you need assistance making business, financial, and medical decisions for yourself.

**Long-term medical care**. For most families, financing long-term medical care is a frightening prospect. Medicaid does allow property to be transferred to family members free of Medicaid claims, but with a 36 or 60 month look-back period. Unless you are able to implement your estate plan and have sufficient financial resources to fund all your long-term health care costs, Medicaid planning will be an important part of your estate plan.

**End of life medical decisions**. We have the ability to formally establish what level of medical care we wish to receive in our final illness through advance health care directives. Working through these options can save loved ones from having to make health care decisions for you without knowing what you want them to do.

**Letter of last instructions**. One way to ease the trauma of family members at our death is to prepare a letter of last instructions to give family members the information they need to know what to do at your death. This may be on the most loving things you can do for your family, and should be part of your estate plan.

### For Further Information

Dr. Marsha Goeting, Montana State University Extension has prepared an excellent series of agricultural estate planning materials, available for download at http://www.montana.edu/estateplanning/eppublications.html

Omaha attorney Joe Hawbaker has prepared a series of excellent articles on Nebraska farm and ranch estate planning topics, available for download at http://farmerandrancher.org/articles/

**Sufficient retirement income.** Marsha Goetting, *Annuities*.

**Continue family farm or ranch**. Marsha Goetting, *Estate Planning in Montana: Getting Started*; *Transferring Your Farm or Ranch to the Next Generation*; Joe M. Hawbaker, *The Estate Planning Questionnaire; Farm & Ranch Estate Planning: an Introduction*.

**Fair or equal inheritance**. Shannon Ferrell et al, *Farm Transitions*, chapter 3, available for download at http://agecon.okstate.edu/farmtransitions/index.asp

**Farm/ranch business transition**. Shannon Ferrell et al, *Farm Transitions*, chapter 3.

**Planning for incapacity**. Marsha Goetting, *Power of Attorney*; *Talking with Aging Parents about Finances;* Joe M. Hawbaker, *Durable Power of Attorney: Planning for Disability*.

**Long-term medical care**. Joe M. Hawbaker & Dave Goeller, *Medicaid: Planning for Long Term Care in the Farm and Ranch Context*.

**End of life medical decisions**. Joe M. Hawbaker, *Health Care Powers of Attorney & Living Wills: Advance Health Care Directives*.

**Letter of last instructions**. Marsha Goetting, *Letter of Last Instructions* and accompanying worksheet; *Who Gets Grandma's Yellow Pie Plate? Transferring Non-Titled Property*; *Your Important Papers: What to Keep and Where*.

# FARM & RANCH ESTATE PLANNING: AN INTRODUCTION

By Joe M. Hawbaker, Attorney at Law

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## Introduction

To start, let's ask some common questions. What is estate planning? Essentially, it is planning for the transfer of assets, typically from one generation to the next. This transfer can happen while the owner of the assets is living (this is called *gifting*) or, more commonly, at the time of the owner's death (*time-of-death* transfers). We will discuss some of the reasons a person might choose to make gifts as part of their estate plan, rather than providing for transfers only at the time of death.

How do we plan an estate? The answer to that question of course depends on individual circumstances. However, we are guided by certain principles. First, we want to accomplish the wishes of the owner of the estate. We call these dispositive wishes, as in disposing of assets: Who gets what? When? Under what conditions? Subject to what restrictions or rights? Second, we want to accomplish the transfer of assets in a tax-wise manner. Taxes can play an important role is estate planning, though this is perhaps less true than it used to be. Third, we want to plan an estate for the lowest administrative costs, i.e. the plan should accomplish the transfer and achieve the dispositive wishes with efficiency, both in putting the plan together and in executing the plan. To speak plainly, it shouldn't cost more than it needs to cost. Fourth, though this is related to our third concern for efficiency, the plan should be put together with the least, necessary complexity. Simple is a virtue, so long as the plan is sufficient to the wishes and the taxes.

Let's talk about these wishes for a minute. A person's wishes in planning an estate are not a legal matter; we do not typically look in the law to discover what we want. We look in ourselves, and often in our family. People who are planning an estate should make an effort to describe their goals. Do not be concerned with what the law can or cannot do (that puts the cart before the horse); simply sit down and try to describe what you want to see happen: your goals. If you can, rank them in importance. (Estate plans can involve balancing or choosing between competing goals: succession of the family farm versus equal inheritances for all the kids, for example.)

Some common goals include a) keeping a farm or ranch going viably in the next generation, b) protecting assets from things that go wrong (financial distress, divorce, ill health), c) preserving property for the benefit of future generations, d) maintaining control over property, e) anticipating and minimizing disputes, f) engaging heirs in management, g) encouraging family unity and communication, and h) creating an income

- Do you want to see property stay in the family?
- Do any heirs need to use more property than they might directly receive?
    - Access to assets for on-farm heir/successor
- Do you own real estate in two or more jurisdictions?
    - If so, trusts will likely save money
- Does your plan include things that you prefer the public not know?

As a final list on trusts, the following are basic decisions that you face in using a trust.

- Who is the trustee(s)? Who is the successor trustee?
- Who are the beneficiaries?
- If the trust is to continue well beyond lifetime
    - How will subsequent trustees be chosen?
    - How will beneficial interests transfer? To whom?
- How will property/income be distributed?
    - These are the dispositive provisions of a trust
- How long will the trust last?
- How will the trust end?
- What happens to property when trust ends?

If a trust is being used in part to avoid probate in the transfer of property at death, it is important to verify that the property is already in trust (has actually been transferred to the trustee), or that there is some mechanism to get the property into trust that does not require a probate (like a transfer on death real estate deed that names the trustee as the time-of-death beneficiary).

Remember, Nebraska has an inheritance tax. The use of a trust rather than a will as the estate planning workhorse does not typically change the need to file a petition in the county court at the time of death to determine the inheritance tax, which requires among other things an inventory and valuation of the estate of the deceased person.

3. When will you transfer your estate?

During life or at death, might be the simple answer. As mentioned there is also a kind of transfer that is partly accomplished during life and then completed at death, a hybrid, if you like, between gifting and time-of-death transfer. Basically, these are the three choices.

Lifetime transfers, such as gifts and irrevocable transfers into trust, typically mean no step up in basis. They also typically mean the loss of the use, benefit, income and security form that transferred property. Under tax law, a gift must be complete in order to count as a gift. What does this mean? Let's say that a couple want to remove some highly appreciating property from their taxable estate. (Assume their estate is so large that the unified credits are insufficient to protect it from transfer taxes, so they are trying to reduce its value.) They begin gifting shares in their farming operation to their children under the annual exclusion. Assume, however, that they fail to allocate the income from

those gifted shares to their children, instead keeping all the farm income for themselves each year. The IRS is likely to treat the gifts as incomplete and therefore pull the value of the transferred shares back into the parents' estates at the time of death, thus potentially undoing the gifting plan and subjecting the estate to higher estate tax.

Why make transfers at all before death? After all, one of the cardinal principles in estate planning is to keep the plan flexible; people and circumstances change, and you should be able to respond to those changes in your plan. As the old adage has it, don't give away your clothes too soon.[9]

Still, there are reasons for lifetime transfers. Some of the more common ones include a) reducing an estate's value for transfer tax purposes, b) shifting income to family members who are in a lower tax bracket, c) helping the kids out while they need it, d) acknowledging or compensating contributions of successors (*How long the hired hand?*) , or e) long term care planning (about which more shortly). Or as an old Arab adage urges: *Give with warm hands*.

Time of death transfers, such as wills, revocable trusts, beneficiary designations, preserve not only flexibility and security in your estate plan, but the step up in basis.

The hybrid transfer partakes of both gifting and time-of death transfers. Take the life estate deed: it is irrevocable but retains some of the benefits of ownership in the donor, such as rights to income; because those lifetime rights are retained, it typically remains part of the taxable estate of the donor, which means both that it is part of donor's taxable estate and also that the step up in basis is preserved.

## Long Term Care and Medicaid

Many people express concern about the cost of extended stays in long-term care. They worry that everything they worked to own will have to be sold to pay for such care, the annual cost of which presently averages $65,000. In farm and ranch situations, it may be that the farm or ranch itself would have to be sold to pay for long-term care. That farm or ranch may represent the livelihood of the next generation.

How to plan for the possibility of costly, extended stays in care facilities? Some people choose to buy long-term care insurance. (This may be becoming more difficult and costly given that insurance companies have been losing on these policies and some have stated that they are no longer intending to write policies.) Some people plan on having sufficient income to pay for such care, so that assets will not have to be sold to pay for care, which is a kind of self-insurance. Some people choose to roll the dice, so to speak,

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[9] Or, as another character put it:

Father's that wear rags
Do make their children blind.
But fathers that bear bags
Shall see their children kind.

in reliance on the statistical fact that most of us will not spend extended periods in long-term care. Some people expect to rely on Medicaid.

If a person cannot meet the costs of long-term care, they may apply for Medicaid. Medicaid rules and regulations are complicated, and they are subject to change. Planning for Medicaid became significantly more difficult with the passage of the federal Deficit Reduction Act on February 8, 2006 ("DRA"). The following discussion is a simplification of the rules and regulations.

Medicaid is a welfare program. It is designed to pay nursing home costs for those who cannot otherwise afford long-term care. It is funded federally and by the state. In order to receive Medicaid benefits, a person needs to prove eligibility. In general, eligibility is based on Medical criteria and financial criteria. The medical criteria include being 65 years of age or older, or being younger than 65 and being blind or disabled. Financial eligibility is based on an income test and an asset test.

In the income test, in the nursing home context, an applicant must expect to commit essentially all of his or her income to meet nursing home costs. The costs that are not covered by an applicant's income may then be paid under Medicaid, if the person is otherwise eligible. The income that is counted for this test is the income of the applicant, and not income that is received solely in the applicant's spouse's name. Jointly received income is typically divided pro rata between the spouses. There are somewhat complicated rules that allow the spouse of an applicant to keep a minimum amount of income whether that income is received in the applicant's name or jointly. These amounts are typically adjusted annually.

In the asset test, to over-simplify, the general rule is that an applicant's assets (sometimes called resources) must be worth no more than $4000. (This is the figure for Nebraska. It may differ by state.) Certain assets, called excluded assets, are not counted. In addition, Medicaid rules allow for the spouse of an applicant to keep certain assets, assuming that spouse is not applying for Medicaid benefits for him or herself. (This spouse is called the community spouse.) Generally stated, if the couple's combined assets are worth less than $23,448, the community spouse may keep all of the assets. If the couple's assets are worth more than $23,448, the community spouse may keep half of those assets up to a value of $117,240. In either case, the applicant spouse also keeps the $4000. All other assets must be sold and the proceeds in general used to pay nursing home costs before Medicaid will step in to pay.

Congress imposed a penalty on people who transfer assets for less than fair market value that could otherwise have been used to pay for long term care. The penalty works like this: the value of the asset that was transferred for less than fair market value is determined, that value is divided by the monthly cost of the nursing home and the applicant becomes ineligible for Medicaid for however many months that asset would have paid for long term care (the penalty period). For example, if you give away a farm that is worth $300,000, and the monthly cost of care is $3000, you will be ineligible for Medicaid for 100 months. However, the only transfers that are considered under this

penalty rule are those that occurred within 60 months of the date a Medicaid application is made. This is called the look-back period. So, to continue the example, if you transferred the farm for less than fair market value on January 1, 2010 and applied for Medicaid on February 1, 2015 – 61 months later – the transfer of the farm would not likely affect your Medicaid eligibility. If you applied for Medicaid in December, 2015, only 59 months after the transfer, you would be ineligible for Medicaid for the 100 months.

The DRA made another significant change in the asset test. Under the old law, the ineligibility period (the 100 months in our example) would begin to run from the month of the transfer, or the very next month. Under the DRA, the 100-month ineligibility period does not begin to run until you have a) moved to a nursing home, b) spent down your other assets (if any) to the $4000 asset limit, c) applied for Medicaid and d) been approved for coverage but for the transfer.

Planning for Medicaid can be complicated and almost invariably requires an analysis of individual circumstances. It must occur within the restrictions imposed by the rules and regulations that govern Medicaid. The look-back period, the spousal impoverishment program, the spend-down period, homestead protections, exclusions for trade and business property, the use of trusts, annuities, installment contracts and life estate deeds, all present possibilities for planning in the Medicaid context. It is also important to note that planning for long-term care in the farm and ranch context is often only one piece of an estate planning puzzle. Many other concerns crop up: cash flow, taxes, control, succession planning, and treatment of heirs.

Finally, planning for Medicaid typically falls into the category of "give it away now," which often means that Medicaid planning conflicts with other estate planning purposes, such as continuing control over one's assets and basis adjustment. The "give it away now with strings attached" category may have some Medicaid advantages, but even a "transfer with strings attached" typically must occur more than five years before a Medicaid application is made.

## Incapacity Tools

As mentioned previously, an estate plan typically will – and should – include incapacity planning, including durable powers of attorney for property management and for health care. A **durable power of attorney** for property management (DPOA) is a document that typically authorizes another person to look after assets and manage affairs in the event of incompetence. It is an extensive grant of authority to another person. Choosing the right person to act as one's agent under a DPOA is an important decision. A DPOA may be drafted to take effect only upon a determination of incompetence or it may take effect upon its execution. A DPOA will likely avoid the need for an incompetence hearing in court or the approval of a guardian.[10]

[10] For a more thorough discussion of DPOAs, including choosing an agent, deciding upon the timing of effectiveness, and understanding the powers that are extended, see the companion article *Durable Power of Attorney: Planning for Disability*.

Like the DPOA, a **health care power of attorney** is also durable, meaning that it remains effective beyond an onset of incapacity. The Health Care POA authorizes someone to make medical decisions on your behalf should you be unable to make those decisions yourself. It is the grant of power to another person to make what may be life or death decisions on your behalf. It may also contain specific instructions as to life-sustaining treatment and artificial administration of nutrition and hydration. The Health Care POA is typically (and advisably) a separate document from the DPOA.[11]

Both the DPOA and the Health Care POA are revocable, provided that a person retains the capacity to revoke.

A **living will** or **health care directive** sets forth your wishes with respect to life-sustaining medical treatment, typically in the context of terminal illness, permanent unconsciousness or the end stages of a fatal illness. Physicians can refuse to follow the instructions of a living will, but they are granted immunity if they choose to follow them. This document may ease difficult decisions for your survivors. Your wishes as set forth in the living will are often – and advisedly – reflected in the Health Care POA.

Some practitioners recommend reviewing your Health Care POA and Living Will when you reach a new decade in life, when a loved one dies, in a divorce, in a diagnosis of serious illness or should you find yourself in a deteriorating mental condition.

## Conclusion

For reasons almost as varied as people's lives, planning an estate can be complicated. It may also be simple. Individual circumstances need to be considered before determining a plan. Most important, the plan needs to reflect and accomplish a person's wishes. It should be repeated, however, that laws exist in most states (called the **rules of intestacy**) to provide for the transfer of assets upon death where the decedent remained silent as to his or her wishes. And, to end on a less somber note, it should also be pointed out that there is a fourth possibility beyond gifting, time-of-death transfers and the hybrid gift-with-strings-attached, namely don't give it away at all: the estate plan in which the last check bounces. There are no companion articles on this estate plan as it is typically self-executing.

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[11] For further information see *Health Care Powers of Attorney and Living Wills: Advance Health Care Directives*.

stream for heirs. There are important tax goals to consider as well, such as reducing or eliminating federal transfer tax liability (gift and estate taxes), preserving the time-of death basis adjustment, planning for state inheritance taxes (where they exist, as in Nebraska), and shifting income within a family. (See Taxes below.)

**A Word about Guardianship**

This article is primarily concerned with planning for the disposition of property. However, the most important reason to plan is for the guardianship of minor children. Who will take care of minor children should the parents die? Naming of a guardian typically occurs in a will or in a revocable trust. Naming a guardian generally avoids uncertainty and involvement of the courts in appointing a guardian. (It is worth noting that a guardian is responsible for an individual; a conservator is responsible for finances.)

**The Basic Parts**

An estate plan is typically comprised of four tools. The principal tool, the workhorse of the plan, if you will, is that legal instrument or structure which accomplishes the transfer of assets, as in a Will, or a trust, or titling. The other tools include durable powers of attorney, one for health care and another for property management. These tools are part of incapacity planning. The fourth tool is a health care directive, or living will, and, in those states where it is available, a physician's order.

**The Basic Questions**

In some respects estate planning involves answering four questions: What is your estate? How will you transfer it? When will you transfer it? To whom will you transfer it? This last question is, as discussed, not a legal but a personal question. We will not spend time with this question. However, you may wish to look at a companion article entitled *Keep it in the Family* which discusses various tools and structures that can be used both to divide an estate and to share it, with consideration given to preserving the viability of an ongoing family farm or ranch. For the other three questions, we will now proceed in the order those questions are presented.

1. What is Your Estate? (Let's talk taxes.)

For those readers who are beginning to plan an estate, or for those who are revisiting their existing plans, it can be very useful to complete an estate questionnaire. In answering a questionnaire you identify your family and heirs, your advisors, your existing estate documents, if any, pre and post marital agreements, if any. You make an inventory of assets, everything from real estate to bank accounts, and itemize your liabilities. You make a list of on-line or digital assets or accounts, including automatic withdrawals and payments. You identify a method of dealing with passwords for online accounts. You identify how assets are owned, i.e. how they are titled, where they are kept, etc. You name responsible persons, such as prospective personal representatives or successor trustees. A questionnaire is not only useful for estate planning, it is also useful for compiling end-of-life information to assist those responsible persons in taking care of matters at the time of death. A completed questionnaire can save time and costs.

Completing a thorough questionnaire often triggers thinking about things that might otherwise be overlooked.

The questionnaire helps to identify net worth, which is important in determining the amount and type of tax planning, if any, that needs to be done as part of the estate plan. What do you own and what is it worth? How much debt encumbers the estate? We start with a determination of net worth because of something called federal **transfer taxes**. Transfer taxes are perhaps more commonly known as the gift tax and the estate tax. Both taxes are assessed against the value of assets that are transferred. The gift tax applies to transfers that are made while the giver (donor) is alive. Estate taxes are applied to transfers that occur at the time of death. The idea behind transfer taxes is that assets will be exposed to these taxes at each generational level, for the social purpose of preventing the concentration of wealth in too few hands. (Make of that what you will.)

The rate of taxation for both taxes is currently 40% - a hefty tax. But before we lose our breath at the idea that Uncle Sam will take at death almost half of what we worked to own, it is important to know that very few estates actually pay any federal estate (or gift) tax. Why? Because of something called the **unified credit**. To put it simply, each citizen has a credit that can be used to exempt property from transfer taxes. The exemption amount under that credit is currently $5.43 million per person. The credit was fixed "permanently" at $5 million per person in 2013, and indexed to inflation. So, in short, if your estate is worth less than the exemption amount ($5.43 million), it is unlikely that any transfer tax will ever have to be paid.[1]

The credit is unified, meaning that it applies for both the gift tax and the estate tax.[2] It is a cumulative credit, also known as a lifetime credit. We each have one credit for life. If it is used during life to exempt gifts from gift tax, there will be less remaining to exempt time of death transfers from estate tax.

Spouses each have a unified credit, of course, which means that spouses can transfer a marital estate worth up to $10.86 million free of transfer taxes. There is a new rule which spouses can take advantage of to make sure that neither spouse's unified credit is squandered. This is called the **Portability Rule**. In the past a certain amount of planning was necessary to make sure that a spousal unified credit did not go unused, thus potentially subjecting the marital estate to transfer taxes. That planning typically included the use of by-pass, credit shelter, or family trusts. Those are still tools that many practitioners continue to use, for a variety of reasons, perhaps not the least of which is concern that Portability could be legislatively eliminated. So long as Portability is around, however, it protects estates from squandering one spouse's unified credit, typically without advance planning. In a nutshell, it does this through allowing an

[1] It is important to know that the unified credit has been a political football. It is set legislatively. It could be changed again. It is worth noting (though not as a forecast) that the unified credit has never been lowered. It is also worth noting, however, that the President's revenue proposals for 2016 sought to reduce the unified credit to $3.5 million. Under the current credit fewer than one percent of all estates pay any estate tax.

[2] For a number of years, the credit was not truly unified because the gift tax exemption amount was less that the estate tax exemption amount. It became unified again in 2013.

election to be made at the time of the first spouse's death to transfer that deceased spouse's unused unified credit over to the surviving spouse. Many practitioners consider this a very handy rule. It not only protects those marital estates which have not been well planned, but it also allows spouses to consider simpler tools for planning their estates. [3]

For most Americans, transfer tax planning is no longer an important estate planning concern. Could it again become a significant factor in estate planning? Perhaps. It depends on legislation. For the time being, it may be useful to think of transfer tax planning as existing in certain planning zones. For single persons with estates approaching $5 million in value, and for married couples with estates approaching $10 million, it may be prudent to consider somewhat more complex transfer tax planning. There are tools which can be used to undertake this planning, such as special use valuation, closely held entity discounts, gifting plans, and irrevocable trusts. (See companion articles at farmerandrancher.wordpress.com.)

A tax planning concern that may pertain to more estates is **basis adjustment**. In a nutshell, transferring assets in a time-of-death transfer allows the heirs (the new owners of the transferred property) to acquire a step-up in basis in the assets, and potentially to avoid capital gain taxes. Here's how it works. **Basis** is a tax term to describe the cost of an asset to the owner, and it is used to calculate capital gain. For example, if you purchased a piece of land for $1000 an acre fifteen years ago, and that land is now worth $3000 per acre, there is $2000 of capital gain "built-in" to each acre of that land. If you were to sell it, you would likely have to pay capital gain tax on that $2000. (The maximum federal capital gain tax rate is presently 20%, to which some states will add their own capital gain tax. In Nebraska, the rate is approximately 7%. In addition, there may be imposed approximately 3% in federal tax for passive gains.) Now, if you transfer that land to your heirs in a time-of-death transfer, they can receive a stepped-up basis, that is, the law will deem that they paid for the land whatever it is worth at the time of your death. ($3000, in our example.) This happens without the payment of capital gain tax. Should your heirs then turn around and sell the land, little or no capital gains tax would have to be paid, because their basis would presumably be equal to the selling price.

Only assets that transfer at the time of death qualify for the step up in basis.[4] For example, property that is transferred by a will or by a revocable trust typically constitutes a time-of-death transfer. There are some transfers that occur while the donor is alive that may still qualify as time-of-death transfers for basis adjustment purposes: transfers in the "give it away now but with strings attached" category. For example, a **life estate deed**. In a life estate deed, you deed your land to an heir but keep for yourself a life estate, which basically means that you are legally entitled to possess and control the property for

[3] For more information and analysis of the uses of the Portability Rule, and spousal transfer tax planning in general, see the companion article entitled *Spousal Unified Credit Planning & the Portability Rule*, available at farmerandrancher.wordpress.com.

[4] An asset transferred by gift is not eligible for basis step-up. The person who receives the gift, i.e. the donee, will have the same basis in the asset as the donor had. This is why people speak of preserving the basis adjustment through time of death transfers. A reason in some cases not to consider gifting away assets while alive.

as long as you live. Your heir becomes what the law calls a **remainder person** and you become the **life tenant**. You possess the property and have some of the rights and obligations of ownership for the duration of your life, i.e. you pay the taxes, you get the income, you manage the asset. The remainder person has a legally enforceable property interest, because the only thing that comes between the remainder person and possession of the property is your life, and death is certain. The IRS considers a life estate deed to be an incomplete gift and, as such, it qualifies as a time-of-death transfer under which the remainder person can acquire a stepped-up basis at the time of the life-tenant's death.[5]

Of course, another way to avoid paying capital gain tax on an appreciated asset is never to sell the asset. To some farm and ranch parents, leaving the built-in capital gain in the land may be part of an estate plan intended to ensure that their heirs do not sell the land. The idea being that the prospect of having to pay up to 30% of the sale price to federal and state government will discourage the heirs from selling the land.

There have been legislative and administrative proposals to remove the step-up in basis, both federal and Nebraska state efforts. Thus far, the step-up remains part of the law and an important part of tax planning for most estates.

It is also important to know about something called the gift tax **annual exclusion**. A person can give away each year as much as $14,000 (2015) to as many separate people as he or she likes, without having either to pay gift tax or to file a gift tax return. In addition, this annual exclusion amount does not use up a person's unified credit. For example, you may give $14,000 to each of your children each year with no transfer tax consequence, nor will your children pay income tax on the gift. However, if you were to give each child in each year any amount over $14,000, you would trigger an obligation to file a gift tax return and the excess over $14,000 would be a taxable gift. So, for example, if you were to give your daughter $20,000 this year, unless you chose to pay gift tax on the $6000, you would decrease your unified credit by $6000.

The annual exclusion is not cumulative, that is, there is no lifetime limit on annual exclusion gifts. Nor can you store up annual exclusions for use all in one year.

There is an unlimited annual gift tax exclusion for gifts made for the benefit of another person directly to an educational institution for tuition or to a health care provider for medical services. This exclusion is available for contributions to 529 tuition programs.

Nebraska has an inheritance tax, and there is a companion article on **Nebraska's inheritance tax**. It is enough to mention here that Nebraska imposes an inheritance tax on assets transferred at the time of death or within the three years before death. The rate is only 1% (above the first $40,000 exemption amount) to any immediate family, ascendants or descendants, which includes siblings, parents, children, grandchildren, etc. (There is no tax at all on transfers to a spouse.) For transfers to more distant relatives the rate rockets up to 13% and the exemption shrinks to $15,000. For unrelated party

[5] For more information on life estate deeds, see the companion article entitled *Future Interests and The Life Estate Deed*.

transfers, the rate is 18%, and the exemption $10,000. There is little planning one can do to eliminate the inheritance tax, short of giving property away with no strings attached (thus precluding a step-up in basis) and living for three years, or moving out of state. If one is willing to consider the latter, there may be inheritance tax planning that can be done even with respect to real estate in Nebraska.

2. How Will You Transfer your Estate?

There are three basic tools to use to transfer an estate: titling, will, and trust.[6] (Trusts are technically a type of titling but it is useful to discuss them as a separate tool.) Let's take them one at a time. Again, for each of these tools there is available a more in-depth companion article, and the following discussion will therefore be brief.

Titling

Some property is titled, such as real estate, most vehicles, and most account assets (checking accounts, CDs, IRAs, mutual funds, brokerage accounts, etc.). Other property is not titled, such as much farm machinery and equipment, and most livestock. It is possible to use titling to accomplish estate planning for titled assets. For example, in joint tenancy, which is characterized by something called the right of survivorship, the last of the joint owners to survive owns the entire property. Joint tenancy is most common between spouses. At the death of the first spouse, nothing needs to happen to transfer ownership of the jointly held property to the surviving spouse. Automatically, by operation of law, the deceased spouse's interest in the property ends with life and the surviving spouse now owns it all alone. This form of titling is administratively efficient. Joint tenancy is different from **tenancy in common**, in which each owner owns an undivided share in the property.[7] In tenancy in common, each owner is able to transfer his or her share at the time of death, regardless of the order of death.

Let's illustrate with an example. Imagine that two brothers, Mac and Harv, own land as joint tenants. (Joint tenancy is not common between brothers, as it is between spouses, but it helps with the example.) Imagine that each brother has a will, under which the land is to go to his children. Let's say that Mac dies before Harv. Will Mac's children inherit any of the land? No. Harv owns it all, through operation of the joint tenancy titling, and it does not matter what Mac's will provides. Joint tenancy is a kind of estate plan in itself, i.e. the last one standing gets to plan the estate. Now, had the brothers owned the land as tenants in common, Mac's undivided interest would have transferred to his children through Mac's will, and those children would then become tenants in common with their uncle Harv.

There are other forms of titling that may constitute estate planning. The most common is probably the beneficiary designation, also sometimes called a payment or transfer on

[6] It is, of course, also possible to transfer assets or the use of assets by sale or by lease. Indeed, installment contracts, long term leases and buy-sell rights may be useful tools for both succession and retirement planning. Such tools are discussed in a separate, companion article on succession structures.

[7] For a more in depth discussion of joint tenancy and tenancy in common, see companion article entitled *Joint Tenancy & Tenancy in Common*.

death designation. Most people may be familiar with these designations through life insurance, in which a policy typically designates the beneficiaries of the policy, i.e., those people to whom the death benefits will be paid upon the death of the insured. These beneficiary designations may be used with many account assets. These designations are administratively efficient. Typically, when the account owner dies, the designated beneficiaries may take possession of the account assets simply by furnishing a death certificate and proof of identity. No need for transfer through a probate or trust. Most beneficiary designations can be changed at any time by the account owner; they are revocable.

It is possible in Nebraska (and numerous other states) to use beneficiary designations to transfer real estate at the time-of-death of the owner. This is relatively new tool in Nebraska (2013). It is called a transfer on death real estate deed, or, sometimes, a revocable real estate deed. There is a companion piece on transfer on death real estate deeds, and you are encouraged to review it for additional information.

Payment or transfer on death titling does not typically create any present interest in the beneficiaries; it does not give them rights until after the death of the owner. These designations do not accomplish any kind of tax planning; the titled assets remain part of the owner's taxable estate. They do not provide long term care planning. Finally, transfer on death titling as an estate planning tool is limited in providing for contingencies or asset protections. They are not for every estate. However, for some plans, they can be a handy and inexpensive tool for transferring property. They can also be used to provide for the efficient time-of-death transfer of assets into a trust or an entity, such as an LLC.

<u>Will</u>

This is the traditional estate planning tool. What are the basic things to know about using a will? It is revocable; you can change your will. In general, it is always the "*last* will and testament" that matters, the one that most closely precedes death. In general, a will requires a probate in order to accomplish its dispositive provisions. Probate is a court proceeding. Probate is not a four-letter word. In most states, probate proceedings have become fairly simple and straightforward under the Uniform Probate Code. The vast majority of probates are informal, which means among other things that the procedure is intended to work efficiently. In addition, the costs of probate have been reduced from the days when lawyers charged a fee based on percentage of the estate. It is worth noting, also, that in states which have an inheritance tax proceeding, such as Nebraska, much of the work that goes into a probate proceeding must still occur in order to determine the state inheritance tax, even where property has been previously transferred out of the probate estate, as through titling or revocable trusts. In addition, there are advantages to probate that are not otherwise available. For example, in probate proceedings, creditors have a specific amount of time to file claims against the decedent's estate, after which time those claims are forever barred. The world is put on notice of death in a probate and probate is intended to reflect the finality of life in its resolution of the deceased person's affairs. Finally, there is a long history of law behind wills and probate, which more often than not helps to create certainty in planning estates through wills.

If you are intent upon avoiding probate, in Nebraska it is critical that you reduce the value of your probate estate to $50,000 or less. This typically means relying on titling or trusts or gifts to transfer your estate. (A **probate estate** is made up of those assets that must transfer through the probate, either under the will or under the rules of intestacy, should the deceased person have died without a valid will. The probate estate is not necessarily the same as a person's **taxable estate**. The taxable estate in general is made up of all that property which the person had an interest in at the time of death, which may include property that transfers through titling or through trust.)

A couple of other matters bear mention under the subject of the will, namely intestacy and the spousal elective share. In addition to directing you to the companion articles, suffice it to say if you do not plan your estate (if you die with no valid will and have not otherwise provided for the transfer of your estate, i.e. you die intestate) the laws of Nebraska will provide for distribution of your estate among your heirs according to those laws, essentially according to marriage and degrees of kinship. As to the spousal elective share, perhaps it is enough here to say that it is very difficult to disinherit a spouse.

A will, once it is filed in a probate proceeding in the county court, in general becomes a public document. For some people, this is reason enough to avoid the use of wills. Indeed, if your will states things about some of your heirs that you would prefer not to tell the world, perhaps you should look carefully at the use of a trust or titling.

Trust

The trust may be the most flexible of all estate planning tools. There is far too much to say about trusts meaningfully to summarize in this article. Nonetheless, a brief and hopefully useful discussion follows.

A trust is a legal relationship in which a person (the trustee) holds property (as in takes title to and manages) for the benefit of another person (the beneficiary, the person who is to benefit from the property that is being held in trust by the trustee). A trust separates ownership into two parts, legal ownership (which the trustee has) and equitable ownership (for the beneficiary). The legal relationship between the trustee and the beneficiary is a fiduciary relationship (indeed, a trustee is sometimes referred to as a fiduciary) under which the trustee owes legally enforceable duties of good faith and loyalty to the beneficiary.

It may be useful to state that in practice trusts are used commonly in one of two ways. (These are by no means the exclusive uses of trusts.) In one practice, the trust may be used simply as a will substitute, a tool for transferring property at the time of death outside of probate. This is perhaps the most common use of trusts and such trusts are often referred to as "living" revocable trusts. The trust typically terminates after the property is distributed to the beneficiaries. The second common practice extends the existence of the trust into time beyond death. The trust lasts, and in lasting the trust typically shapes how posterity enjoys the property that is in trust. Again, this is a simplification of the uses of trust, but perhaps in a useful service: in considering whether

or not to use a trust (a common consideration), one useful question to ask yourself is how far into the future of the world beyond your life you wish to shape or restrict or protect the enjoyment of property.

Which leads us to this: why do people use trusts? The following is an attempt to describe some of the prevalent and historic uses of trust; it should not be taken as a limitation on the uses of trusts. Here are some of those reasons for the use of trusts, together with a brief comment:

- Avoiding probate or minimizing probate costs
    - For both privacy, efficiency, and for those who think probate is a four letter word
- Protecting assets from creditors, divorces, ill health
    - Nothing shields property from the vicissitudes of life like a trust
- Separating management from enjoyment
    - Some heirs just can't - or won't - manage property
- Dividing property among different owners
    - A trust can direct to some extent how they get along
- Shaping the use of property through time
    - With a good lawyer and an imaginative client, the sky (or rather perpetuity) is the limit
- Succession planning
    - For example, farming heir gets to rent land from trust with rents going to off-farm heirs
- Providing for disabled heirs
    - A long, humane and specialized history of use
- Charitable giving
    - If you mean to accomplish charity as part of your plan, trusts can be very attractive

Here is a list of questions you might ask yourself that may bear upon whether or not you should or need to use a trust:

- How much, and for how long, do you want to shape, control, limit or protect the use and enjoyment of property after you are gone?
- Are your heirs going to own property separately or together?[8]

[8] Partition fears. Ownership of property by more than one person may be through a trust or other entity, e.g. LLC, in part to address what is called the right of partition. People who own property directly as tenants in common or joint tenants each have a right of partition, which means that any one of them has the right to compel a court physically to divide the property. If a court is unable to divide the property equally, which is most often the case, the court orders a sale of the property and divides the money among the owners, after costs are taken. This right of partition either causes the co-owners to figure out ways to be reasonable, or it causes parents not to leave property to their heirs as tenants in common. In addition to being subject to the right of partition, tenancy in common provides no structure for joint decision making or for buyouts among the co-owners. For further discussion, see article on *Tenancy in Common and Joint Tenancy*.

## ESTATE PLANNING BASICS

Nebraska Network for Beginning Farmers/Ranchers

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## Need For Personal Legal Advice

The information in this presentation and accompanying material is provided for educational purposes only. It is not a substitute for individual legal consultation.

## Estate Planning

- What is your estate?
- Who will receive your estate?
- How will your estate be transferred?

## Preliminary Concepts

- Property & Titling
- Basis and Basis Adjustment

## Property

- Real Property
  - Land, and what is built on it
    - Buildings, fences, wells, etc.
- Personal Property
  - Tangible – cattle, corn and combines
  - Intangible – accounts, stocks, insurance
- Subject to
  - Eminent domain
  - Taxing power
  - Zoning regulation

## Titling

- Single ownership
- Co-ownership
  - Tenancy in common
  - Joint tenancy WROS

## What is Probate?

- Legal process for proving the validity of a **Will**
  - Someone has to start the process, not automatic
  - Petition court to probate will and grant letters testamentary (authority) to executor
  - notice of hearing; Will contest would commence here
  - Grant letters testamentary

## Probate Continued

- PR
  - Prepares inventory
  - Obtains appraisal, if necessary
    - Real estate values often TAV + markup (24-30%)
  - Gives notice to creditors to file claims
  - PR may reject claim, lawsuit on claim may result
  - If claims not filed, forever barred

## Probate Continued

- PR
  - Collects and preserves property of estate
  - Pays debts, expenses and taxes
  - If any property left, PR distributes property as directed in Will or, if no Will, then by rules of intestacy

Probate can take time; ties up distributions; costs money – maybe more than alternatives

## Avoiding Probate

- Reduce your probate estate to ≤ $50,000
- How to accomplish and still control assets:
  - Joint tenancies
  - Payment on death bank accounts
  - Naming beneficiaries for retirement accounts
  - Register stock, bonds, brokerage accounts in "transfer on death" forms
  - Life estate deed
  - Living trust
  - Insurance
  - Gifting (you lose control with this option)

## Avoiding Probate

- Avoiding probate may be oversold idea
  - In Nebraska, inheritance tax requires much of same work as probate
  - Probate procedures streamlined in Uniform Probate Code
  - Probate settles the estate, clears title, resolves debt
- Petition for Determination of Inheritance Tax
  - Filed with county court
  - Requires inventory and valuation of estate

## Nebraska State Inheritance Tax

| Relationship | Rate | Exclusion |
|---|---|---|
| Spouse | 0% | Unlimited |
| Immediate | 1% | $40,000 each |
| – sons, daughters, siblings, parents, gr'parents | | |
| Remote | 13% | $15,000 each |
| – nieces, nephews, aunts, uncles | | |
| Other | 18% | $10,000 each |

## Nebraska State Inheritance Tax

- Payable within 12 months of death
- Penalties and interest for late payment or nonpayment

## Probate Estate v. Taxable Estate

- Assets may be part of one estate and not the other
- Anything a person has an interest in at the time of death goes into the taxable estate to the extent of that interest: this includes more than probate property, such as
  - Property transferred with strings attached
  - Value of an annuity
  - Joint tenancy property
  - Life insurance proceeds
  - Interests retained from previous inter vivos transfers

## IRAs

- Pre-tax dollars used to fund
- Taxes have to be paid on distributions
- Fairly involved rules on decedent IRAs
  - Sometimes a choice for heirs/beneficiaries to cash in all of IRA and pay tax or to take distributions over time
  - Time may be calculated based on actuarial life expectancy of deceased IRA owner or life expectancy of oldest beneficiary

# TRUSTS

## TRUSTS

My brother's lunch

My younger brother and I are going to the carnival and our mom gives me $10. She says: $5 is for you and with the other $5 make sure your brother eats lunch. The first $5 is mine; the second $5 I hold as trustee. I possess the second $5 and I have the right to spend it, but only as I have been told. My brother is the beneficiary, he does not possess the money but has the right to have it spent on his lunch. In legal terms, I have legal ownership and my brother has equitable or beneficial ownership.

If I were to spend part of that $5 on myself, I would have violated my fiduciary duties to my brother. My brother would then complain to my mother and seek enforcement of the trust from my parents.

## Elements of a Trust

- Settlor/Grantor
  - person who creates the trust; funds the trust
- Trustee
  - Holds title to trust property; manages and deals with trust property
- Fiduciary
  - Position of trust and confidence; the relationship between trustee and beneficiaries (like guardian/ward, principal/agent, director/shareholder)
- Beneficiary
  - Person for whose benefit trustee owns and manages the trust property
- Corpus
  - The property that is held in trust (also called trust res, trust assets, principal, or trust estate)
- Trust instrument
  - Document that embodies the terms of the trust

## Basic Trusts

- Trust may be
  - Intervivos – established during life
    - Revocable - can be changed
    - Irrevocable – cannot be changed
  - testamentary – established at time of death, often by Will
- Trust may be joint (one trust for both spouses) or separate

## Uses of Trusts

- Protect assets from beneficiaries: separate management from enjoyment
- Manage property or investments
- Avoid probate or minimize probate costs
- Avoid guardianship requirements of transfers to minors or incapacitated persons
- Protect privacy in property transfers
- Guard against will contests (but trust can be registered in court by disgruntled beneficiary)
- Save estate tax, in some cases

## Inter Vivos Revocable Trust "Living Trusts"

- Avoids probate of trust assets
  - Assets can be quickly transferred after death
  - Costs more to create than a will, but avoids probate costs
  - Particularly useful to avoid probate in another state where property is held
- Property remains part of taxable estate
  - Not useful for reducing value of estate for estate tax planning
  - Heirs do receive step-up in basis
  - Spouses can use to double unified credit
- May be less susceptible to attack than will
  - Not subject to rules of testamentary proof (contract not a will)
  - "Seasoned" or in existence for some time before death
- Can be fully funded at creation or subject to pour-over provisions of will
- Can be used to manage assets – name heir as trustee and see how they do

## Irrevocable Inter Vivos Trust

- Can reduce value of taxable estate
- If grantor/settlor does not retain interest in income or corpus of trust
  - Trust must benefit others
  - No retention of life estate in income
  - Enjoyment by beneficiaries cannot be contingent on death of settlor – must be present interest (some room to plan for minors)
  - Cannot retain power to change the transfer of property
- Transfers still subject to Gift Tax: over $13,000 per person reduces unified credit but appreciation occurs outside of estate

## Charitable Remainder Trust

- Transfer property into trust irrevocably
- Trust pays settlor income for life or term of years
  - May provide for successive income beneficiaries
- Remainder of trust goes to charities after death of settlor/successor beneficiary or after term of years
- May transfer appreciated property into CRT without capital gain recognition
  - CRT may sell appreciated property without recognizing capital gain
- May receive charitable deduction

## Some Additional Tools in the Kit

## Living Will

- Medical directive or "living will"
  - Permanent vegetative state – what are your wishes with respect to life support
  - May ease difficult decisions for survivors
  - Should be part of estate planning documents

## Durable and Health Care Powers of Attorney

- Grant of power to another to look after assets and manage affairs, make health care decisions
- Anticipates possibility of incompetence: avoids need for incompetency hearing or approval of guardian
- Statute defines powers (plenary – complete, unqualified)
  - Should also include express powers for tax returns, life insurance matters, making gifts, transferring property into trust, accessing safe deposit box, dealing with retirement plans and Social Security
- May be *contingent* or *present*
  - Contingent – effective only upon incompetence
  - Present – effective when executed and continues in spite of incompetence

## Long Term Care & Medicaid

## Strategies to Provide for Long-Term Care

- Adequate income or reduction of assets
  - After tax available income
  - Earnings and asset sales
- Long-Term Care Insurance
- Medicaid safety net
  - Deprivation of Resources

## Deprivation of Resources

- Transfers for less than "fair market value"
- Within 60 months of Medicaid application - "Look Back" period
- Ineligibility determination calculations
- Ineligibility period begins only after a) move to nursing home, b) spend down assets to $4000, c) apply for Medicaid and d) be approved for coverage but for the transfer

## Medicaid

- Give away now
- Give away with strings attached
  - Life estate deed
- Sale on contract
- If spouse working ranch or farm, it may be excluded

## A FINAL FEW THOUGHTS

## Questions

- Who can get into safety deposit box
- Have you made a list of your wishes for personal property, i.e. heirlooms, family possessions?
- Where is your will located?
- Should heirs know what you plan?
- Have you compiled all end-of-life information in one place, made copies?

## Resources

- Nebraska Network for Beginning Farmers/Ranchers
- Nebraska Farm Hotline
  800-464-0258
- Nebraska Farm Mediation Service Farm & Ranch Clinics (Nebraska Department of Agriculture)
  800-464-0258

## Titling

- Tenancy in Common
  - Owners have distinct and separate interests
  - No right of survivorship
  - Right of possession is undivided
  - Each owner may transfer interest, including by will
  - Right of partition – force sale

## Titling

- Joint Tenancy
  - survivor takes all
  - Immediate access to property after death
  - Simplifies estate settlement
  - Be specific – "as joint tenants with right of survivorship and not as tenants in common"
  - After death, property not subject to deceased creditors' claims
  - Right of partition – force sale

## Titling

- Life estate and remainder
  - Owner transfers property subject to life estate
  - Owner becomes "life tenant" – right to possession and control, benefits and obligations
- Payment on death designations
  - Bank accounts, retirement accounts, insurance
  - Who takes asset on death of owner

## Basis & Capital Gains

- "Basis" means "cost" – what you paid for it or what it was worth when you inherited it + the cost of improvements
- If asset sold, capital gains tax is paid on difference between the sale price and the basis, with some adjustments
- Current maximum rate is about 15% Federal and 7% Nebraska

## Capital Gains Tax

| | | |
|---|---|---|
| • Purchased | $150,000 | |
| • Improvements | + $ 30,000 | |
| • Depreciation | - $ 20,000 | |
| • Income tax basis | $160,000 | |
| • Selling Price | $480,000 | |
| • Capital Gain | $320,000 | @ 22% |
| • Tax Due | $ 70,400 | |

## Stepped Up Basis

- A time-of-death transfer wipes out locked-in capital gain tax liability
- Heir receives the asset with a basis equal to FMV at time of death
- Only occurs in time of death transfers
- No restrictions on step-up in basis for 2011-2012

## Carry Over Basis

- If property is gifted during life, then Donee receives the property with the same basis as donor
- The basis "carries over" to new owner

## WHAT

- What do you own?
- What is it worth?
- How much is the debt?

## "WHAT" Come First Because of Taxes

Federal transfer taxes

- –Estate Tax – 35% (2011-2012)
  - Paid on time-of-death transfers
- –Gift Tax – 35% (2011-2012)
  - Paid on lifetime transfers

## Critical Concept

### The Unified Credit

- A "credit" that exempts transfers of assets from federal transfer taxes
- "Unified" because it is a single credit against both gift and estate taxes
- Each person has one unified credit

## Unified Credit Estate Tax

How much can each person transfer **at time of death** without incurring estate tax liability?

- –$5 million per person for 2011-2012
- –Uncertain after 2012

## Unified Credit Gift Tax

How much can each person transfer **during life** without incurring a gift tax?

- –$5 million per person for 2011-2012
- –Credit used against gift tax reduces amount available to use against estate tax

## Critical Concept

### Marital Deduction

- No estate or gift tax imposed on transfers between spouses

## Examples

- Spouses own farm jointly
- After first spouse dies, survivor owns the farm alone
- No transfer tax paid on first death (marital deduction), BUT
- What happens on survivor's death?
- Value of estate above surviving spouse's unified credit is subject to transfer tax

## Double The Unified Credit

- Take advantage of each spouse's unified credit – in effect doubling the unified credit for marital estate
- Use by-pass trust (credit shelter, family or disclaimer trusts)
- Use life estate transfers

## Use of Life Estate

- First-to-die transfers only a life estate to surviving spouse
- "This property goes to my children but subject to my surviving spouse's life estate."
- Surviving spouse entitled to proceeds/income from life estate property
- Lacks flexibility of credit shelter trust and puts property out of reach of surviving spouse and into hands of other heirs

## Credit Shelter Trust

- Used to take full advantage of both unified credits
  - On death of first spouse, assets are transferred into trust for life-time benefit of surviving spouse
  - These assets are included in first-to-die's taxable estate and are not later included in surviving spouse's taxable estate
  - Value of assets transferred into trust equals an amount necessary to avoid federal estate tax
- Typically included in a will or revocable trust document

## Disclaimer Trust

- Like a Credit Shelter Trust in providing for doubling of unified credit
- Surviving spouse may disclaim property given to her by deceased spouse
  - Disclaims in amount needed to take advantage of unified credit, but only if necessary
- Disclaimed property goes into DT for benefit of surviving spouse
- Typically in Will or trust document

## NEW RULE 2011-2012

PORTABILITY OF UNIFIED CREDIT

- Unused exclusion amount of spouse dying after 12/31/2010 may be used by surviving spouse
- Only available if election made on timely filed estate tax return of predeceased spouse – whether estate tax return is otherwise required

## Unified Credit Portability

- Spouse 1 dies in 2011 transferring $3 million in assets
- Election is made by Spouse 1 estate tax return to allow Spouse 2 to use unused exclusion amount
- Spouse 2 exclusion amount becomes $7 million

## Unified Credit Portability

- Still a good idea to include disclaimer trust in estate plan
- Portability is a significant change in the law
- Will require careful review of regulations and forms once promulgated by IRS

## Planning Zones

- Estate ≤ Single Exclusion Amount
- Estate ≤ Twice Exclusion Amount
- Estate ≥ Twice Exclusion Amount

## Tools to Reduce Estate

- Use of annual gift tax exclusion
- Discounting value for lack of liquidity or control
- Use of special valuation procedures
- Insurance owned by someone else (three year look-back)
- Irrevocable trusts
- Installment sales
- Charitable Remainder Trusts

## Gift Tax: Annual Exclusion

- Annual exclusion amount = $13,000
  - Does not reduce Unified Credit
  - No need to file gift tax return
  - Additional unlimited exclusion for education gifts and medical

## Discounted Value

- Interests in closely-held family corporations, family partnerships or LLCs
  - May be discounted for lack of marketability/liquidity
  - Also discounted for lack of controlling interests
- A useful tool for transferring assets within the exclusion amount

## Special Use Valuation

- Real estate used in family farm or closely held business: Section 2032A
  - Land is valued on basis of value as a farm and not at fair market value (IRC formula)
  - Maximum reduction in value is $1 million
  - Decedent or family member farmed land for 5 of 8 years preceding death
  - Heirs must farm for 10 years – recapture period

## Insurance

- Insurance is not included in taxable estate if the insured does not own policy and does not pay premiums (also, insured's estate cannot be beneficiary)
- Let beneficiary pay premiums; or, insured may be able to give money to beneficiary to pay premiums (but insured should not pay premiums directly on behalf of beneficiary)
- If policy already owned in name of insured, may gift the policy away (short form available from insurance company) BUT three year look back from date of death

## Irrevocable Life Insurance Trust

- Set up trust first
- Trust buys insurance
- Trust document needs to get it right
  - Life insurance as <u>one</u> of, not <u>only,</u> permissible investment vehicles
  - Trustee has all ownership rights
  - Trust can accept tax free gifts from you to pay premiums
- Insurance is not included in taxable estate if the insured does not own policy and does not pay premiums (also, insured's estate cannot be beneficiary)

## Installment Sales

- Sell over time rather than outright
- Selling over time spreads tax on gain over time
- Sales to relatives need to be for "full and adequate consideration"
- Sales price – basis = gain
- Gain ÷ sales price = Gross Profit %
- Taxable Gain for each payment on note = principal payment x Gross Profit %
- Interest rate on note must meet minimum Applicable Federal Rate

## Installment Sales

- At seller's death, unpaid principal remains part of taxable estate, <u>unless</u> note is a <u>Self-Canceling Installment Note</u> (SCIN)
- Unpaid balance canceled at death
- A <u>risk premium</u> needs to be added to SCIN to account for possibility that full payment won't be made, e.g. increasing principal payments, or increasing interest rate above AFR ("applicable federal rate")
- Complex rules for calculating premium

## Charitable Trusts

- Charitable Remainder Trust (CRT): income paid to settlor/heirs, remainder goes to charity
- Charitable Lead trust (CLT): income paid to charity, remainder to heirs
- Complicated rules, numerous variations
- Favorable tax treatment – possible to avoid capital gains tax and transfer tax

## WHO

- Who are your heirs?
- What will each heir receive?
- Will your estate carry on as a single farm or ranch business?
- Who will be in charge?
- Who will need income?
- Will estate be divided? Physically divided or divided by interests?
- Will you make charitable gifts?

## WHO

- This is not a legal question
- It is a determination of your own wishes and judgments

## WHO: Often the Hardest Issue

- Parents tend to start with idea that fair means equal
- Not always possible to be equal
- Equal is not always fair
- Should estate be sold, cut up or kept together

## WHO: The Farming Heir

- Farming Heir and The Other Kids
  - Farm/ranch is sufficient for one or two families but what about the other kids?
  - Cash flow v. fair market value
  - Will farm or ranch continue as a viable family operation?

## WHO: The Farming Heir

- Life insurance
  - If affordable, life insurance is purchased for off-farm heirs
  - On-farm heir purchases life insurance on parents' lives for buying out siblings interests
- Partnership, LLC, Corporation
  - On-farm heir controls/manages operation
  - All siblings share in ownership
  - Operating entity owned by on-farm heir and land entity owned by all heirs

## WHO: The Farming Heir

- Real estate divided among siblings
- Long term leases
  - On-farm heir has right to farm siblings' land for period of time
  - Perhaps siblings have right to receive rent only for period of years as "purchase" of property by on-farm heir
- Options
  - On farm heir has right to buy out siblings for a period of time at a determinable value
  - If siblings decide to sell, on-farm heir has right of first refusal

## WHO: The Farming Heir

- Off farm heirs understand/agree to inherit less, in order to help on-farm sibling succeed
- Shared appreciation agreement
  - If on-farm heir sells real estate within a period of time, off-farm heirs share in appreciation

## HOW

- Time of death transfers
  - Give it away at death (e.g. will, revocable trusts)
- Lifetime transfers
  - Give it away now (e.g. gift, irrevocable trust)
- Gifts of future interests
  - Give it away now with strings attached (e.g. life estate deed)
- Sale
  - Sell it all at once or over time (e.g. outright or installment sale)

## TOOLS

- Titling
- Wills
- Lifetime Gifts
- Trusts
- Sales

## Titling

- Tenancy in common
- Joint Ownership with right of survivorship
- Deeding
  - Deed it over outright
  - Deed it over with restrictions
- Life estate deed
- PODs
- Transfer of cow herds through share arrangements

## Joint Tenancy

- Distinguished by right of survivorship: last one standing gets it all
  - on death of one owner, other owner(s) automatically succeeds to entire property
  - Not part of probate estate – avoids probate
  - Included in taxable estate
  - After death, not subject to decedent's creditors' claims

## Taxation of Joint Tenancies

- Joint tenancy between spouses
  - One-half of value of property included in estate of first-to-die; survivor gets step-up in basis – useful if asset to be sold
  - No estate tax payable because property passes under marital deduction, depending on value
    - No doubling of unified credit
- Joint tenancy between non-spouses
  - All of value of property included in decedent's estate
  - Except to extent survivor contributed to acquisition

## Life Estate Deed

- Property owner (grantor) deeds property to heir but reserves a life estate
  - Owns property for duration of life but cannot transfer/will
  - No changing mind without heir's consent
  - Avoids probate
  - Value of property is included in taxable estate
  - Inexpensive tool for estate planning
  - Triggers obligation to file gift tax return
- Heir acquires legal interest
  - Heir becomes "remainderman"
  - Remainder interest can be pledged, transferred or attached unless restricted in deed
  - Heir acquires stepped-up basis on death of life tenant

## Life Estate Deed continued

- Restrictions may be imposed on the remainder interest
  - Voluntary transfers: no encumbrances; no sales
  - Involuntary transfers (as in judgment v. remainderman): restriction may not work
- BUT "restraints on alienation" limit restrictions that can be imposed on remainderman
  - Careful language, don't give a fee simple

## Joint Accounts, POD, Beneficiary Designations

- Pay-on-death bank accounts
  - Simple form available at bank
  - During your life, person named to inherit has no right to money; you can change beneficiary, spend money, close account
  - At death, beneficiary shows death certificate and ID and takes funds
  - If account owned jointly with spouse, POD beneficiary takes only after death of both owners
- Retirement accounts
  - On account-opening forms designate beneficiary
  - Surviving spouse may have right to funds, if not named
  - Roth IRA has no withdrawal deadlines, gain is tax-free, and with named beneficiary it is simple to pass on funds
- Transfer-on-death registrations
  - Register ownership of stocks, bonds, brokerage accounts with beneficiary designation
  - Beneficiary has no rights until your death

## **WILL**

- Will is revocable – can be changed
  - Revocable is to be preferred: circumstances and wishes change
- A Will typically requires probate

## **Probate**

- A legal process (court proceeding)
- Accomplishes transfer of property
- Settles decedent's debts
- Pays taxes
- Testate – having died with a valid will
- Intestate – dying without a valid will

## Questions that need to be considered?

David Goeller
Deputy Director
NCRMEC
Transition Specialist
UNL Ag Econ
(Retired)
402 450 2420

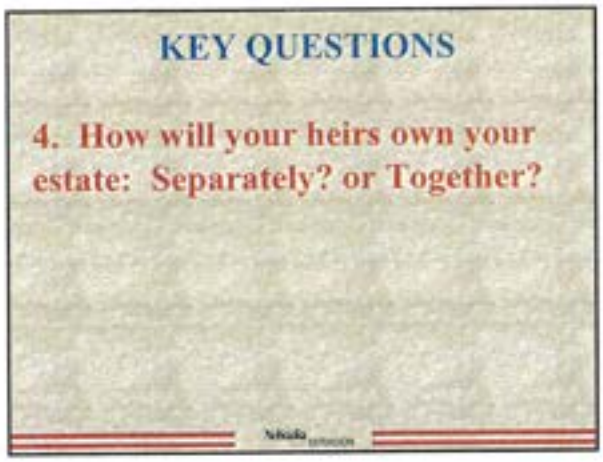
## Need For Personal Legal Advice

The information in this presentation and accompanying material is provided for educational purposes only. It is not a substitute for individual legal consultation.

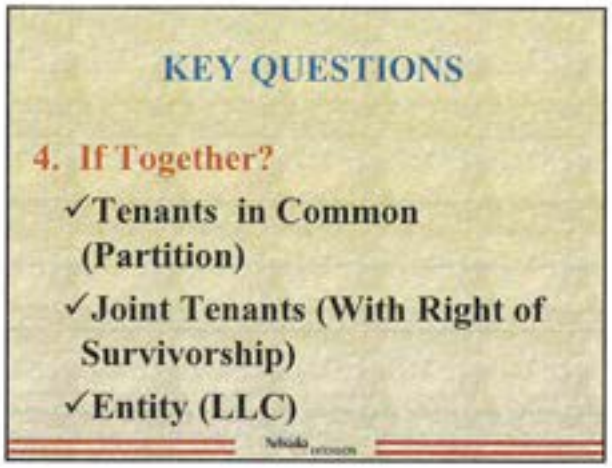
## KEY QUESTIONS

1. Do you know WHO should farm your land?

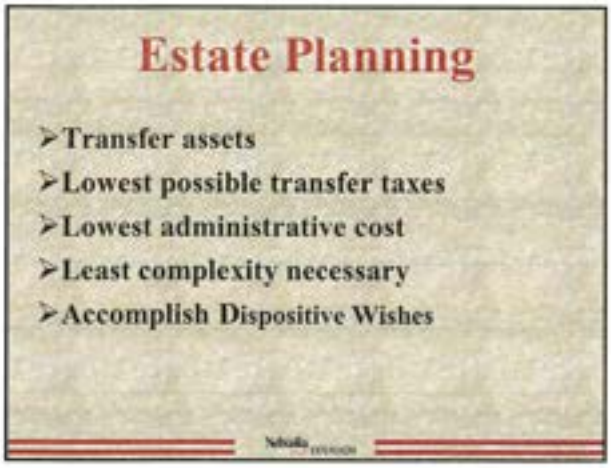

Management Transfer
➢Phased plan approach
✓#1 Owner make decisions (Mentor)
✓#2 Owner and successor make decisions together
✓#3 Successor make decisions


KEY QUESTIONS
4. How will your heirs own your estate: Separately? or Together?


KEY QUESTIONS
4. How will your heirs own your estate: Separately? or Together?
It Depends??
Family
Your Wishes

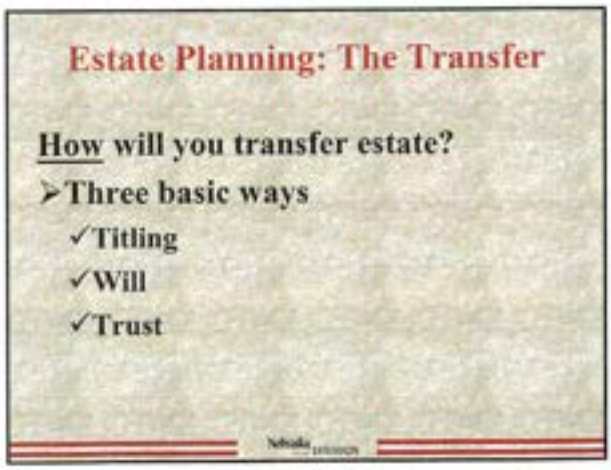

KEY QUESTIONS
4. If Together?
✓Tenants in Common (Partition)
✓Joint Tenants (With Right of Survivorship)
✓Entity (LLC)


Estate Planning

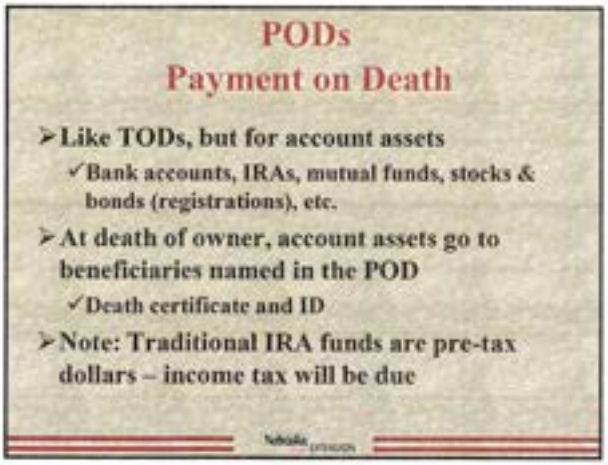

Estate Planning
➢Transfer assets
➢Lowest possible transfer taxes
➢Lowest administrative cost
➢Least complexity necessary
➢Accomplish Dispositive Wishes


Estate Planning
The Hawbaker Cardinal Rule
➢Keep It flexible, i.e. revocable
✓Life changes, people change, circumstances change
➢Need compelling reasons to violate this principle
(Caveat: "before I round the bend…")

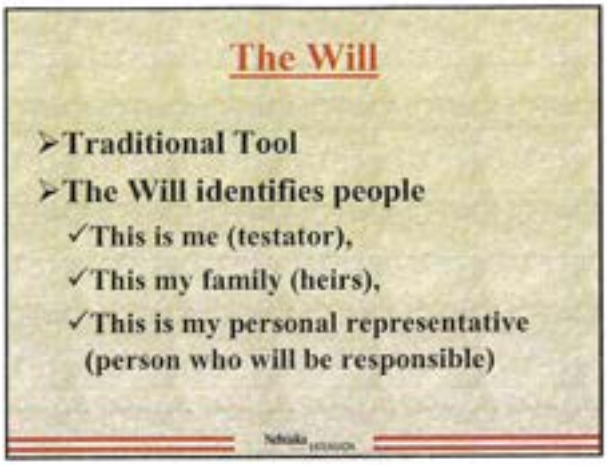

Estate Planning
✓The principal transfer tool:
➢Titling, Will and/or Trust (Usually more than one tool)
✓Incapacity tools
➢Health Care POA
➢Plenary/Financial POAs or successor trustee
✓Health care directive "Living Will"

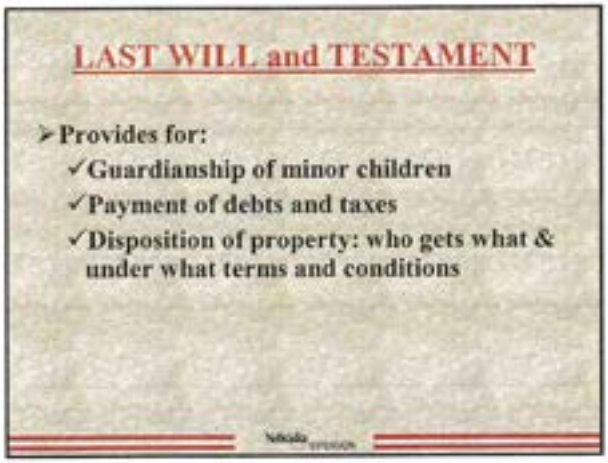

Estate Planning: The Transfer
How will you transfer estate?
➢Three basic ways
✓Titling
✓Will
✓Trust


Titling
➢Joint Tenancy
✓Survivor takes all – order of death matters
➢Future Interest: Life Estate & Remainder
✓Mom & Dad transfer land to kids while alive but reserve life time use
✓Irrevocable, avoids probate, preserves step-up
✓Kids own remainder interest: creditors may attach (but not execute during life tenant life)
➢TOD – Transfer on Death Deed
✓Revocable real estate deed – new tool

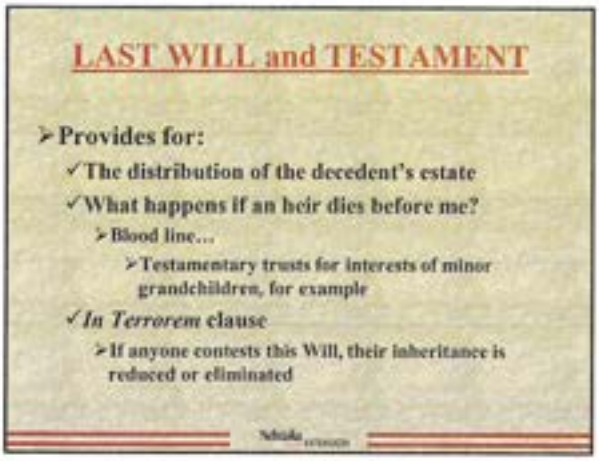

PODs
Payment on Death
➢Like TODs, but for account assets
✓Bank accounts, IRAs, mutual funds, stocks & bonds (registrations), etc.
➢At death of owner, account assets go to beneficiaries named in the POD
✓Death certificate and ID
➢Note: Traditional IRA funds are pre-tax dollars – income tax will be due

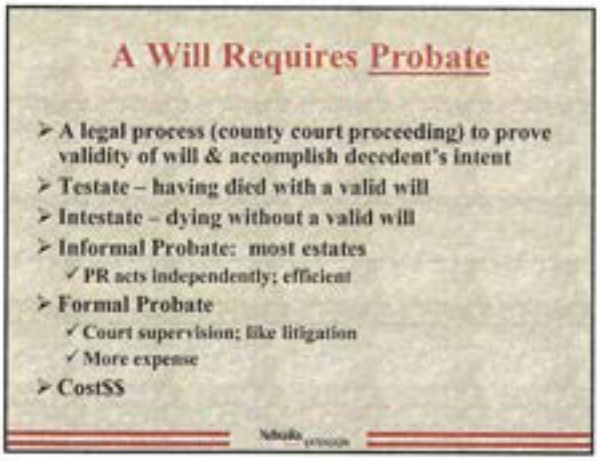

Titling
➢Even if using titling as primary transfer tool, good to have a Will in case something is missed
➢Most estate plans will involve a combination of tools: Titling, Will, Trust
➢Review your plan periodically!
✓Especially if you are using trusts or tilting to avoid probate

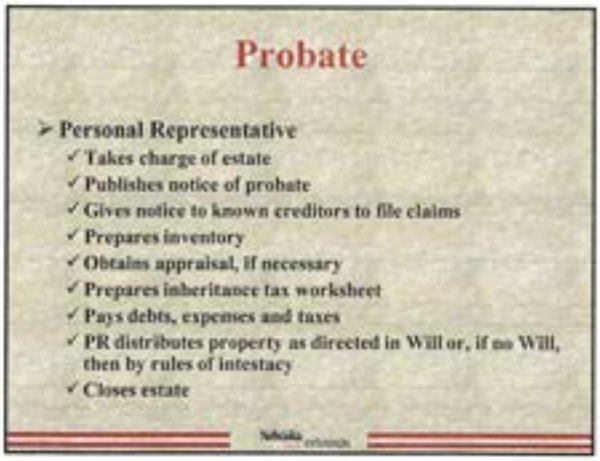

The Will
➢Traditional Tool
➢The Will identifies people
✓This is me (testator),
✓This my family (heirs),
✓This is my personal representative (person who will be responsible)

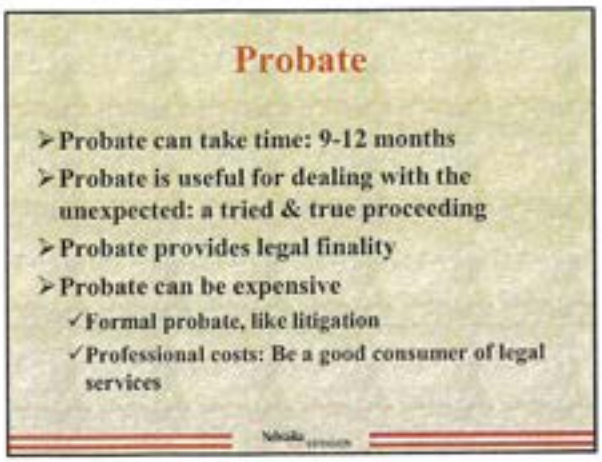

LAST WILL and TESTAMENT
➢Provides for:
✓Guardianship of minor children
✓Payment of debts and taxes
✓Disposition of property: who gets what & under what terms and conditions

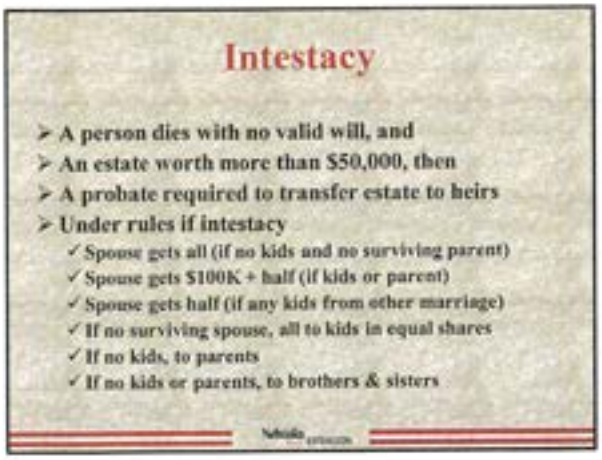

Guardianship
➢For parents of minor children, the most important reason for a plan:
✓Who will take care of minor children? Successor?
✓Naming of guardian usually occurs in a Will or in a Revocable Trust document
✓Avoid uncertainty and involvement of courts in naming a guardian

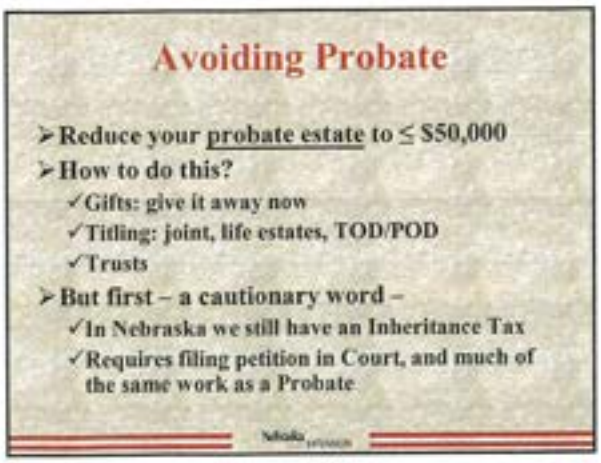

LAST WILL and TESTAMENT
Provides for:
The distribution of the decedent's estate
What happens if an heir dies before me?
Blood line…
Testamentary trusts for interests of minor grandchildren, for example
In Terrorem clause
If anyone contests this Will, their inheritance is reduced or eliminated

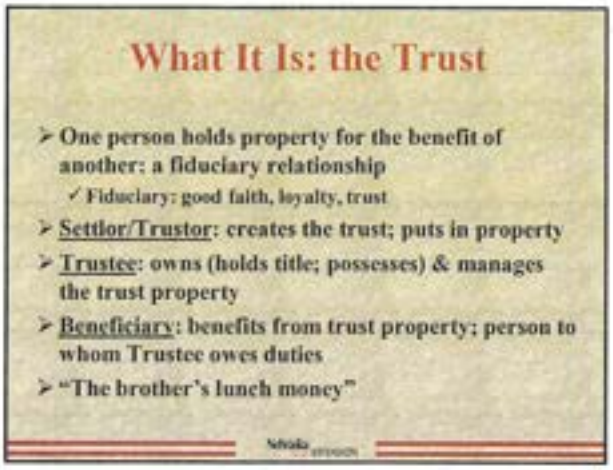

A Will Requires Probate
A legal process (county court proceeding) to prove validity of will & accomplish decedent's intent
Testate – having died with a valid will
Intestate – dying without a valid will
Informal Probate: most estates
PR acts independently; efficient
Formal Probate
Court supervision; like litigation
More expense
CostSS


Probate
Personal Representative
Takes charge of estate
Publishes notice of probate
Gives notice to known creditors to file claims
Prepares inventory
Obtains appraisal, if necessary
Prepares inheritance tax worksheet
Pays debts, expenses and taxes
PR distributes property as directed in Will or, if no Will, then by rules of intestacy
Closes estate

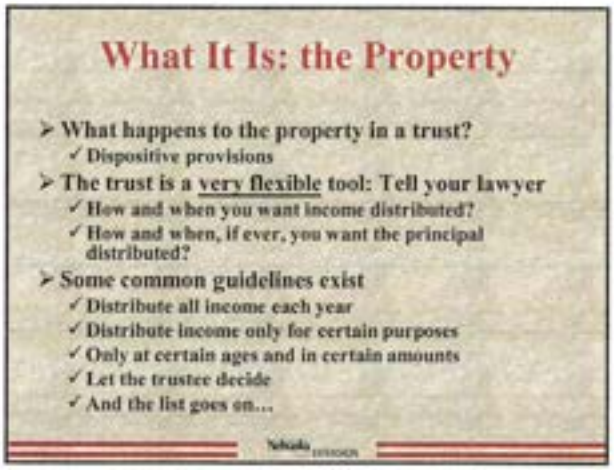

Probate
➢ Probate can take time: 9-12 months
➢ Probate is useful for dealing with the unexpected: a tried & true proceeding
➢ Probate provides legal finality
➢ Probate can be expensive
✓ Formal probate, like litigation
✓ Professional costs: Be a good consumer of legal services

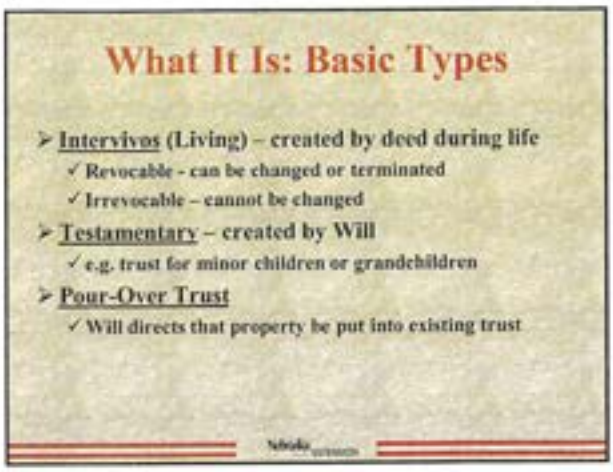

Intestacy
➢ A person dies with no valid will, and
➢ An estate worth more than $50,000, then
➢ A probate required to transfer estate to heirs
➢ Under rules if intestacy
✓ Spouse gets all (if no kids and no surviving parent)
✓ Spouse gets $100K + half (if kids or parent)
✓ Spouse gets half (if any kids from other marriage)
✓ If no surviving spouse, all to kids in equal shares
✓ If no kids, to parents
✓ If no kids or parents, to brothers & sisters


Avoiding Probate
➢ Reduce your probate estate to ≤ $50,000
➢ How to do this?
✓ Gifts: give it away now
✓ Titling: joint, life estates, TOD/POD
✓ Trusts
➢ But first – a cautionary word –
✓ In Nebraska we still have an Inheritance Tax
✓ Requires filing petition in Court, and much of the same work as a Probate

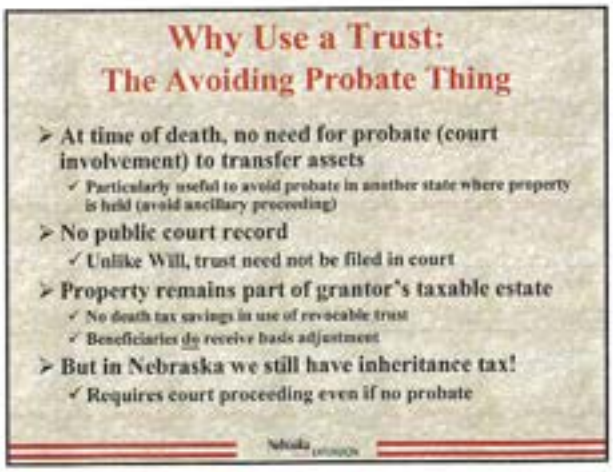

What It Is: the Trust
➢ One person holds property for the benefit of another: a fiduciary relationship
✓ Fiduciary: good faith, loyalty, trust
➢ Settlor/Trustor: creates the trust; puts in property
➢ Trustee: owns (holds title; possesses) & manages the trust property
➢ Beneficiary: benefits from trust property; person to whom Trustee owes duties
➢ "The brother's lunch money"


What It Is: the Trustee
➢ Trustee has duties in dealing with property
✓ Loyalty: act only for good of trust & beneficiaries
✓ Impartiality: don't play favorites among beneficiaries
✓ No self-dealing
✓ Possess & protect trust property
✓ Segregate & earmark: keep trust property separate from trustee's, and so labeled
✓ Make property productive: prudent investor rule
✓ Allocate trust receipts: who gets what
✓ Provide information & accountings


What It Is: the Property
➢ What happens to the property in a trust?
✓ Dispositive provisions
➢ The trust is a very flexible tool: Tell your lawyer
✓ How and when you want income distributed?
✓ How and when, if ever, you want the principal distributed?
➢ Some common guidelines exist
✓ Distribute all income each year
✓ Distribute income only for certain purposes
✓ Only at certain ages and in certain amounts
✓ Let the trustee decide
✓ And the list goes on…


What It Is: Basic Types
➢ Intervivos (Living) – created by deed during life
✓ Revocable - can be changed or terminated
✓ Irrevocable – cannot be changed
➢ Testamentary – created by Will
✓ e.g. trust for minor children or grandchildren
➢ Pour-Over Trust
✓ Will directs that property be put into existing trust


Why Use a Trust
➢ Avoid probate or minimize probate costs
➢ Protect assets from creditors
➢ Separate management from enjoyment
➢ Divide property among different owners
➢ Shape the use of property through time
➢ Succession planning
➢ Provide for disabled heirs
➢ Charitable Giving


Why Use a Trust:
The Avoiding Probate Thing
➢ At time of death, no need for probate (court involvement) to transfer assets
✓ Particularly useful to avoid probate in another state where property is held (avoid ancillary proceeding)
➢ No public court record
✓ Unlike Will, trust need not be filed in court
➢ Property remains part of grantor's taxable estate
✓ No death tax savings in use of revocable trust
✓ Beneficiaries do receive basis adjustment
➢ But in Nebraska we still have inheritance tax!
✓ Requires court proceeding even if no probate

## How To Use A Trust

**Basic decisions needed for use of a trust**

- Who is the trustee(s)? Who is the successor trustee?
- Who are the beneficiaries?
- If trust is to continue well beyond lifetime
  - ✓ How will subsequent trustees be chosen?
  - ✓ How will beneficial interests transfer? To whom?
- How will property/income be distributed?
- How long will trust last?
- How will trust end?
- What happens to property when trust ends?

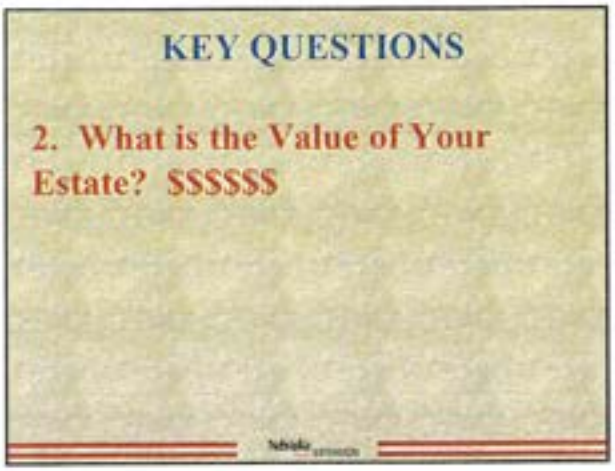
## Will or Trust

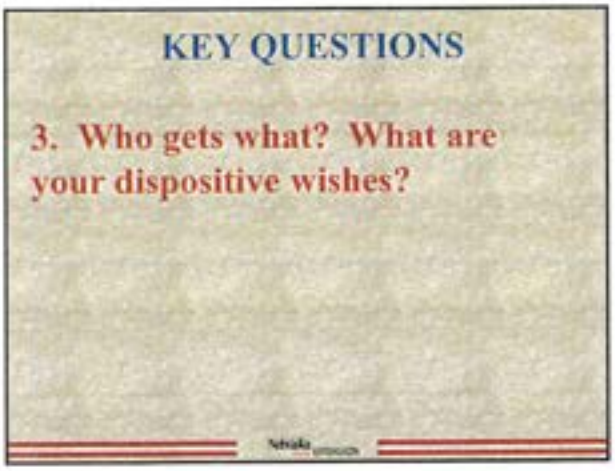
- Ask some questions:
  - ✓ How much, and for how long, do you want to shape, control, limit or protect the use and enjoyment of property after you are gone?
  - ✓ Are your heirs going to own property separately or together?
    - Partition fears
  - ✓ Do you want to see property stay in the family?
  - ✓ Do any heirs need to use more property than they might receive?
    - Access to assets for on-farm heir/successor
  - ✓ Do you own real estate in two or more jurisdictions?
  - ✓ Does your plan include things that you prefer the public not be able to know?

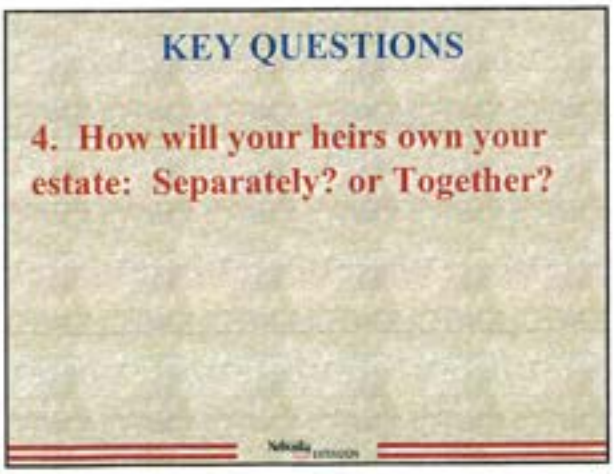
Even if trust is main transfer tool, you still need a will

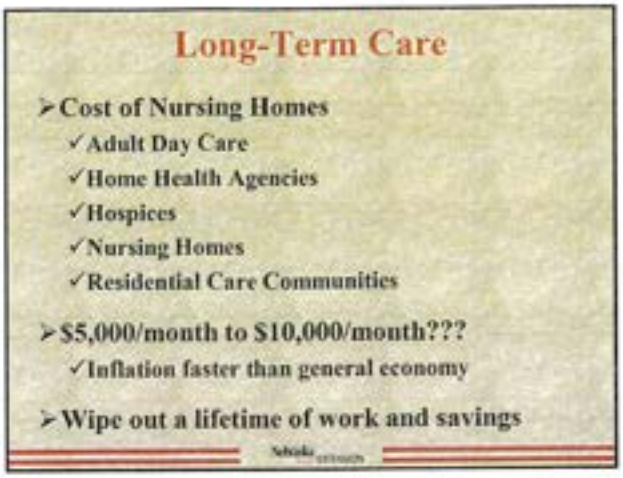
## Will or Trust

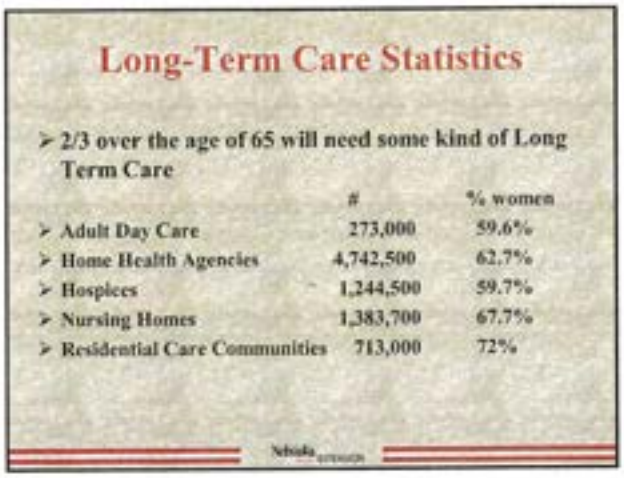
| Will | Trust |
|---|---|
| ➢ Filed in court | ➢ No court proceeding; no court safeguards either |
| ➢ Property transfers through probate | ➢ Property transfers under the trust |
| ✓ May take time | ➢ Trustee controls property and makes transfers |
| ➢ Personal Rep acts for estate | ➢ Trust remains private |
| ➢ Public document | ➢ Trust can continue |
| ➢ Legal finality: world put on notice | ➢ Good for out-of-state property |
| ➢ Inheritance tax determined as part of Probate | ➢ Separate Inheritance Tax proceeding required |

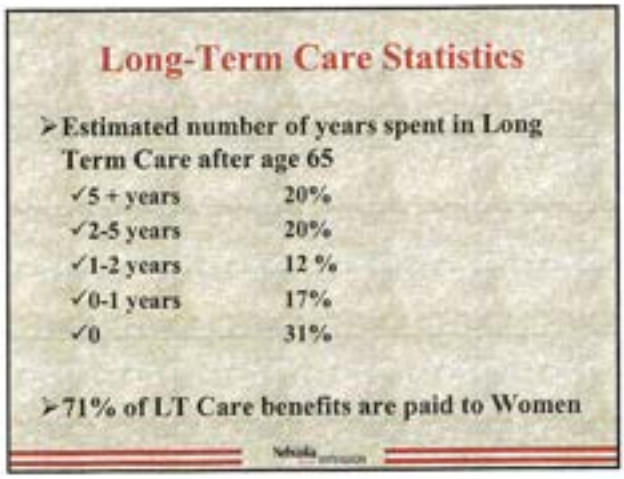

KEY QUESTIONS
2. What is the Value of Your Estate? $$$$$$

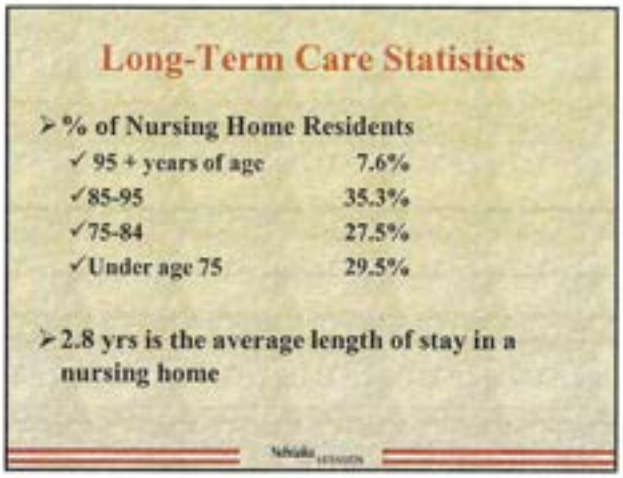

KEY QUESTIONS
3. Who gets what? What are your dispositive wishes?


KEY QUESTIONS
4. How will your heirs own your estate: Separately? or Together?

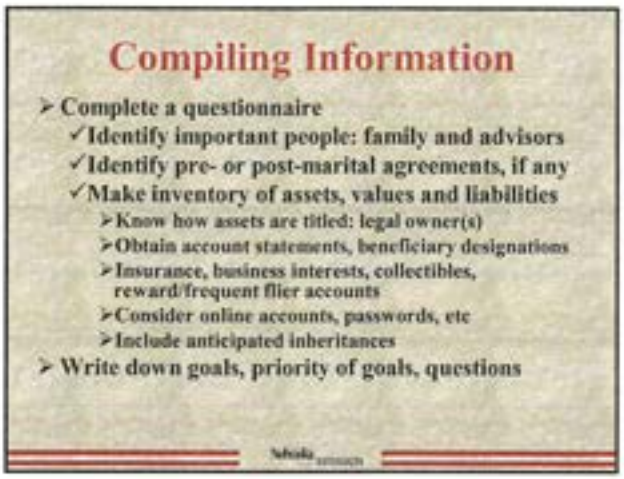

Long-Term Care
➢Cost of Nursing Homes
✓Adult Day Care
✓Home Health Agencies
✓Hospices
✓Nursing Homes
✓Residential Care Communities
➢$5,000/month to $10,000/month???
✓Inflation faster than general economy
➢Wipe out a lifetime of work and savings


Long-Term Care Statistics
➢2/3 over the age of 65 will need some kind of Long Term Care
# % women
➢Adult Day Care 273,000 59.6%
➢Home Health Agencies 4,742,500 62.7%
➢Hospices 1,244,500 59.7%
➢Nursing Homes 1,383,700 67.7%
➢Residential Care Communities 713,000 72%


Long-Term Care Statistics
➢Estimated number of years spent in Long Term Care after age 65
✓5 + years 20%
✓2-5 years 20%
✓1-2 years 12 %
✓0-1 years 17%
✓0 31%
➢71% of LT Care benefits are paid to Women


Long-Term Care Statistics
% of Nursing Home Residents
95 + years of age 7.6%
85-95 35.3%
75-84 27.5%
Under age 75 29.5%
2.8 yrs is the average length of stay in a nursing home


Strategies to Provide for Long-Term Care
Adequate income or reduction of assets
After tax available income
Earnings and asset sales
Borrowing against assets
Long-Term Care Insurance
Medicaid safety net……Eligibility


Compiling Information
Complete a questionnaire
Identify important people: family and advisors
Identify pre- or post-marital agreements, if any
Make inventory of assets, values and liabilities
Know how assets are titled: legal owner(s)
Obtain account statements, beneficiary designations
Insurance, business interests, collectibles, reward/frequent flier accounts
Consider online accounts, passwords, etc
Include anticipated inheritances
Write down goals, priority of goals, questions

## Questions

- Who can get into safety deposit box
- Have you made a list of your wishes for personal property, i.e. heirlooms, family possessions?
- Where is your will/trust located?
- Should heirs know what you plan?
- Have you compiled all end-of-life information in one place, made copies?

## Time Management Matrix

| | Urgent | Not Urgent |
|---|---|---|
| Important | I. Activities<br>Crisis Management<br>Deadline Projects | II. Activities<br>Planning<br>Relationship Building |
| Not Important | III. Activities<br>Some Calls, Mail,<br>Popular Activities | IV. Activities<br>Time Wasters<br>Busy Work |

## Resources

- Joe M. Hawbaker, Hawbaker Law Office
  - ✓ Phone: 402-558-3540
  - ✓ Email: jmhawbaker@gmail.com
- David Goeller, UNL Farm Transition Specialist (retired)
  - ✓ Phone: 402-450-2420
  - ✓ Email: dgoeller28@gmail.com
- Nebraska Farm Hotline
  - ✓ Phone 800-464-0258

## Resources

- Legal Aid of Nebraska Beginning Farmer and Rancher Development Program
- Business, Succession & Estate Workshops
- Nebraska Farm & Ranch One-on-One Clinics (Nebraska Department of Ag)
- Nebraska Farm Hotline

All through: 800-464-0258

## Articles Available

| | |
|---|---|
| Estate Questionnaire | Probate |
| Neb. Inheritance Tax | Federal Transfer Taxes |
| Health care POA | Durable POAs |
| Intestacy | Charitable Giving |
| Future Interests & LE Deed | Joint Tenancy & Tenancy in Common |
| Options & Preemptive Rights | Spousal Tax Planning & Portability |
| Personal Representative | PR Checklist |
| Special Use Valuation | Partition |
| The Will | Transfer on Death Deeds |
| Trusts | Buy-Sell Agreements |

## Ackowledgements

This project is supported by the Beginning Farmer and Rancher Development Program of the National Institute of Food and Agriculture, USDA, Grant # 2012-49400-19553. To find more resources and programs for beginning farmers and ranchers please visit , a component of the Beginning Farmer and Rancher Development Program.


USDA'S Non-Discrimination Policy Statement

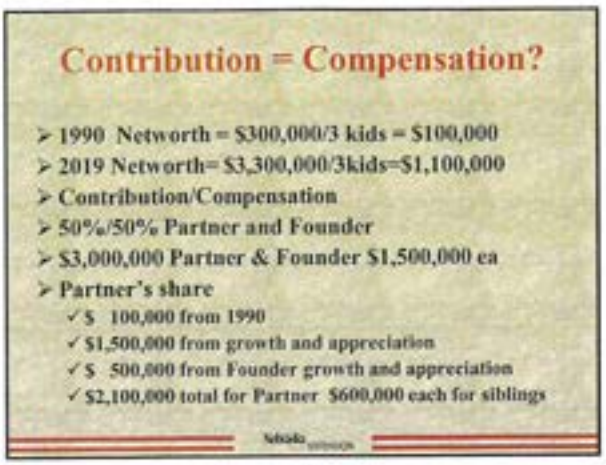
## Key Concepts

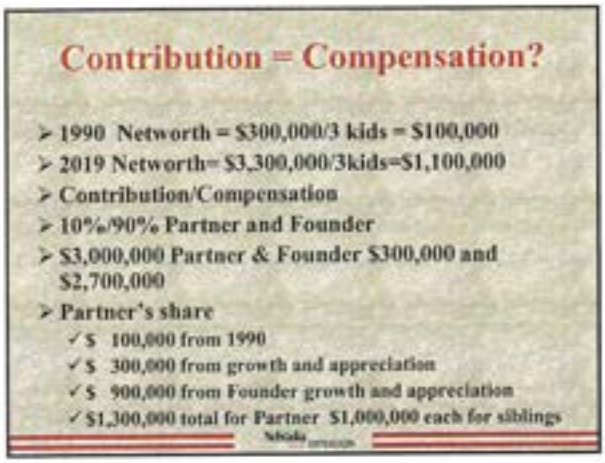
**GOLDEN RULE!**

**The person with the Gold gets to make the rules.**

## The Need for Planning

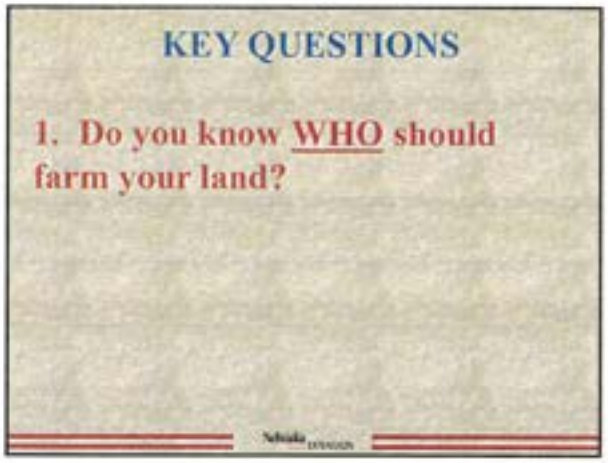

## FAIR vs EQUAL

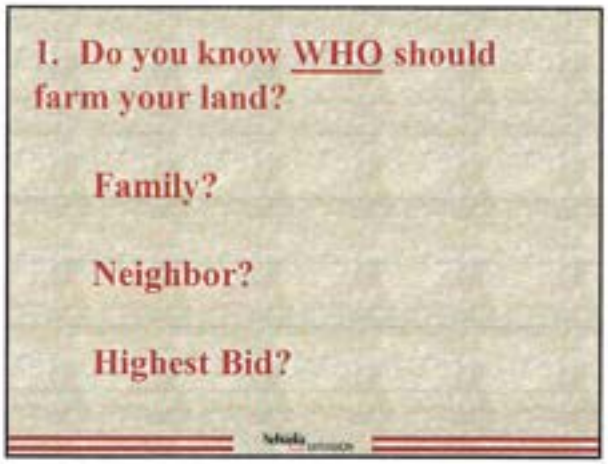

Contribution = Compensation?
➢ 1990 Networth = $300,000/3 kids = $100,000
➢ 2019 Networth= $3,300,000/3kids=$1,100,000
➢ Contribution/Compensation
➢ 50%/50% Partner and Founder
➢ $3,000,000 Partner & Founder $1,500,000 ea
➢ Partner's share
✓ $ 100,000 from 1990
✓ $1,500,000 from growth and appreciation
✓ $ 500,000 from Founder growth and appreciation
✓ $2,100,000 total for Partner $600,000 each for siblings

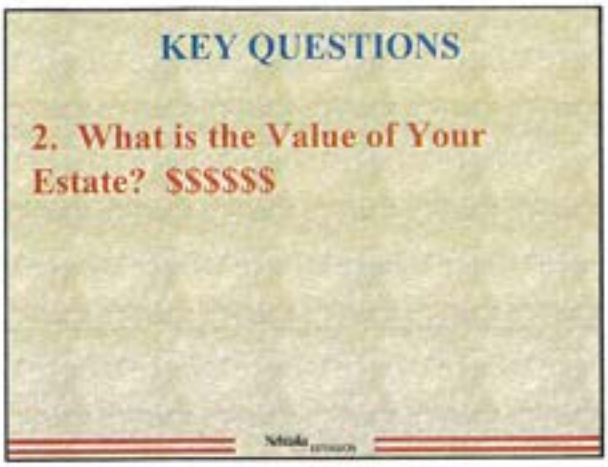

Contribution = Compensation?
➢ 1990 Networth = $300,000/3 kids = $100,000
➢ 2019 Networth= $3,300,000/3kids=$1,100,000
➢ Contribution/Compensation
➢ 10%/90% Partner and Founder
➢ $3,000,000 Partner & Founder $300,000 and $2,700,000
➢ Partner's share
✓ $ 100,000 from 1990
✓ $ 300,000 from growth and appreciation
✓ $ 900,000 from Founder growth and appreciation
✓ $1,300,000 total for Partner $1,000,000 each for siblings

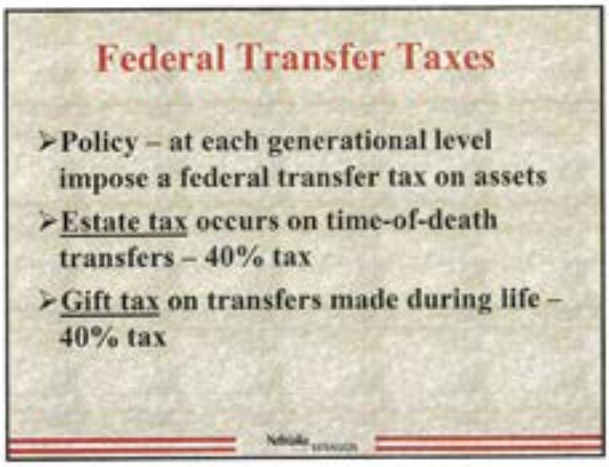

Sometimes the most unfair thing you can do is to treat all your heirs equally?
FAIR vs EQUAL

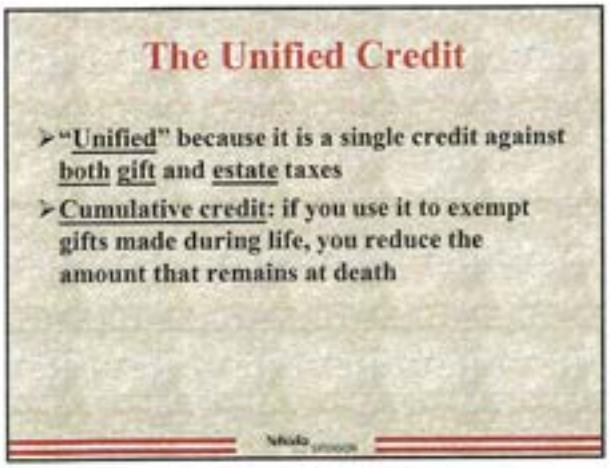

The Need for Planning
An Estate can pass from one generation to the next without planning but if you have specific desires……
Make A Plan


KEY QUESTIONS
1. Do you know WHO should farm your land?


1. Do you know WHO should farm your land?
Family?
Neighbor?
Highest Bid?


KEY QUESTIONS
2. What is the Value of Your Estate? $$$$$$


Federal Transfer Taxes
Policy – at each generational level impose a federal transfer tax on assets
Estate tax occurs on time-of-death transfers – 40% tax
Gift tax on transfers made during life – 40% tax


The Unified Credit
"Unified" because it is a single credit against both gift and estate taxes
Cumulative credit: if you use it to exempt gifts made during life, you reduce the amount that remains at death

## The Unified Credit

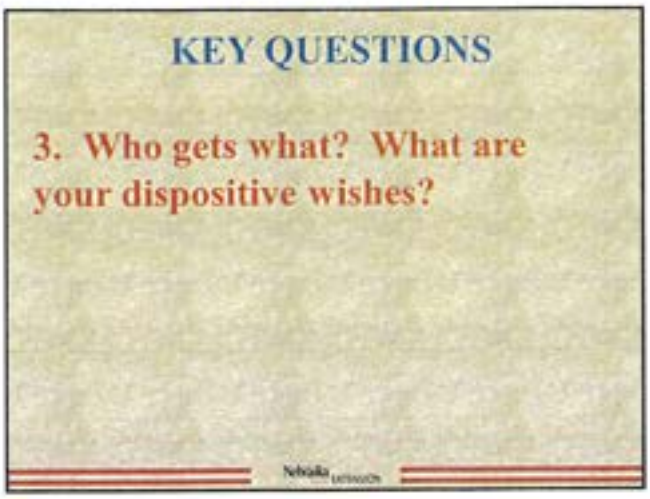
- Each person has a "credit" to exempt assets from federal transfer taxes
- Exemption amount is $11.4 million per person
- Indexed to inflation:
- Each person can transfer up to $11.4 million free of transfer taxes
- Spouses can transfer $11.4 x 2 = $22.8 mil
- Portability….between spouses

## Nebraska State Inheritance Tax

| Relationship | Rate | Exclusion |
|---|---|---|
| Spouse | 0% | Unlimited |
| Immediate | 1% | $40,000 each |
| ✓ Children, siblings (and spouses), parents, gr'parents | | |
| Remote | 13% | $15,000 each |
| ✓ Uncle, aunt, niece, nephew (or lineal descendants of them) | | |
| Other | 18% | $10,000 each |

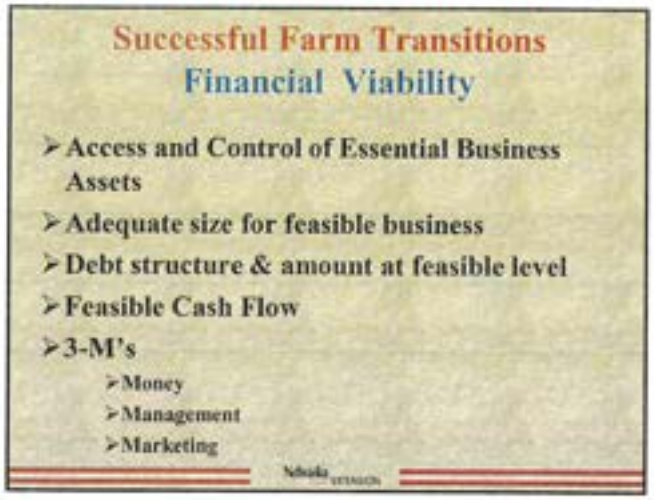
## Nebraska State Inheritance Tax

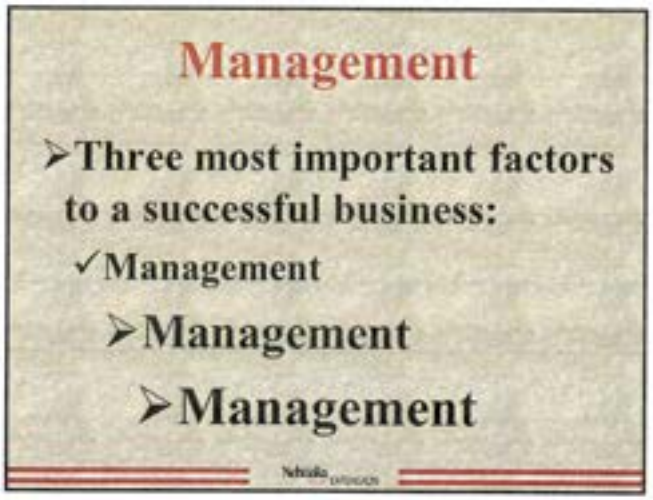
- Payable within 12 months of death
- Penalties (5% per month up to 25% of tax due) and interest for late payment or nonpayment
- Tax is lien on real estate (lien survives 10 years)
- Paid to county
- Taxable value approved by County Attorney
- 3 year lookback on pre-death transfers

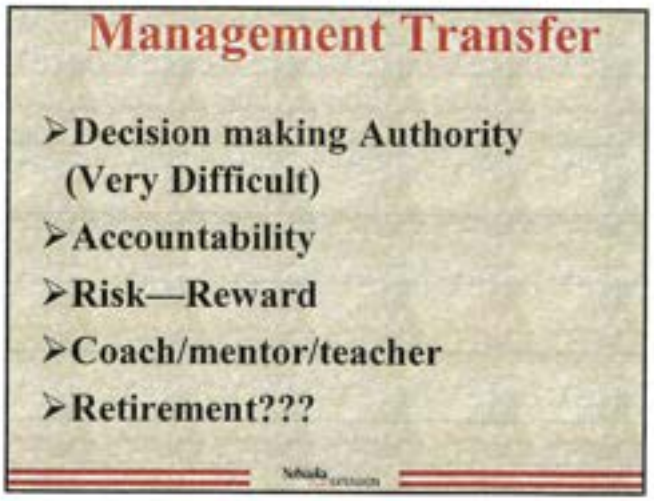

KEY QUESTIONS
3. Who gets what? What are your dispositive wishes?


Key Concepts
GOLDEN RULE!
The person with the Gold gets to make the rules.


COMMUNICATION??
It Depends??


Successful Farm Transitions
Financial Viability
➢Access and Control of Essential Business Assets
➢Adequate size for feasible business
➢Debt structure & amount at feasible level
➢Feasible Cash Flow
➢3-M's
➢Money
➢Management
➢Marketing


Management
➢Three most important factors to a successful business:
✓Management
➢Management
➢Management


Management Transfer
➢Decision making Authority (Very Difficult)
➢Accountability
➢Risk—Reward
➢Coach/mentor/teacher
➢Retirement???

# Thoughts about Having a Family Meeting

**Allan Vyhnalek, Extension Educator, Farm Transition, avyhnalek@unl.edu**

Most family disputes with farm/ranch transition/succession usually go back to poor or improper communication within the family. Most could be avoided with better communications. One way to improve communication is to have a family meeting at the beginning of the process. Here are some thoughts on having this meeting:

1. Be sure that the grandparents, or the decision makers of the family are on the same page. Do they want and/or are they willing to value the input from the rest of the family? Are they ready to put together a plan for their assets? They have to agree first.

2. For the first meeting – and first meeting only – invite all adult family members to participate. Provide electronic means for those not able to attend in person. Be sure to include both on-farm and off-farm (or ranch) family members. This includes grandparents, parents, spouses, grandchildren (of adult age).

3. The purpose of this first meeting is to get input only. It needs to be tightly controlled. When giving input, there needs to be strict ground rules. Things like:

    a. No evaluation of suggestions. Members of the family have to listen to all ideas. No one gets to criticize any idea brought forward.
    b. When giving input, no member of the family gets to dominate the discussion. Meaning that all members are given the chance for input prior to any member giving input the second, or third time.
    c. Take notes, record the ideas.

4. There will need to be follow-up meetings. For those decision making gatherings, the Golden Rule should apply. The Golden Rule in this case is: "Those who have the gold, make the rule."

    a. So the number of people at follow-up meetings will be drastically reduced. Maybe the decisions are made by Grandpa and Grandma – no one else.
    b. Or, if decision makers include the children, the recommendation is that no spouses or grandchildren be included in the decision making portion of the discussion.

5. The vision for the transfer of the farm/ranch business or distribution of assets should be developed prior to thinking about the 'tool' you'd use to execute this plan. Too often families worry about the trust, LLC, or the will and confusion reigns. Have a plan**. A competent lawyer will help execute the plan with the correct tools after the plan is laid out.

**Have a Plan:**

- If the farm/ranch business is ending, then the plan consists of details about how to end the operation and how to disperse assets, to whom and when.
- If the Farm/Ranch business is continuing to another generation, then the plan will need to consider how assets are transferred. Consideration would need to be given to having appropriate income for the older generation, income for the succeeding generation, and proper consideration of the non-farm/ranch family members.
- For more information, please refer to: **Fairness in the Farm/Ranch Estate Planning** at: https://agecon.unl.edu/succession/succession-fairness-estate-planning.pdf

Allan Vyhnalek can be reached at 402-472-1771, at 303C Filley Hall, Lincoln, NE 68585-0922, agecon.unl.edu/succession, or at avyhnalek2@unl.edu .

# Nebraska Farm Real Estate Market Highlights 2016-2017

Jim Jansen

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Department of Agricultural Economics

University of Nebraska Lincoln

Agricultural Economics

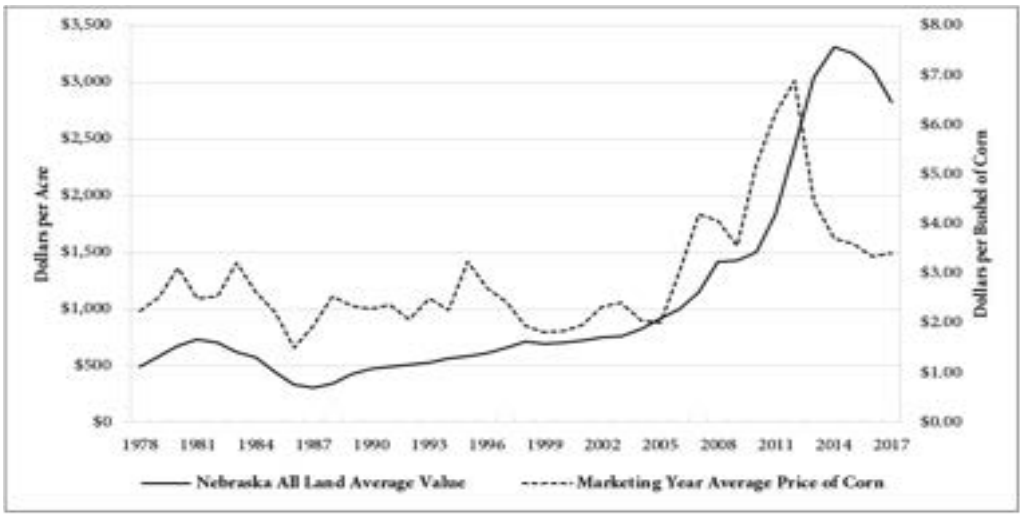
**Table 1. Average Reported Value of Nebraska Farmland for Different Land Types by Agricultural Statistics District, February 1, 2017[a]**

| Type of Land and Year | Agricultural Statistics District | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Northwest | North | Northeast | Central | East | Southwest | South | Southeast | State[c] |
| | Dollars Per Acre | | | | | | | | |
| **Dryland Cropland (No Irrigation Potential)** | | | | | | | | | |
| **$/acre** | 715 | 1,560 | 5,410 | 2,785 | 5,790 | 1,710 | 3,045 | 4,285 | 3,145 |
| **% change** | -4 | -5 | -6 | -14 | -9 | -13 | -15 | -12 | -9 |
| **Dryland Cropland (Irrigation Potential)** | | | | | | | | | |
| **$/acre** | 765 | 2,110 | 5,980 | 3,220 | 6,455 | 1,720 | 3,750 | 5,390 | 4,225 |
| **% change** | -3 | -2 | -11 | -16 | -10 | -5 | -13 | -16 | -12 |
| **Grazing Land (Tillable)** | | | | | | | | | |
| **$/acre** | 530 | 1,170 | 3,665 | 2,155 | 3,765 | 975 | 2,040 | 2,780 | 1,335 |
| **% change** | -6 | -12 | -7 | -12 | -14 | -9 | -9 | -13 | -11 |
| **Grazing Land (Nontillable)** | | | | | | | | | |
| **$/acre** | 465 | 705 | 2,230 | 1,685 | 2,495 | 820 | 1,500 | 2,005 | 895 |
| **% change** | -3 | -5 | -10 | -12 | -11 | -10 | -11 | -9 | -8 |
| **Hayland** | | | | | | | | | |
| **$/acre** | 795 | 1,370 | 3,295 | 2,170 | 3,090 | 1,485 | 2,160 | 2,680 | 1,815 |
| **% change** | -11 | -6 | -4 | -16 | -3 | -13 | -8 | -4 | -8 |
| **Gravity Irrigated Cropland** | | | | | | | | | |
| **$/acre** | 2,580 | 3,835 | 6,890 | 6,195 | 7,640 | 4,155 | 6,020 | 6,615 | 6,070 |
| **% change** | -13 | -3 | -5 | -6 | -6 | -5 | -4 | -10 | -6 |
| **Center Pivot Irrigated Cropland[b]** | | | | | | | | | |
| **$/acre** | 2,815 | 4,150 | 7,445 | 6,885 | 8,700 | 4,510 | 6,700 | 7,820 | 6,295 |
| **% change** | -14 | -5 | -6 | -9 | -8 | -15 | -7 | -15 | -9 |
| **All Land Average[c]** | | | | | | | | | |
| **$/acre** | 755 | 1,170 | 5,505 | 3,385 | 6,395 | 1,745 | 3,875 | 4,880 | 2,820 |
| **% change** | -8 | -6 | -8 | -10 | -9 | -11 | -9 | -14 | -9 |

Source: [a] UNL Nebraska Farm Real Estate Market Surveys, 2016 and 2017.
[b] Value of pivot not included in per acre value.
[c] Weighted averages.

- The Nebraska all land average price of $2,820 per acre marks a 9 percent decline from the prior year (Table 1). The state-wide Nebraska all land average peaked in 2014 and has declined over the last three years following commodity prices for crops and livestock raised across the state.
- Declines in dryland cropland generally trended higher than the irrigated cropland as rates of decline were reported between 9 to 12 percent. Dryland cropland without irrigation potential reported an average of $3,145 per acre whereas dryland cropland with irrigation potential averaged $4,225 per acre.
- Gravity and center pivot irrigated cropland also trended lower at $6,070 and $6,295 per acre resulting in declines of 6 and 9 percent. The highest rate of decline for center pivot irrigated cropland were reported at approximately 15 percent in the Northwest, Southwest, and Southeast Districts.
- Grazing land including tillable and nontillable reported land averages at $1,335 and $895 per acre, respectively. The tillable grazing land reported higher rates of decline of 11 percent compared to the nontillable at 8 percent.
- Hayland followed a similar trend to nontillable grazing land reporting a decline of 8 percent for an average of $1,815. The Northwest, Central, and Southwest Districts reported declines from 11 to 16 percent. These regions are noted as having some of the major native hayland areas of the state.

**Figure 3. Historical Nebraska All Land Average Value per Acre and Marketing Year Average Price of Corn, Selected Years 1978-2017[ab]**




Source: [a] UNL Nebraska Farm Real Estate Market Surveys, 1978-2017.
[b] World Agricultural Supply and Demand Estimates (WASDE), Office of the Chief Economist, USDA, 1978-2017. Preliminary Marketing Year Average price estimates for corn in 2016 and 2017.

- The Nebraska all land average price set highest nominal (non-inflation adjusted price) in 2014 at $3,315 per acre and since declined $495 over the last three years to $2,820 per acre during 39 year history of the UNL Nebraska Farm Real Estate Market Surveys (Figure 3).
- Record setting marketing year average price for corn of $6.89 per bushel set in 2012 declined approximately 51 percent to $3.40 per bushel (preliminary estimate) in 2017.
- Many panel members indicated that the value of agricultural commodities produced across Nebraska have a strong influence on the willingness of buyers to engage in land transactions. Also, many panel members indicated the outlook by many agricultural producers expect lower commodity prices for the upcoming production years.
- The ability of new owners to purchase and finance land at low long-term interest rates became a slightly negative factor in maintaining current land values according to panel members. Historically, periods in Nebraska agricultural real estate when the cost of financing new purchases increases the value of agricultural property tends to act inversely.

**Table 2. 2017 Values and Recent Trends by Area of the State[a]**

| Agricultural Statistics District | 2017 All Land Average Value | 1-Year Change | 3-Year Change | 5-Year Change |
|---|---|---|---|---|
| | Dollars/Acre | ---------- Percent Change ---------- | | |
| **Northwest** | 755 | -8 | -12 | 19 |
| **North** | 1,170 | -6 | -4 | 34 |
| **Northeast** | 5,505 | -8 | -15 | 11 |
| **Central** | 3,385 | -10 | -19 | 15 |
| **East** | 6,395 | -9 | -12 | 5 |
| **Southwest** | 1,745 | -11 | -12 | 31 |
| **South** | 3,875 | -9 | -20 | 15 |
| **Southeast** | 4,880 | -14 | -21 | 14 |
| **Entire State** | **2,820** | **-9** | **-15** | **16** |

Source: [a] UNL Nebraska Farm Real Estate Market Surveys, 2012, 2014, 2016, and 2017.

- Over the last five years the Nebraska all land average value per acre increased about 16 percent for the state as shown in Table 2. At 34 percent, the North District led the state over the last five years in increases, whereas the East rose at 5 percent marking the lowest growth rate.
- Since peaking in 2014, declines across Nebraska have averaged around 15 percent. The North District recorded the lowest rate of decline at 4 percent, whereas regions in the South and Southeast reported declines of around 20 percent.

**Table 3. 2017 Values and Recent Trends by Land Class in Nebraska[a]**

| Land Class | 2017 Average Value | 1-Year Change | 3-Year Change | 5-Year Change |
|---|---|---|---|---|
| | Dollars/Acre | ---------- Percent Change ---------- | | |
| **Dryland Cropland** | | | | |
| **No Irrigation Potential** | 3,145 | -9 | -16 | 27 |
| **Irrigation Potential** | 4,225 | -12 | -19 | -3 |
| **Grassland** | | | | |
| **Tillable** | 1,335 | -11 | -4 | 32 |
| **Nontillable** | 895 | -8 | 3 | 53 |
| **Hayland** | | | | |
| **All Classes** | 1,815 | -8 | -8 | 46 |
| **Irrigated Cropland** | | | | |
| **Gravity** | 6,070 | -6 | -17 | 13 |
| **Center Pivot[b]** | 6,295 | -9 | -18 | 8 |
| **All Land** | **2,820** | **-9** | **-15** | **16** |

Source: [a] UNL Nebraska Farm Real Estate Market Surveys, 2012, 2014, 2016, and 2017.
[b] Value of pivot not included in per acre value.

- Grassland and hayland classes noted the highest 5-year change in average land values (Table 3), but these trends subsided for the 1 and 3-year changes from the peak of 2014.
- By land class, the dryland and irrigated cropland show highest rates of decline for the prior 3-year period. These trends relate with the lower commodity prices for the major crops produced and sold across the state.

## 2017 Land Values Ranges

In addition to the estimated average value of land, panel members reported low and high grade quality levels for each land class summarized in Table 4. These averages create estimated quality value ranges for the different land classes in Nebraska.

**Table 4. Average Reported Value Per Acre of Nebraska Farmland for Different Types and Grades of Land in Nebraska by Agricultural Statistics District, February 1, 2017[a]**

| Type of Land and Grade | Agricultural Statistics District | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Northwest | North | Northeast | Central | East | Southwest | South | Southeast |
| | Dollars Per Acre | | | | | | | |
| **Dryland Cropland (No Irrigation Potential)** | | | | | | | | |
| **Average** | 715 | 1,560 | 5,410 | 2,785 | 5,790 | 1,710 | 3,045 | 4,285 |
| **High Grade** | 935 | 2,080 | 6,980 | 3,160 | 6,945 | 2,095 | 3,625 | 5,060 |
| **Low Grade** | 540 | 1,430 | 4,020 | 2,105 | 4,610 | 1,170 | 2,205 | 3,075 |
| **Dryland Cropland (Irrigation Potential)** | | | | | | | | |
| **Average** | 765 | 2,110 | 5,980 | 3,220 | 6,455 | 1,720 | 3,750 | 5,390 |
| **High Grade** | 895 | 2,450 | 7,250 | 3,640 | 7,225 | 2,065 | 4,400 | 6,315 |
| **Low Grade** | 565 | 1,810 | 4,805 | 2,520 | 5,050 | 1,540 | 2,740 | 4,030 |
| **Grazing Land (Tillable)** | | | | | | | | |
| **Average** | 530 | 1,170 | 3,665 | 2,155 | 3,765 | 975 | 2,040 | 2,780 |
| **High Grade** | 615 | 1,425 | 3,910 | 2,445 | 4,110 | 1,195 | 2,370 | 3,195 |
| **Low Grade** | 450 | 1,035 | 2,560 | 1,600 | 2,765 | 865 | 1,450 | 2,305 |
| **Grazing Land (Nontillable)** | | | | | | | | |
| **Average** | 465 | 705 | 2,230 | 1,685 | 2,495 | 820 | 1,500 | 2,005 |
| **High Grade** | 585 | 935 | 2,860 | 1,905 | 2,950 | 965 | 1,945 | 2,190 |
| **Low Grade** | 400 | 620 | 1,820 | 1,190 | 1,925 | 650 | 1,330 | 1,900 |
| **Hayland** | | | | | | | | |
| **Average** | 795 | 1,370 | 3,295 | 2,170 | 3,090 | 1,485 | 2,160 | 2,680 |
| **High Grade** | 885 | 1,585 | 3,825 | 2,350 | 3,565 | 1,620 | 2,875 | 3,060 |
| **Low Grade** | 685 | 1,085 | 2,520 | 1,800 | 2,310 | 1,205 | 1,490 | 2,290 |
| **Gravity Irrigated Cropland** | | | | | | | | |
| **Average** | 2,580 | 3,835 | 6,890 | 6,195 | 7,640 | 4,155 | 6,020 | 6,615 |
| **High Grade** | 3,475 | 4,265 | 8,555 | 6,925 | 8,765 | 4,580 | 7,060 | 7,140 |
| **Low Grade** | 2,250 | 2,800 | 5,895 | 5,205 | 6,530 | 3,280 | 4,420 | 5,500 |
| **Center Pivot Irrigated Cropland [b]** | | | | | | | | |
| **Average** | 2,815 | 4,150 | 7,445 | 6,885 | 8,700 | 4,510 | 6,700 | 7,820 |
| **High Grade** | 3,265 | 5,560 | 8,875 | 7,900 | 9,670 | 5,320 | 7,840 | 8,330 |
| **Low Grade** | 2,385 | 3,750 | 6,350 | 5,845 | 7,315 | 3,810 | 5,530 | 6,490 |

Source: [a] UNL Nebraska Farm Real Estate Market Survey, 2017.
[b] Value of pivot not included in per acre value.

- Trends reported by panel members indicate a second year of widening spreads between the high and low grade quality averages across the seven land classes as shown in Table 4. The spread between the high and low grades of land tended to be higher for irrigated and dryland cropland than the grazing or hayland.
- Demand for those engaged in purchasing low grade quality land tended to decline faster in late 2016 and early 2017 than high grade land counterpart according to survey participants.
- Lower grade land may continue to see softening demand with trends observed in commodity markets for crops and livestock throughout the state. Several panel members indicated with low crop prices that in certain regions of the state that marginal cropland may begin to shift back into hayland or grazing land.

## 2017 Net Rates of Return to Agricultural Land

The net rates of return to agricultural land gives an estimate on the net income earning potential relative to the value of the asset. Table 5 reports the estimated net rates of return for dryland cropland, irrigated cropland, and grazing land in Nebraska.

**Table 5. Estimated Annual Net Rates of Return by Type of Land and Agricultural Statistics District, Selected Years 2013-2017[ab]**

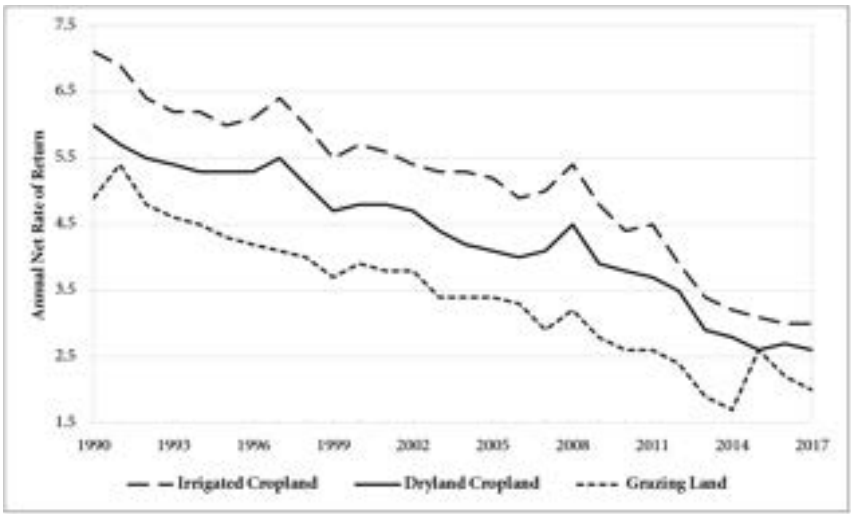
| Type of Land and Year | Agricultural Statistics District | | | | | | | | State Average |
|---|---|---|---|---|---|---|---|---|---|
| | Northwest | North | Northeast | Central | East | Southwest | South | Southeast | |
| | Percent | | | | | | | | |
| **Dryland Cropland** | | | | | | | | | |
| **2013** | 3.5 | 2.9 | 3.3 | 2.8 | 2.8 | 3.0 | 1.9 | 2.7 | 2.9 |
| **2014** | 3.5 | 2.4 | 3.0 | 2.5 | 3.0 | 2.6 | 2.2 | 2.5 | 2.8 |
| **2015** | 3.4 | 2.4 | 2.9 | 2.4 | 2.6 | 2.5 | 2.3 | 2.4 | 2.6 |
| **2016** | 3.6 | 2.5 | 3.0 | 2.7 | 2.6 | 2.4 | 2.2 | 2.5 | 2.7 |
| **2017** | 3.5 | 2.4 | 2.8 | 2.5 | 2.3 | 2.5 | 2.2 | 2.4 | 2.6 |
| **Irrigated Cropland** | | | | | | | | | |
| **2013** | 4.4 | 3.5 | 3.8 | 3.1 | 3.3 | 3.7 | 2.8 | 3.0 | 3.4 |
| **2014** | 4.6 | 2.7 | 3.6 | 2.5 | 3.4 | 3.4 | 2.4 | 3.1 | 3.2 |
| **2015** | 4.4 | 2.6 | 3.5 | 2.4 | 3.0 | 3.3 | 2.4 | 2.8 | 3.1 |
| **2016** | 4.3 | 2.5 | 3.6 | 2.6 | 2.9 | 3.2 | 2.3 | 2.8 | 3.0 |
| **2017** | 4.0 | 2.6 | 3.4 | 2.7 | 2.8 | 3.1 | 2.4 | 2.7 | 3.0 |
| **Grazing Land** | | | | | | | | | |
| **2013** | 1.9 | 2.3 | 2.4 | 1.6 | 2.0 | 1.8 | 1.7 | 1.7 | 1.9 |
| **2014** | 2.1 | 2.0 | 2.1 | 1.7 | 1.9 | 2.1 | 1.7 | 1.4 | 1.7 |
| **2015** | 2.3 | 2.6 | 2.7 | 2.1 | 2.2 | 2.6 | 2.2 | 1.7 | 2.3 |
| **2016** | 2.2 | 2.7 | 2.6 | 2.1 | 2.0 | 2.3 | 2.1 | 1.5 | 2.2 |
| **2017** | 2.1 | 2.5 | 2.4 | 2.0 | 1.7 | 2.1 | 1.9 | 1.6 | 2.0 |

Source: [a] UNL Nebraska Farm Real Estate Market Surveys, 2013-2017.

[b] Panel members reported estimates of annual net returns as percentage rates of current land values. Real estate appraisers refer to this percentage as the market-derived capitalization rate.

- Net rates of return for the three major land classes continued a second year of declines in 2017. On average, the net rates of return declined about one tenth of a percent across the eight districts as noted in Table 5. Several districts reported either unchanged or slightly higher net rates of return, but these increases were a very small percent change over the prior year.
- Net rates of return account for land ownership expenses associated with the property. For many agricultural property owners taxes on their land remain a high expense for ownership. Increased landownership expenses inversely affect net rates of return if additional returns do not offset the additional costs imposed on the owner.
- Irrigated cropland on average reported higher net rates of return than dryland cropland. Grazing land reported the lowest rates of return out of the three land classes reported by panel members.

**Figure 4. Historical Estimated Annual Net Rates of Return by Land Type in Nebraska, Selected Years 1990-2017[a]**




Source: [a] UNL Nebraska Farm Real Estate Market Surveys, 1990-2017.

- In Nebraska, net rates of return for the three land classes reported by panel members since 1990 followed similar patterns as shown in Figure 4. Historically, as the market value of the three different land classes increased the net rates of return tend to trend lower.
- Fiscal policy in the United States continues to hold interest rates near historical lows. As a result, other investments caring a similar level of risk as agricultural land in Nebraska tends to have a similar level of return.
- Many panel members indicated trends in annual net rates of return may likely continue unless commodity prices increase or major changes in input expenses occur within the next year across Nebraska.

## Factors Influencing Current Agricultural Land Markets

Many factors contributed to the changes in agricultural land values during 2017. Figure 3 ranks and summarizes these factors based upon panel members' observations on their influences on land markets.

**Figure 5. Reporters' Rating of Factors Influencing Agricultural Land Values in Their Areas of Nebraska, February 2017**


Source: UNL Nebraska Farm Real Estate Market Survey, 2017.

- Commodity prices and input expenses continued to place pressure on land values according to panel members as shown in Figure 5. Current commodity prices, property tax levels, farm input costs, and the financial health of the current owners were listed at the top five factors negatively influencing the market value of agricultural land in Nebraska.
- Non-farmer investor interest in land purchases and 1031 tax exchanges were reported as the only two factors listed as two of the highest positive impacts on regional land values. These factors rank only slightly positive in 2017.
- Property taxes along with future property tax policies remain a major concern among panel members. Discussions on property tax policies remain a major issue actively being debated among stakeholders across the state.

## Characteristics of 2016 Land Market Transactions

Each year panel members provide specific details on actual land transactions considered to be representative of their local markets. Panel members reported details on 433 farm real estate transactions for 2016 in Nebraska and these transactions are reported in Tables 6, 7, 8, and 9.

**Table 6. Land Characteristics of 2016 Agricultural Real Estate Transactions, by Agricultural Statistics District in Nebraska**

| Agricultural Statistics District | Average Size of Tract | Average Percent Distribution | | | Average Price | |
|---|---|---|---|---|---|---|
| | | Dryland Cropland | Irrigated Cropland | Pasture | Per Acre | Per Tract |
| | --- Acres --- | ---------- Percent ---------- | | | ------ Dollars ------ | |
| **Northwest** | 1,040 | 27 | 2 | 71 | 914 | 950,447 |
| **North** | 887 | 1 | 2 | 97 | 1,047 | 928,890 |
| **Northeast** | 173 | 64 | 24 | 12 | 5,982 | 1,032,022 |
| **Central** | 172 | 27 | 40 | 33 | 4,171 | 716,305 |
| **East** | 113 | 56 | 23 | 21 | 6,842 | 773,067 |
| **Southwest** | 296 | 30 | 16 | 54 | 1,884 | 557,462 |
| **South** | 208 | 21 | 42 | 37 | 3,855 | 802,861 |
| **Southeast** | 136 | 60 | 27 | 13 | 5,160 | 701,504 |
| **State** | **222** | **35** | **18** | **47** | **3,529** | **784,411** |

Source: Based on 433 transactions which occurred across Nebraska during 2016 and reported in the UNL Nebraska Farm Real Estate Market Survey, 2017.

- The average parcel of ground sold in Nebraska in 2016 was 222 acres in size (Table 6). These sales equated to an average price of $3,529 per acre or $784,411 per parcel. On average, the higher priced per acre sales occurred in the East District at $6,842 per acre, whereas the lower priced per acre sales occurred in the Northwest District at $914 per acre.
- The Northwest District reported the largest average size tract of land sold in 2016 at 1,040 acres followed second by the North at 887 acres. The six other Districts of Nebraska averaged closer to 130 to 200 expect for the Southwest reporting an average of 296 acres.
- The largest increase in percentage of land sold by type from 2015 to 2016 was pasture in the Northwest District. In 2016, 71 percent of the land sold in the Northwest District was pasture compared to 51 percent in 2015. The percentage of dryland cropland sold in the Central District decreased 14 percent.
- The largest decrease in percentage of land sold by type from 2015 to 2016 was pasture in the Central District. In 2015, 43 percent of the land sold in the Central District was pasture compared to 33 percent in 2016.

**Table 7. Types of Financing Associated with 2016 Agricultural Real Estate Sales, by Agricultural Statistics District in Nebraska**

| Agricultural Statistics District | Financing of Purchase | | | |
|---|---|---|---|---|
| | Cash Purchase | Mortgage | Contract For Deed | Other |
| | Percent | | | |
| **Northwest** | 64 | 36 | 0 | 0 |
| **North** | 33 | 54 | 4 | 8 |
| **Northeast** | 32 | 63 | 0 | 5 |
| **Central** | 50 | 50 | 0 | 0 |
| **East** | 52 | 47 | 1 | 0 |
| **Southwest** | 70 | 28 | 2 | 0 |
| **South** | 84 | 16 | 0 | 0 |
| **Southeast** | 60 | 27 | 5 | 8 |
| **State** | **54** | **40** | **2** | **3** |

Source: Based on 433 transactions which occurred across Nebraska during 2016 and reported in the UNL Nebraska Farm Real Estate Market Survey, 2017.

- In 2016, a 9 percent increase in cash purchases at 54 were reported for 2016 over 45 percent for 2015. Mortgages fell from 53 percent in 2015 to 40 percent in 2016 for representative land sales reported by panel members.
- Contract for deed and other sources of financing increased nominally at 2 and 3 percent, but remained near historical lows for 2016.

**Table 8. Percent Distribution of Agricultural Real Estate Transactions in 2016 by Buyer Type, by Agricultural Statistics District in Nebraska**

| Agricultural Statistics District | Type of Buyer | | | |
|---|---|---|---|---|
| | Active Farmer/Rancher | Local Non-Farmer | Non-Local Nebraska Resident | Out-of-State Buyer |
| | Percent | | | |
| **Northwest** | 55 | 0 | 9 | 36 |
| **North** | 75 | 17 | 4 | 4 |
| **Northeast** | 80 | 11 | 8 | 2 |
| **Central** | 77 | 18 | 5 | 0 |
| **East** | 71 | 23 | 5 | 1 |
| **Southwest** | 91 | 5 | 5 | 0 |
| **South** | 90 | 3 | 6 | 0 |
| **Southeast** | 70 | 16 | 13 | 2 |
| **State** | **76** | **15** | **7** | **2** |

Source: Based on 433 transactions which occurred across Nebraska during 2016 and reported in the UNL Nebraska Farm Real Estate Market Survey, 2017.

- Active farmers and ranchers once again led the type of buyers' actively purchasing agricultural real estate in Nebraska during 2016. According to Table 8, active farmers/ranchers and local non-farmers accounted for greater than 90 percent of the annual agricultural real estate transactions reported in 2016.
- Non-local Nebraska residents and out-of-state buyers accounted for approximately 10 percent of the agricultural sales reported by panel members. In the Northwest District approximately 36 percent of the sales were reported as being done by out-of-state buyers.

**Table 9. Percent Distribution of Agricultural Real Estate Transactions in 2016 by Seller Type, by Agricultural Statistics District in Nebraska**

| Agricultural Statistics District | Type of Seller | | | | | |
|---|---|---|---|---|---|---|
| | Active Farmer | Quitting Farmer | Estate | Local Non-Farmer | Non-Local NE Resident | Out-of-State Resident |
| | Percent | | | | | |
| **Northwest** | 18 | 9 | 45 | 0 | 9 | 18 |
| **North** | 38 | 21 | 21 | 17 | 0 | 4 |
| **Northeast** | 11 | 11 | 49 | 11 | 6 | 12 |
| **Central** | 23 | 5 | 45 | 23 | 5 | 0 |
| **East** | 20 | 9 | 40 | 12 | 8 | 11 |
| **Southwest** | 7 | 42 | 33 | 9 | 9 | 0 |
| **South** | 10 | 3 | 58 | 23 | 0 | 6 |
| **Southeast** | 38 | 7 | 38 | 8 | 3 | 5 |
| **State** | **22** | **12** | **41** | **12** | **5** | **8** |

Source: Based on 433 transactions which occurred across Nebraska during 2016 and reported in the UNL Nebraska Farm Real Estate Market Survey, 2017.

- Active farmers and estate sales accounted for approximately 63 percent of the sellers for agricultural real estate sales during 2016 (Table 9). The other leading seller types included those quitting farming and local non-farmers at 12 percent each.
- Compared to 2015, Nebraska noted a 6 percent increase in the number of active farmers selling agricultural real estate to 22 percent. The North and Southeast Districts reported active farmers attributed more than 35 percent of the land sales occurring from active farmers.
- Those quitting farming accounted for about 12 percent of the seller type in agricultural real estate transactions in Nebraska for 2016, but over 40 percent of the sales in the Southwest District were from this seller type.

# Nebraska Farm Real Estate Market Highlights 2016-2017

By
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Sincere appreciation goes to the panel members for their participation in the UNL 2017 Nebraska Farm Real Estate Market Survey. Without their valuable input, much of the information within this report would not exist.

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NOTE: This report is available at agecon.unl.edu/realestate

If electronic copies are not accessible, hard copies of these highlights can be purchased for $7.00 per copy from:

Department of Agricultural Economics
University of Nebraska–Lincoln
Attn: Real Estate Report
207 Filley Hall
Lincoln, NE 68583-0922

## 2017 Cash Rental Rates

Marking the second consecutive year, cash rental rates declined on average about 5 to 10 percent for the cropland and grazingland of Nebraska. Table 10 summarizes average cash rental rates for 2017, percent changes from the prior year, and the high and low third quality grade averages.

**Table 10. Reported Cash Rental Rates for Various Types of Nebraska Farmland and Pasture: 2017 Averages, Percent Change from 2016 and Quality Ranges by Agricultural Statistics District[a]**

| Type of Land | Agricultural Statistics District | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Northwest | North | Northeast | Central | East | Southwest | South | Southeast |
| | Dollars Per Acre | | | | | | | |
| **Dryland Cropland** | | | | | | | | |
| **Average** | 29 | 55 | 215 | 88 | 195 | 39 | 72 | 155 |
| **% Change** | -9 | -8 | -4 | -8 | -3 | -7 | -10 | -6 |
| **High Third Quality…** | 41 | 67 | 265 | 120 | 235 | 56 | 115 | 200 |
| **Low Third Quality…..** | 23 | 41 | 170 | 68 | 155 | 28 | 56 | 130 |
| **Gravity Irrigated Cropland** | | | | | | | | |
| **Average** | 120 | 165 | 255 | 220 | 260 | 170 | 205 | 235 |
| **% Change** | -4 | -6 | -7 | -4 | -9 | -6 | -5 | -6 |
| **High Third Quality…** | 150 | 190 | 295 | 255 | 300 | 215 | 250 | 275 |
| **Low Third Quality…..** | 95 | 140 | 210 | 185 | 235 | 135 | 170 | 205 |
| **Center Pivot Irrigated Cropland[b]** | | | | | | | | |
| **Average** | 155 | 205 | 305 | 230 | 290 | 200 | 225 | 265 |
| **% Change** | -9 | -7 | -12 | -4 | -9 | -11 | -6 | -9 |
| **High Third Quality…** | 200 | 240 | 350 | 270 | 325 | 245 | 270 | 315 |
| **Low Third Quality…..** | 125 | 160 | 250 | 215 | 245 | 185 | 195 | 225 |
| **Pasture** | | | | | | | | |
| **Average** | 11 | 25 | 62 | 34 | 53 | 22 | 35 | 49 |
| **% Change** | -8 | -4 | -17 | -6 | -14 | -8 | -5 | -9 |
| **High Third Quality…** | 22 | 36 | 76 | 49 | 70 | 32 | 47 | 68 |
| **Low Third Quality…..** | 7 | 16 | 42 | 31 | 38 | 18 | 22 | 33 |

Source: [a] Panel members reported estimated cash rental rates (both averages and ranges) from the UNL Nebraska Farm Real Estate Market Survey, 2017.

[b] Cash rents on center pivot land assumes landowners own total irrigation system.

- Rental rates across the state marked varying degrees of declines as shown in Table 10. The average cash rental rate for agricultural ground on average declined from 5 to 10 percent for 2017, but several cases exist where the drop exceeded 10 percent.
- Panel members indicated the ranges in the rental rates paid by tenants across the state reflect the demand for higher third versus low third quality grades. Lower grades of ground might have higher variability in production and other detrimental features.
- Dryland cropland reported a decline of 9 and 10 percent in the Northwest and South Districts, but only slightly lower rates were reported in the Northeast and East Districts. Irrigated cropland reported a decline of closer to 10 percent across the state except for the Central at about 4 percent.
- Pasture on a per acre basis noted a higher rate of decline in the eastern third of the state including the Northeast, East, and Southeast Districts of Nebraska compared to the western two-thirds of the state. Historically, these three Districts have reported the highest per acre pasture rental rate out of Nebraska.

**Table 11. Reported Cash Rental Rates for Pasture on a Monthly Rate Basis for 2017: Averages and Ranges by Agricultural Statistics District[a]**

| Type | Agricultural Statistics District | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Northwest | North | Northeast | Central | East | Southwest | South | Southeast |
| | - - - - - - - - - - - - - - - - - - - - - - Dollars Per Acre - - - - - - - - - - - - - - - - - - - - - - | | | | | | | |
| **Cow-Calf Pair Rates[b]** | | | | | | | | |
| **Average**..... | 35.05 | 61.05 | 53.20 | 53.30 | 51.10 | 51.65 | 47.30 | 48.50 |
| **High Third Quality…** | 47.40 | 75.80 | 68.30 | 66.15 | 70.20 | 61.45 | 58.10 | 65.60 |
| **Low Third Quality…..** | 25.50 | 46.75 | 42.80 | 40.70 | 44.10 | 41.70 | 38.80 | 41.15 |
| **Stocker (500-600 lb.) Rates** | | | | | | | | |
| **Average**..... | 23.00 | 35.75 | 37.85 | 32.05 | 39.65 | 36.15 | 34.15 | 36.85 |
| **High Third Quality…** | 29.70 | 46.15 | 45.75 | 42.20 | 46.40 | 43.75 | 42.10 | 44.00 |
| **Low Third Quality…..** | 19.65 | 26.50 | 30.15 | 23.75 | 35.65 | 29.90 | 27.80 | 27.35 |

Source: [a] Panel members reported estimated cash rental rates (both averages and ranges) from the UNL Nebraska Farm Real Estate Market Survey, 2017.

[b] A cow-calf pair is typically considered to be 1.25 to 1.30 animal units (animal unit being 1,000 lb. animal). However, this can vary depending on weight of cow and age of calf.

- Rental rates for cow-calf pairs along with stockers (500-600 lb.) declined for the second year in a row as shown in Table 11 for 2017. On average, cow-calf pairs fluctuated down from 5 to 10 percent across Nebraska.
- Panel members indicated once again that cow-calf pair and stocker rates in the Northwest District were influenced by the competitive nature of the area leading to lower rental rates on average compared to other regions of the state due to the higher stocking rates, geographical attributes, and range quality.
- The degree of services provided by the landlord or tenant might have a bearing on the actual range of rental rates paid across Nebraska. In cases where the property owner provides additional service beyond renting of the ground to the tenant (such as checking cattle or stock ponds), the rental rate may be negotiated higher. A lower rate may be established if the tenant provides additional maintenance than reasonably expected or establishes new site improvements for the property which the owner retains after the termination of the lease.

## Special Feature: 2017 Crop Share Leasing Trends in Nebraska

Each year the special feature section covers topics on new or emerging issues related to agricultural land in Nebraska. These topics reflect interest expressed by panel members and readership of the *Nebraska Farm Real Estate Market Highlights Reports*. The special feature section in 2017 focuses on crop share leasing trends in Nebraska. Results from this special feature section of the survey are summarized in Table 12, Figures 6, and 7.

Landowners in Nebraska engaged in share lease arrangements typically receive a percentage of the actual crop yield as payment for leasing the property to the tenant. The landowner might share input and production expenses of raising the crop depending upon the lease arrangement. Table 12 summarizes common crop share lease expenses and the proportionality of landlord sharing these costs with tenants as part of 2017 contractual arrangements in Nebraska. Panel members were asked to estimate the percent of crop share leases where the landlord proportionally share in the production expenses for seed, fertilizer, and chemicals in the state.

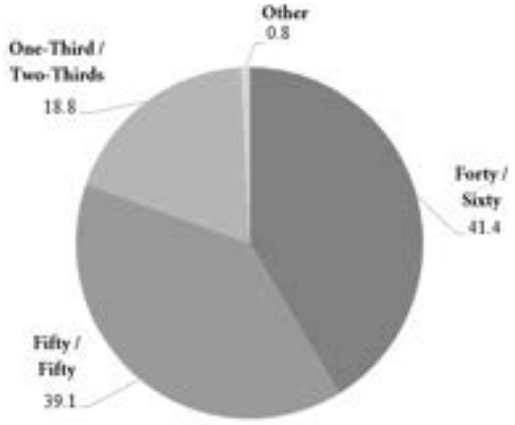
**Table 12. 2017 Production Expenses Paid by the Landlord to the Tenant for Common Crop Share Lease Arrangements in Nebraska**

| Expenses and Crop Share Lease Arrangement | Average Percent Distribution | |
|---|---|---|
| | Landlord Proportionally Share | Landlord Do Not Proportionally Share |
| | Percent | |
| **Seed** | | |
| **33 : 67** | 20 | 80 |
| **40 : 60** | 44 | 56 |
| **50 : 50** | 75 | 25 |
| **Fertilizer** | | |
| **33 : 67** | 33 | 67 |
| **40 : 60** | 84 | 16 |
| **50 : 50** | 89 | 11 |
| **Chemicals** | | |
| **33 : 67** | 28 | 72 |
| **40 : 60** | 62 | 38 |
| **50 : 50** | 77 | 23 |

Source: UNL Nebraska Farm Real Estate Market Survey, 2017.

- According to Table 12, the proportionality of sharing seed, fertilizer, and chemicals expenses by the landlord tends to increase with the lease arrangements where the property owner has a higher share of the crop. Panel members indicated that local expectations by Nebraska Agricultural Statistics District may vary from the state averages depending upon the region.
- Landlord sharing seed production expenses had a tendency of increasing with the higher share lease arrangements as the 33 : 67, 40 : 60, and 50 : 50 crop shares proportionally divide this expenses 20, 44, and 75 percent on average.
- Fertilizer reported the highest share of proportionally sharing production expenses as the 40 : 60 and 50 : 50 crop share leases reported 84 and 89 percent of dividing this expense between the landlord and tenant. The 33 : 67 crop share lease reported 33 percent of the time proportionally sharing fertilizer expense with the landlord.
- In addition to the noted production expenses, landlords typically cover their proportional share of the premium for a crop insurance policy or other related risk management program.

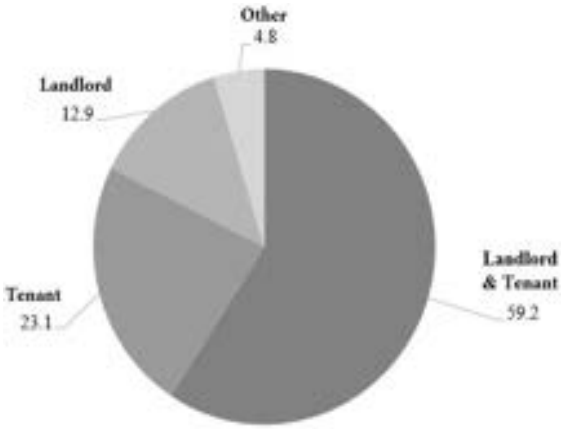
**Figure 6. Prevalence of Common Crop Share Lease Arrangements for Landlords and Tenants in Nebraska**




Source: UNL Nebraska Farm Real Estate Market Survey, 2017.

- According to Figure 6, the most popular crop share lease arrangement in Nebraska included the forty / sixty and fifty / fifty lease arrangements at 41.4 and 39.1 percent respectively. The one-third / two-thirds and other lease arrangements accounted for 18.8 and 0.8 percent of the crop shares.

**Figure 7. Marketer of Landlords Portion of Commodity Produced as Part of Crop Share Lease Arrangement in Nebraska**




Source: UNL Nebraska Farm Real Estate Market Survey, 2017.

- In Figure 7 panel members reported on the individual or entity which markets the landlord portion of the commodity produced as part of crop share lease arrangement in Nebraska. Ranked in order of which party markets the crop produced includes the landlord & tenant, tenant, landlord, and other at 59.2, 23.1, 12.9, and 4.8 percent.
- Panel members indicated the skill and interest of the landlord and tenant engaged in a crop share lease agreement have a strong influence on which party markets the grain produced under the arrangement.

**Statistical Appendix**

**Appendix Table 1. Farm Real Estate Values in Nebraska, USDA Historical Series, 1860-2017[a]**

| Year | Number of Farms | Land in Farms | Value of Land & Buildings | | | Building Value |
|---|---|---|---|---|---|---|
| | | | Per Acre | Per Farm | Total Value | |
| | Thousands | Million Acres | Dollars | Thousand Dollars | Million Dollars | Million Dollars |
| **1860** | 2.8 | 1.0 | 6 | 1.4 | 6 | |
| **1870** | 12.3 | 2.1 | 12 | 2.0 | 24 | |
| **1880** | 63.4 | 9.9 | 11 | 1.7 | 106 | |
| **1890** | 113.6 | 21.6 | 19 | 3.5 | 402 | |
| **1900** | 121.5 | 29.9 | 19 | 4.8 | 578 | 91 |
| **1910** | 129.7 | 38.6 | 47 | 14.0 | 1,813 | 199 |
| **1911** | 129.2 | 39.0 | 48 | 14.4 | 1,864 | |
| **1912** | 128.8 | 39.2 | 49 | 14.9 | 1,919 | |
| **1913** | 128.2 | 39.5 | 50 | 15.4 | 1,974 | |
| **1914** | 127.5 | 39.8 | 51 | 15.9 | 2,027 | |
| **1915** | 126.9 | 40.3 | 50 | 15.9 | 2,017 | |
| **1916** | 126.3 | 40.9 | 51 | 16.5 | 2,084 | |
| **1917** | 125.8 | 41.5 | 54 | 17.8 | 2,240 | |
| **1918** | 125.2 | 41.8 | 62 | 20.7 | 2,591 | |
| **1919** | 123.1 | 41.9 | 71 | 23.8 | 2,978 | |
| **1920** | 124.6 | 42.2 | 88 | 29.8 | 3,712 | 382 |
| **1921** | 125.1 | 41.9 | 82 | 27.5 | 3,439 | |
| **1922** | 137.1 | 41.9 | 71 | 21.7 | 2,974 | |
| **1923** | 126.6 | 42.1 | 68 | 22.6 | 2,860 | |
| **1924** | 127.3 | 41.8 | 63 | 20.7 | 2,635 | 398 |
| **1925** | 127.5 | 42.1 | 60 | 19.8 | 2,524 | |
| **1926** | 128.2 | 42.5 | 60 | 19.9 | 2,552 | |
| **1927** | 128.5 | 43.2 | 58 | 19.5 | 2,505 | |
| **1928** | 128.6 | 44.0 | 57 | 19.5 | 2,508 | |
| **1929** | 128.9 | 44.3 | 57 | 19.6 | 2,526 | |
| **1930** | 129.3 | 44.6 | 56 | 19.3 | 2,495 | 447 |
| **1931** | 129.9 | 45.0 | 52 | 18.0 | 2,338 | |
| **1932** | 130.8 | 45.8 | 44 | 15.4 | 2,015 | |
| **1933** | 132.0 | 46.0 | 35 | 12.2 | 1,609 | |
| **1934** | 133.2 | 46.4 | 35 | 12.2 | 1,625 | |
| **1935** | 134.0 | 46.9 | 34 | 11.9 | 1,594 | 341 |
| **1936** | 131.2 | 46.7 | 34 | 12.1 | 1,587 | |
| **1937** | 128.5 | 47.4 | 32 | 11.8 | 1,516 | |
| **1938** | 125.8 | 47.4 | 30 | 11.3 | 1,421 | |
| **1939** | 123.6 | 46.8 | 28 | 10.6 | 1,310 | |
| **1940** | 121.1 | 47.4 | 24 | 9.4 | 1,138 | 257 |
| **1941** | 119.2 | 48.2 | 22 | 8.9 | 1,061 | |
| **1942** | 116.9 | 48.2 | 24 | 9.9 | 1,157 | |
| **1943** | 115.6 | 47.5 | 27 | 11.1 | 1,283 | |
| **1944** | 113.7 | 47.9 | 33 | 13.9 | 1,580 | |

Table continued on next page.

**Appendix Table 1. Farm Real Estate Values in Nebraska, USDA Historical Series, 1860-2017[a] (continued)**

| Year | Number of Farms | Land in Farms | Value of Land & Buildings | | | Building Value |
|---|---|---|---|---|---|---|
| | | | Per Acre | Per Farm | Total Value | |
| | Thousands | Million Acres | Dollars | Thousand Dollars | Million Dollars | Million Dollars |
| **1945** | 111.4 | 47.6 | 37 | 15.8 | 1,760 | 382 |
| **1946** | 111.3 | 47.4 | 42 | 17.9 | 1,992 | |
| **1947** | 110.1 | 48.0 | 47 | 20.5 | 2,257 | |
| **1947** | 109.0 | 47.3 | 56 | 24.3 | 2,649 | |
| **1949** | 108.0 | 47.2 | 62 | 27.1 | 2,927 | |
| **1950** | 109.0 | 48.4 | 58 | 25.6 | 2,789 | |
| **1951** | 107.0 | 48.4 | 66 | 29.8 | 3,192 | 562 |
| **1952** | 105.0 | 48.3 | 72 | 33.1 | 3,477 | 605 |
| **1953** | 104.0 | 48.3 | 75 | 34.7 | 3,610 | 621 |
| **1954** | 103.0 | 48.3 | 70 | 32.8 | 3,386 | 589 |
| **1955** | 102.0 | 48.3 | 73 | 34.5 | 3,534 | 645 |
| **1956** | 101.0 | 48.3 | 73 | 34.9 | 3,523 | 719 |
| **1957** | 98.0 | 48.3 | 72 | 35.8 | 3,501 | 606 |
| **1958** | 96.0 | 48.3 | 79 | 40.0 | 3,839 | 572 |
| **1959** | 94.0 | 48.3 | 86 | 43.9 | 4,131 | 677 |
| **1960** | 93.0 | 48.2 | 89 | 46.3 | 4,308 | 763 |
| **1961** | 90.0 | 48.2 | 90 | 48.2 | 4,341 | 790 |
| **1962** | 88.0 | 48.2 | 95 | 52.2 | 4,598 | 860 |
| **1963** | 86.0 | 48.1 | 97 | 54.0 | 4,647 | 911 |
| **1964** | 84.0 | 48.2 | 105 | 60.0 | 5,055 | 1,072 |
| **1965** | 82.0 | 48.2 | 111 | 65.3 | 5,352 | 1,258 |
| **1966** | 80.0 | 48.2 | 120 | 72.6 | 5,805 | 1,283 |
| **1967** | 78.0 | 48.2 | 132 | 81.4 | 6,348 | 1,143 |
| **1968** | 76.0 | 48.2 | 143 | 90.5 | 6,882 | 1,136 |
| **1969** | 74.0 | 48.2 | 150 | 97.8 | 7,238 | 1,021 |
| **1970** | 73.0 | 48.1 | 154 | 101.5 | 7,407 | 941 |
| **1971** | 72.0 | 48.1 | 157 | 104.9 | 7,552 | 853 |
| **1972** | 71.0 | 48.1 | 170 | 115.2 | 8,177 | 932 |
| **1973** | 70.0 | 48.1 | 193 | 132.6 | 9,283 | 1,012 |
| **1974** | 70.0 | 48.1 | 242 | 166.3 | 11,640 | 1,152 |
| **1975** | 67.0 | 47.9 | 282 | 201.6 | 13,508 | 1,229 |
| **1976** | 67.0 | 47.9 | 363 | 259.2 | 17,366 | 1,546 |
| **1977** | 66.0 | 47.8 | 420 | 304.1 | 20,070 | 1,806 |
| **1978** | 66.0 | 47.8 | 412 | 298.5 | 19,702 | 1,832 |
| **1979** | 65.0 | 47.7 | 525 | 385.3 | 25,043 | 2,204 |
| **1980** | 65.0 | 47.7 | 635 | 466.0 | 30,289 | 2,547 |
| **1981** | 65.0 | 47.7 | 729 | 535.0 | 34,773 | 2,851 |
| **1982** | 63.0 | 47.5 | 730 | 550.4 | 34,675 | 2,809 |
| **1983** | 62.0 | 47.4 | 701 | 535.9 | 33,227 | 2,758 |
| **1984** | 61.0 | 47.2 | 645 | 499.1 | 30,444 | 2,710 |

Table continued on next page.

**Appendix Table 1. Farm Real Estate Values in Nebraska, USDA Historical Series, 1860-2017[a] (continued)**

| Year | Number of Farms | Land in Farms | Value of Land & Buildings | | | Building Value |
|---|---|---|---|---|---|---|
| | | | Per Acre | Per Farm | Total Value | |
| | Thousands | Million Acres | Dollars | Thousand Dollars | Million Dollars | Million Dollars |
| **1985** | 60.0 | 47.2 | 485 | 381.9 | 22,911 | 2,474 |
| **1986** | 59.0 | 47.2 | 416 | 332.7 | 19,629 | 2,532 |
| **1987** | 59.0 | 47.2 | 400 | 320.1 | 18,885 | 2,682 |
| **1988** | 58.0 | 47.1 | 457 | 371.1 | 21,525 | 3,186 |
| **1989** | 57.0 | 47.1 | 511 | 422.2 | 24,068 | 3,451 |
| **1990** | 57.0 | 47.1 | 524 | 433.0 | 24,680 | 3,186 |
| **1991** | 56.0 | 47.1 | 517 | 434.8 | 24,350 | 2,978 |
| **1992** | 56.0 | 47.1 | 517 | 434.8 | 24,350 | 3,026 |
| **1993** | 56.0 | 46.5 | 514 | 426.8 | 23,901 | 3,022 |
| **1994** | 56.0 | 46.5 | 550 | 456.7 | 25,575 | 2,966 |
| **1995** | 56.0 | 46.4 | 580 | 480.6 | 26,912 | 3,041 |
| **1996** | 56.0 | 46.4 | 610 | 505.4 | 28,304 | 3,099 |
| **1997** | 55.0 | 46.4 | 620 | 523.1 | 28,768 | 3,049 |
| **1998** | 55.0 | 46.4 | 645 | 544.1 | 29,928 | 3,068 |
| **1999** | 54.0 | 46.3 | 675 | 578.8 | 31,253 | 3,094 |
| **2000** | 52.0 | 46.1 | 710 | 629.4 | 32,731 | 3,126 |
| **2001** | 50.0 | 46.0 | 735 | 676.2 | 33,810 | 3,111 |
| **2002** | 49.4 | 45.9 | 760 | 706.2 | 34,884 | 3,087 |
| **2003** | 48.5 | 45.9 | 775 | 733.5 | 35,573 | 3,024 |
| **2004** | 48.3 | 45.8 | 810 | 768.1 | 37,098 | 3,023 |
| **2005** | 48.0 | 45.7 | 910 | 866.4 | 41,587 | 3,168 |
| **2006** | 47.6 | 45.7 | 1,030 | 988.9 | 47,071 | 3,507 |
| **2007** | 47.7 | 45.6 | 1,140 | 1,089.8 | 51,984 | 3,681 |
| **2008** | 48.2 | 45.5 | 1,330 | 1,255.5 | 60,515 | 3,909 |
| **2009** | 48.6 | 45.5 | 1,320 | 1,235.8 | 60,060 | 4,264 |
| **2010** | 49.5 | 45.4 | 1,470 | 1,348.2 | 66,738 | 4,738 |
| **2011** | 49.7 | 45.4 | 1,840 | 1,680.8 | 83,536 | 5,847 |
| **2012** | 50.0 | 45.3 | 2,420 | 2,192.5 | 109,626 | 7,674 |
| **2013** | 49.6 | 45.3 | 2,800 | 2,557.3 | 126,840 | 8,816 |
| **2014** | 49.1 | 45.2 | 3,120 | 2,872.2 | 141,024 | 9,731 |
| **2015** | 48.7 | 45.2 | 3,050 | 2,830.8 | 137,860 | 10,064 |
| **2016** | 48.4 | 45.2 | 2,950 | 2,755.0 | 133,340 | 9,568 |
| **2017**[b] | 48.4 | 45.2 | 2,826 | 2,639.3 | 127,740 | 9,062 |

Source: [a] Farm Real Estate Historical Series Data: 1950-92, USDA, Economic Research Service, Sta. Bul. No. 855, May 1993 and earlier reports as well as recent electronic issues annually by Economic Research Service, U.S. Department of Agriculture.

[b] Preliminary.

**Appendix Table 2. Deflated USDA Farmland Values and Percent Changes for Nebraska, 1930 to 2017[a]**

| Year | USDA Average Value/Acre For Nebraska | 1st Quarter GDP Price Deflator (2017 = 100) | Deflated Average Value/Acre[b] | Year-to-Year Change Deflated Farmland in Values[c] |
|---|---|---|---|---|
| **1930** | 56 | 8.29 | 675 | - |
| **1931** | 52 | 7.44 | 699 | 3.5 |
| **1932** | 44 | 6.56 | 671 | -4.1 |
| **1933** | 35 | 6.38 | 549 | -18.2 |
| **1934** | 35 | 6.74 | 519 | -5.3 |
| **1935** | 34 | 6.88 | 494 | -4.8 |
| **1936** | 34 | 6.96 | 489 | -1.1 |
| **1937** | 32 | 7.26 | 441 | -9.8 |
| **1938** | 30 | 7.04 | 426 | -3.4 |
| **1939** | 28 | 6.98 | 401 | -5.8 |
| **1940** | 24 | 7.06 | 340 | -15.2 |
| **1941** | 22 | 7.52 | 292 | -14.0 |
| **1942** | 24 | 8.11 | 296 | 1.2 |
| **1943** | 27 | 8.55 | 316 | 6.7 |
| **1944** | 33 | 8.75 | 377 | 19.4 |
| **1945** | 37 | 8.98 | 412 | 9.2 |
| **1946** | 42 | 10.06 | 417 | 1.3 |
| **1947** | 47 | 11.14 | 422 | 1.1 |
| **1948** | 56 | 11.86 | 472 | 11.9 |
| **1949** | 62 | 12.16 | 510 | 8.0 |
| **1950** | 58 | 11.95 | 485 | -4.9 |
| **1951** | 66 | 12.93 | 510 | 5.2 |
| **1952** | 72 | 13.17 | 547 | 7.1 |
| **1953** | 75 | 13.38 | 561 | 2.6 |
| **1954** | 70 | 13.53 | 517 | -7.7 |
| **1955** | 73 | 13.66 | 534 | 3.3 |
| **1956** | 73 | 14.09 | 518 | -3.0 |
| **1957** | 72 | 14.61 | 493 | -4.9 |
| **1958** | 79 | 14.97 | 528 | 7.1 |
| **1959** | 86 | 15.21 | 565 | 7.1 |
| **1960** | 89 | 15.42 | 577 | 2.1 |
| **1961** | 90 | 15.59 | 577 | 0.0 |
| **1962** | 95 | 15.81 | 601 | 4.1 |
| **1963** | 97 | 15.97 | 608 | 1.1 |
| **1964** | 105 | 16.19 | 648 | 6.7 |
| **1965** | 111 | 16.46 | 675 | 4.0 |
| **1966** | 120 | 16.81 | 714 | 5.8 |
| **1967** | 132 | 17.34 | 761 | 6.7 |
| **1968** | 143 | 17.98 | 795 | 4.4 |
| **1969** | 150 | 18.80 | 798 | 0.3 |

Table continued on next page.

**Appendix Table 2. Deflated USDA Farmland Values and Percent Changes for Nebraska, 1930 to 2017[a] (continued)**

| Year | USDA Average Value/Acre For Nebraska | 1st Quarter GDP Price Deflator (2017 = 100) | Deflated Average Value/Acre[b] | Year-to-Year Change Deflated Farmland in Values[c] |
|---|---|---|---|---|
| **1970** | 154 | 19.83 | 776 | -2.7 |
| **1971** | 157 | 20.86 | 753 | -3.1 |
| **1972** | 170 | 21.86 | 778 | 3.3 |
| **1973** | 193 | 22.74 | 849 | 9.1 |
| **1974** | 242 | 24.45 | 990 | 16.6 |
| **1975** | 282 | 27.12 | 1,040 | 5.1 |
| **1976** | 363 | 28.78 | 1,261 | 21.3 |
| **1977** | 420 | 30.45 | 1,379 | 9.4 |
| **1978** | 412 | 32.41 | 1,271 | -7.8 |
| **1979** | 525 | 34.87 | 1,505 | 18.4 |
| **1980** | 635 | 37.98 | 1,672 | 11.1 |
| **1981** | 729 | 41.82 | 1,743 | 4.3 |
| **1982** | 730 | 44.81 | 1,629 | -6.5 |
| **1983** | 701 | 46.88 | 1,495 | -8.2 |
| **1984** | 645 | 48.56 | 1,328 | -11.2 |
| **1985** | 485 | 50.27 | 965 | -27.4 |
| **1986** | 416 | 51.42 | 809 | -16.1 |
| **1987** | 400 | 52.50 | 762 | -5.8 |
| **1988** | 457 | 54.09 | 845 | 10.9 |
| **1989** | 511 | 56.32 | 907 | 7.4 |
| **1990** | 524 | 58.35 | 898 | -1.0 |
| **1991** | 517 | 60.52 | 854 | -4.9 |
| **1992** | 517 | 61.98 | 834 | -2.4 |
| **1993** | 514 | 63.45 | 810 | -2.9 |
| **1994** | 550 | 64.87 | 848 | 4.7 |
| **1995** | 580 | 66.29 | 875 | 3.2 |
| **1996** | 610 | 67.59 | 903 | 3.1 |
| **1997** | 620 | 68.81 | 901 | -0.2 |
| **1998** | 645 | 69.58 | 927 | 2.9 |
| **1999** | 675 | 70.56 | 957 | 3.2 |
| **2000** | 710 | 71.92 | 987 | 3.2 |
| **2001** | 735 | 73.65 | 998 | 1.1 |
| **2002** | 760 | 74.88 | 1,015 | 1.7 |
| **2003** | 775 | 76.37 | 1,015 | 0.0 |
| **2004** | 810 | 78.08 | 1,037 | 2.2 |
| **2005** | 910 | 80.54 | 1,130 | 8.9 |
| **2006** | 1,030 | 83.15 | 1,239 | 9.6 |
| **2007** | 1,140 | 85.65 | 1,331 | 7.4 |
| **2008** | 1,330 | 87.30 | 1,523 | 14.5 |
| **2009** | 1,320 | 88.62 | 1,490 | -2.2 |

Table continued on next page.

**Disclaimer**

The Nebraska Farm Real Estate Market Highlights 2016-2017 publication was created for educational purposes to provide insight on recent trends in agricultural land values and rental rates across Nebraska. Agricultural land values and rental rates in the report represent averages for different regions of the State. Actual agricultural land values or rental rates for an individual parcel in Nebraska will vary from reported figures depending on quality attributes and local market forces of the area.

Agricultural land values and rental rates for this publication were obtained by surveying expert panel members engaged in agricultural land and rental markets throughout Nebraska. The panel member's validity relies on their expertise and accuracy and the authors do not make any guarantees as to their qualifications or the reliability of their responses. While survey responses were examined to eliminate data that was obviously erroneous, no further effort was made to independently verify or corroborate the data.

Physical attributes such as location, soil type, topography, or depth to water may affect the value of a given real property causing the value to deviate substantially from what may be considered normal for the area. Also, local market forces such as the competitive nature of an area and local government policies such as restrictions on the use of water all have the ability to greatly impact agricultural land values or rental rates.

In addition, variations exist within reporting Districts that may cause real estate values and rental rates to differ substantially within the region. As an example, the North reporting district spans almost 200 miles from east to west. Precipitation in Nebraska decreases on average an inch every 25 miles a person travels westward resulting in a possible decline of eight inches from the eastern side of this district to the west. An eight-inch difference in precipitation for a semi-arid region will substantially change the value and rental rates for crop and range ground.

Due to the inherent limitations of this survey, some of which are listed above, information in this report should not be used to set a specific rental rate or value a particular parcel of real property for sale or property taxes, security for a loan, and other related legal matters.

**Appendix Table 2. Deflated USDA Farmland Values and Percent Changes for Nebraska, 1930 to 2017[a] (continued)**

| Year | USDA Average Value/Acre For Nebraska | 1st Quarter GDP Price Deflator (2017 = 100) | Deflated Average Value/Acre[b] | Year-to-Year Change Deflated Farmland in Values[c] |
|---|---|---|---|---|
| **2010** | 1,470 | 89.08 | 1,650 | 10.8 |
| **2011** | 1,840 | 90.74 | 2,028 | 22.9 |
| **2012** | 2,420 | 92.57 | 2,614 | 28.9 |
| **2013** | 2,800 | 94.24 | 2,971 | 13.7 |
| **2014** | 3,120 | 95.81 | 3,256 | 9.6 |
| **2015** | 3,050 | 96.87 | 3,149 | -3.2 |
| **2016** | 2,950 | 98.04 | 3,009 | -4.4 |
| **2017[d]** | 2,826 | 100.00 | 2,826 | -6.1 |

Source: [a] Revised from series reported in earlier reports. Refers to year ending March 1 for years prior to 1976; year ending February 1 for years 1976-1981; year ending April 1 for years 1982-1985; year ending February 1 for years 1986-1989; year ending January 1 for years 1990-1994; mid-year 1995-1997, and year ending January 1, 2000.

[b] Computed by dividing the USDA average value per acre by the 1st Quarter GDP Price Deflator (2017 = 100) and multiplying by 100.

[c] A positive value entry in this column represents a real increase in asset value for the year (i.e., the rate of land value appreciation exceeded the general rate of inflation for the U.S. economy). Conversely, a negative value entry represents a real decrease in asset value.

[d] Preliminary.

**Appendix Table 3. Nominal and Deflated Agricultural Land Values by Selected Types of Land in Nebraska, 1978 to 2017[a]**

| Year | Nominal Value/Acre[a] | | | | 1st Quarter GDP Price Deflator (2017=100) | Deflated Value/Acre[b] | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Dryland Cropland | Center Pivot Irrigated Cropland[c] | Grazing Land (Nontillable) | All Land Average | | Dryland Cropland | Center Pivot Irrigated Cropland[c] | Grazing Land (Nontillable) | All Land Average[d] |
| | Dollars/Acre | | | | | Dollars/Acre | | | |
| **1978** | 466 | 1,015 | 151 | 489 | 32.41 | 1,438 | 3,132 | 466 | 1,509 |
| **1979** | 562 | 1,201 | 185 | 584 | 34.87 | 1,612 | 3,444 | 531 | 1,675 |
| **1980** | 655 | 1,384 | 207 | 677 | 37.98 | 1,725 | 3,644 | 545 | 1,783 |
| **1981** | 734 | 1,470 | 228 | 729 | 41.82 | 1,755 | 3,515 | 545 | 1,743 |
| **1982** | 701 | 1,410 | 225 | 701 | 44.81 | 1,565 | 3,147 | 502 | 1,565 |
| **1983** | 644 | 1,222 | 204 | 621 | 46.88 | 1,374 | 2,606 | 435 | 1,325 |
| **1984** | 600 | 1,143 | 183 | 574 | 48.56 | 1,236 | 2,354 | 377 | 1,182 |
| **1985** | 497 | 899 | 134 | 466 | 50.27 | 989 | 1,788 | 267 | 927 |
| **1986** | 367 | 689 | 97 | 335 | 51.42 | 714 | 1,340 | 189 | 652 |
| **1987** | 353 | 626 | 82 | 302 | 52.50 | 672 | 1,192 | 156 | 575 |
| **1988** | 395 | 718 | 90 | 342 | 54.09 | 730 | 1,327 | 166 | 632 |
| **1989** | 474 | 910 | 122 | 428 | 56.32 | 842 | 1,616 | 217 | 760 |
| **1990** | 503 | 1,003 | 144 | 470 | 58.35 | 862 | 1,719 | 247 | 806 |
| **1991** | 506 | 1,060 | 157 | 490 | 60.52 | 836 | 1,751 | 259 | 810 |
| **1992** | 518 | 1,089 | 163 | 506 | 61.98 | 836 | 1,757 | 263 | 816 |
| **1993** | 540 | 1,140 | 169 | 528 | 63.45 | 851 | 1,797 | 266 | 832 |
| **1994** | 571 | 1,206 | 181 | 563 | 64.87 | 880 | 1,859 | 279 | 868 |
| **1995** | 584 | 1,254 | 189 | 581 | 66.29 | 881 | 1,892 | 285 | 876 |
| **1996** | 615 | 1,342 | 186 | 608 | 67.59 | 910 | 1,986 | 275 | 900 |
| **1997** | 659 | 1,465 | 200 | 657 | 68.81 | 958 | 2,129 | 291 | 955 |
| **1998** | 713 | 1,614 | 221 | 716 | 69.58 | 1,025 | 2,319 | 318 | 1,029 |
| **1999** | 693 | 1,568 | 216 | 697 | 70.56 | 982 | 2,222 | 306 | 988 |
| **2000** | 695 | 1,600 | 228 | 707 | 71.92 | 966 | 2,225 | 317 | 983 |
| **2001** | 699 | 1,608 | 240 | 719 | 73.65 | 949 | 2,183 | 326 | 976 |
| **2002** | 733 | 1,660 | 250 | 746 | 74.88 | 979 | 2,217 | 334 | 996 |
| **2003** | 741 | 1,679 | 250 | 756 | 76.37 | 970 | 2,199 | 327 | 990 |
| **2004** | 808 | 1,833 | 275 | 824 | 78.08 | 1,035 | 2,348 | 352 | 1,055 |
| **2005** | 908 | 2,045 | 317 | 914 | 80.54 | 1,127 | 2,539 | 394 | 1,135 |
| **2006** | 1,008 | 2,197 | 353 | 1,001 | 83.15 | 1,212 | 2,642 | 425 | 1,204 |
| **2007** | 1,153 | 2,509 | 402 | 1,145 | 85.65 | 1,346 | 2,929 | 469 | 1,337 |
| **2008** | 1,457 | 3,157 | 451 | 1,414 | 87.30 | 1,669 | 3,616 | 517 | 1,620 |
| **2009** | 1,441 | 3,304 | 449 | 1,431 | 88.62 | 1,626 | 3,728 | 507 | 1,615 |

Table continued on next page.

**Appendix Table 3. Nominal and Deflated Agricultural Land Values by Selected Types of Land in Nebraska, 1978 to 2017[a] (continued)**

| Year | Nominal Value/Acre[a] | | | | 1st Quarter GDP Price Deflator (2017=100) | Deflated Value/Acre[b] | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Dryland Cropland | Center Pivot Irrigated Cropland[c] | Grazing Land (Nontillable) | All Land Average | | Dryland Cropland | Center Pivot Irrigated Cropland[c] | Grazing Land (Nontillable) | All Land Average[d] |
| | Dollars/Acre | | | | | Dollars/Acre | | | |
| **2010** | 1,530 | 3,520 | 425 | 1,503 | 89.08 | 1,718 | 3,952 | 477 | 1,687 |
| **2011** | 1,850 | 4,343 | 490 | 1,833 | 90.74 | 2,039 | 4,786 | 540 | 2,020 |
| **2012** | 2,585 | 5,835 | 585 | 2,425 | 92.57 | 2,792 | 6,303 | 632 | 2,620 |
| **2013** | 3,365 | 7,430 | 695 | 3,045 | 94.24 | 3,958 | 8,154 | 918 | 3,518 |
| **2014** | 3,730 | 7,685 | 865 | 3,315 | 95.81 | 3,893 | 8,021 | 903 | 3,460 |
| **2015** | 3,390 | 7,315 | 1,005 | 3,250 | 96.87 | 3,500 | 7,552 | 1,038 | 3,355 |
| **2016** | 3,470 | 6,940 | 975 | 3,115 | 98.04 | 3,540 | 7,079 | 995 | 3,177 |
| **2017** | 3,145 | 6,335 | 895 | 2,825 | 100.00 | 3,145 | 6,335 | 895 | 2,825 |

Source: [a] Annual February 1, estimates reported in the UNL Nebraska Farm Real Estate Market Surveys, 1978-2017: revised series, June 2009.

[b] Computed by dividing USDA average value per acre by the 1st Quarter GDP Price Deflator (2017 = 100) and multiplying by 100.

[c] Pivot not included in per acre value.

[d] Deflated all land average based on the UNL Nebraska Farm Real Estate Market Surveys and will not correspond directly with the USDA series presented in Appendix Table 2.

**Appendix Table 4. Average Reported Value of Nebraska Farmland for Different Types of Land by Agricultural Statistics District, 1978-2017[a]**

| Year | Agricultural Statistics District | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Northwest | North | Northeast | Central | East | Southwest | South | Southeast | State [b] |
| | ---------- Dollars per Acre- ---------- | | | | | | | | |
| **Dryland Cropland (No Irrigation Potential)** | | | | | | | | | |
| **1978** | 289 | 253 | 648 | 319 | 817 | 360 | 468 | 660 | 466 |
| **1979** | 317 | 319 | 813 | 397 | 1,061 | 387 | 541 | 808 | 562 |
| **1980** | 347 | 340 | 920 | 471 | 1,296 | 454 | 626 | 971 | 655 |
| **1981** | 419 | 346 | 1,009 | 519 | 1,409 | 546 | 754 | 1,060 | 734 |
| **1982** | 411 | 335 | 966 | 502 | 1,325 | 522 | 752 | 988 | 701 |
| **1983** | 387 | 321 | 864 | 450 | 1,204 | 469 | 664 | 939 | 644 |
| **1984** | 379 | 300 | 779 | 416 | 1,128 | 444 | 653 | 840 | 600 |
| **1985** | 325 | 237 | 643 | 340 | 905 | 365 | 474 | 612 | 497 |
| **1986** | 259 | 198 | 499 | 263 | 669 | 308 | 412 | 423 | 367 |
| **1987** | 242 | 190 | 520 | 246 | 626 | 288 | 377 | 416 | 353 |
| **1988** | 267 | 202 | 576 | 301 | 692 | 294 | 411 | 513 | 395 |
| **1989** | 305 | 250 | 688 | 370 | 824 | 371 | 491 | 621 | 474 |
| **1990** | 309 | 279 | 728 | 407 | 877 | 409 | 491 | 662 | 503 |
| **1991** | 316 | 279 | 735 | 463 | 885 | 380 | 508 | 655 | 506 |
| **1992** | 340 | 295 | 700 | 418 | 955 | 386 | 513 | 673 | 518 |
| **1993** | 337 | 288 | 766 | 486 | 1,000 | 373 | 573 | 701 | 540 |
| **1994** | 345 | 314 | 797 | 504 | 1,090 | 390 | 620 | 741 | 571 |
| **1995** | 335 | 320 | 803 | 519 | 1,144 | 403 | 637 | 764 | 584 |
| **1996** | 358 | 338 | 823 | 535 | 1,244 | 419 | 658 | 799 | 615 |
| **1997** | 381 | 363 | 909 | 588 | 1,336 | 432 | 701 | 852 | 659 |
| **1998** | 385 | 390 | 982 | 631 | 1,477 | 457 | 753 | 956 | 713 |
| **1999** | 346 | 367 | 968 | 635 | 1,462 | 428 | 740 | 953 | 693 |
| **2000** | 331 | 400 | 970 | 648 | 1,464 | 434 | 708 | 958 | 695 |
| **2001** | 319 | 403 | 996 | 645 | 1,493 | 433 | 725 | 954 | 699 |
| **2002** | 325 | 407 | 1,095 | 680 | 1,523 | 460 | 743 | 1,024 | 733 |
| **2003** | 319 | 360 | 1,107 | 710 | 1,585 | 453 | 748 | 1,059 | 741 |
| **2004** | 328 | 416 | 1,231 | 758 | 1,717 | 473 | 800 | 1,190 | 808 |
| **2005** | 330 | 447 | 1,382 | 847 | 2,024 | 495 | 864 | 1,396 | 908 |
| **2006** | 348 | 483 | 1,641 | 933 | 2,276 | 519 | 875 | 1,563 | 1,008 |
| **2007** | 383 | 558 | 1,917 | 1,056 | 2,608 | 559 | 932 | 1,840 | 1,153 |
| **2008** | 460 | 707 | 2,482 | 1,347 | 3,203 | 693 | 1,241 | 2,367 | 1,457 |
| **2009** | 464 | 692 | 2,498 | 1,300 | 3,101 | 696 | 1,318 | 2,297 | 1,441 |

Table continued on next page.

**Appendix Table 4. Average Reported Value of Nebraska Farmland for Different Types of Land by Agricultural Statistics District, 1978-2017[a] (continued)**

| Year | Agricultural Statistics District | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Northwest | North | Northeast | Central | East | Southwest | South | Southeast | State [b] |
| | - - - - - - - - - - - - - Dollars per Acre- - - - - - - - - - - | | | | | | | | |
| **Dryland Cropland (No Irrigation Potential)** | | | | | | | | | |
| **2010** | 475 | 715 | 2,740 | 1,365 | 3,330 | 735 | 1,380 | 2,410 | 1,530 |
| **2011** | 545 | 800 | 3,450 | 1,605 | 3,995 | 875 | 1,738 | 2,925 | 1,850 |
| **2012** | 660 | 1,050 | 4,740 | 2,170 | 5,385 | 1,250 | 2,250 | 3,800 | 2,485 |
| **2013** | 700 | 1,155 | 5,995 | 2,625 | 6,730 | 1,530 | 3,240 | 4,925 | 3,010 |
| **2014** | 845 | 1,720 | 6,430 | 3,490 | 6,575 | 1,965 | 3,490 | 5,425 | 3,730 |
| **2015** | 730 | 1,580 | 5,645 | 3,115 | 5,980 | 1,855 | 3,340 | 5,060 | 3,390 |
| **2016** | 745 | 1,650 | 5,760 | 3,235 | 6,360 | 1,955 | 3,575 | 4,845 | 3,470 |
| **2017** | 715 | 1,560 | 5,410 | 2,785 | 5,790 | 1,710 | 3,045 | 4,285 | 3,145 |

Table continued on next page.

**Appendix Table 4. Average Reported Value of Nebraska Farmland for Different Types of Land by Agricultural Statistics District, 1978-2017[a] (continued)**

| Year | Agricultural Statistics District | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Northwest | North | Northeast | Central | East | Southwest | South | Southeast | State [b] |
| | - - - - - - - - - - - - Dollars per Acre- - - - - - - - - - - - | | | | | | | | |
| **Dryland Cropland (Irrigation Potential)** | | | | | | | | | |
| **1978** | 409 | 387 | 741 | 590 | 128 | 471 | 873 | 953 | 757 |
| **1979** | 449 | 514 | 930 | 708 | 1,411 | 520 | 1,102 | 1,152 | 926 |
| **1980** | 533 | 565 | 1,132 | 767 | 1,733 | 628 | 1,282 | 1,352 | 1,147 |
| **1981** | 680 | 533 | 1,225 | 880 | 1,785 | 733 | 1,432 | 1,402 | 1,223 |
| **1982** | 658 | 535 | 1,097 | 833 | 1,665 | 685 | 1,411 | 1,268 | 1,132 |
| **1983** | 563 | 462 | 975 | 680 | 1,462 | 654 | 1,175 | 1,160 | 1,002 |
| **1984** | 507 | 441 | 911 | 638 | 1,349 | 631 | 1,050 | 1,069 | 929 |
| **1985** | 425 | 340 | 746 | 486 | 1,013 | 504 | 705 | 723 | 708 |
| **1986** | 312 | 300 | 598 | 367 | 746 | 377 | 573 | 545 | 542 |
| **1987** | 285 | 250 | 567 | 325 | 707 | 328 | 503 | 508 | 504 |
| **1988** | 310 | 266 | 646 | 380 | 801 | 339 | 576 | 623 | 574 |
| **1989** | 376 | 339 | 773 | 483 | 980 | 433 | 684 | 772 | 702 |
| **1990** | 371 | 367 | 840 | 539 | 1,056 | 473 | 706 | 816 | 752 |
| **1991** | 396 | 360 | 817 | 604 | 1,083 | 478 | 756 | 777 | 754 |
| **1992** | 411 | 381 | 823 | 658 | 1,124 | 476 | 792 | 835 | 781 |
| **1993** | 419 | 400 | 884 | 678 | 1,195 | 445 | 883 | 888 | 825 |
| **1994** | 430 | 436 | 962 | 739 | 1,338 | 482 | 923 | 936 | 899 |
| **1995** | 429 | 424 | 1,002 | 781 | 1,397 | 493 | 941 | 979 | 932 |
| **1996** | 441 | 444 | 1,040 | 845 | 1,525 | 508 | 1,008 | 1,046 | 992 |
| **1997** | 458 | 475 | 1,103 | 917 | 1,643 | 543 | 1,114 | 1,130 | 1,064 |
| **1998** | 482 | 510 | 1,219 | 986 | 1,810 | 578 | 1,216 | 1,250 | 1,167 |
| **1999** | 436 | 480 | 1,216 | 956 | 1,792 | 538 | 1,173 | 1,172 | 1,137 |
| **2000** | 418 | 492 | 1,220 | 951 | 1,800 | 546 | 1,112 | 1,187 | 1,140 |
| **2001** | 409 | 500 | 1,256 | 981 | 1,807 | 572 | 1,126 | 1,234 | 1,161 |
| **2002** | 418 | 514 | 1,355 | 1,020 | 1,814 | 581 | 1,145 | 1,318 | 1,205 |
| **2003** | 396 | 480 | 1,410 | 1,095 | 1,930 | 558 | 1,118 | 1,290 | 1,240 |
| **2004** | 445 | 534 | 1,554 | 1,137 | 2,093 | 586 | 1,217 | 1,469 | 1,360 |
| **2005** | 450 | 579 | 1,696 | 1,286 | 2,395 | 606 | 1,330 | 1,642 | 1,513 |
| **2006** | 455 | 650 | 1,931 | 1,450 | 2,642 | 623 | 1,229 | 1,854 | 1,677 |
| **2007** | 490 | 808 | 2,407 | 1,564 | 2,900 | 702 | 1,126 | 2,150 | 1,931 |
| **2008** | 505 | 1,035 | 3,145 | 1,894 | 3,691 | 716 | 1,301 | 2,700 | 2,440 |
| **2009** | 500 | 1,008 | 3,000 | 1,818 | 3,558 | 750 | 1,415 | 2,982 | 2,411 |

Table continued on next page.

**Appendix Table 4. Average Reported Value of Nebraska Farmland for Different Types of Land by Agricultural Statistics District, 1978-2017[a] (continued)**

| Year | Agricultural Statistics District | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Northwest | North | Northeast | Central | East | Southwest | South | Southeast | State [b] |
| | - - - - - - - - - - - - - Dollars per Acre- - - - - - - - - - - - - | | | | | | | | |
| **Dryland Cropland (Irrigation Potential)** | | | | | | | | | |
| **2010** | 515 | 1,095 | 3,280 | 1,910 | 3,995 | 775 | 1,535 | 2,995 | 2,611 |
| **2011** | 550 | 1,200 | 4,200 | 2,355 | 4,765 | 905 | 2,090 | 3,640 | 3,192 |
| **2012** | 680 | 1,625 | 5,800 | 3,360 | 6,390 | 1,275 | 2,945 | 5,035 | 4,355 |
| **2013** | 730 | 1,920 | 7,050 | 3,945 | 7,400 | 1,655 | 4,175 | 6,590 | 5,270 |
| **2014** | 935 | 2,390 | 7,215 | 4,910 | 7,545 | 2,035 | 5,090 | 7,100 | 5,240 |
| **2015** | 870 | 2,290 | 7,065 | 4,095 | 7,310 | 1,950 | 4,510 | 6,940 | 5,030 |
| **2016** | 790 | 2,150 | 6,715 | 3,850 | 7,165 | 1,815 | 4,315 | 6,450 | 4,785 |
| **2017** | 765 | 2,110 | 5,980 | 3,220 | 6,455 | 1,720 | 3,750 | 5,390 | 4,225 |

Table continued on next page.

**Appendix Table 4. Average Reported Value of Nebraska Farmland for Different Types of Land by Agricultural Statistics District, 1978-2017[a] (continued)**

| Year | Agricultural Statistics District | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Northwest | North | Northeast | Central | East | Southwest | South | Southeast | State [b] |
| | - - - - - - - - - - - - Dollars per Acre- - - - - - - - - - - - | | | | | | | | |
| **Grazing Land (Tillable)** | | | | | | | | | |
| **1978** | 177 | 191 | 433 | 299 | 549 | 215 | 465 | 433 | 244 |
| **1979** | 186 | 229 | 521 | 347 | 701 | 259 | 479 | 574 | 285 |
| **1980** | 200 | 261 | 583 | 395 | 760 | 307 | 621 | 643 | 324 |
| **1981** | 251 | 257 | 622 | 435 | 881 | 332 | 697 | 636 | 353 |
| **1982** | 248 | 248 | 605 | 422 | 824 | 317 | 710 | 654 | 344 |
| **1983** | 198 | 234 | 571 | 405 | 739 | 315 | 555 | 589 | 311 |
| **1984** | 187 | 233 | 500 | 325 | 661 | 285 | 519 | 521 | 285 |
| **1985** | 146 | 180 | 392 | 259 | 510 | 205 | 339 | 357 | 215 |
| **1986** | 101 | 135 | 275 | 166 | 366 | 146 | 250 | 241 | 152 |
| **1987** | 77 | 99 | 267 | 135 | 336 | 115 | 187 | 236 | 123 |
| **1988** | 80 | 107 | 294 | 168 | 361 | 100 | 208 | 292 | 132 |
| **1989** | 104 | 150 | 362 | 217 | 418 | 130 | 253 | 341 | 170 |
| **1990** | 102 | 185 | 381 | 270 | 459 | 153 | 296 | 360 | 194 |
| **1991** | 107 | 200 | 394 | 308 | 495 | 168 | 338 | 366 | 209 |
| **1992** | 113 | 213 | 395 | 339 | 500 | 169 | 348 | 395 | 220 |
| **1993** | 121 | 195 | 427 | 359 | 524 | 171 | 371 | 418 | 223 |
| **1994** | 128 | 215 | 440 | 380 | 573 | 192 | 407 | 460 | 242 |
| **1995** | 128 | 223 | 456 | 400 | 611 | 193 | 414 | 471 | 249 |
| **1996** | 125 | 225 | 473 | 406 | 617 | 196 | 413 | 483 | 251 |
| **1997** | 135 | 250 | 512 | 440 | 686 | 200 | 433 | 519 | 272 |
| **1998** | 153 | 265 | 550 | 461 | 741 | 227 | 467 | 575 | 295 |
| **1999** | 165 | 270 | 569 | 456 | 735 | 234 | 470 | 575 | 301 |
| **2000** | 173 | 275 | 581 | 471 | 731 | 256 | 464 | 588 | 310 |
| **2001** | 171 | 288 | 670 | 505 | 750 | 291 | 524 | 578 | 329 |
| **2002** | 182 | 299 | 706 | 523 | 796 | 325 | 537 | 629 | 348 |
| **2003** | 180 | 280 | 750 | 562 | 801 | 290 | 534 | 640 | 342 |
| **2004** | 212 | 307 | 794 | 611 | 926 | 305 | 558 | 716 | 377 |
| **2005** | 225 | 330 | 919 | 658 | 1,075 | 316 | 640 | 830 | 412 |
| **2006** | 251 | 383 | 1,067 | 740 | 1,224 | 349 | 651 | 962 | 466 |
| **2007** | 282 | 475 | 1,343 | 848 | 1,493 | 387 | 684 | 1,083 | 574 |
| **2008** | 316 | 567 | 1,578 | 1,018 | 1,927 | 417 | 887 | 1,380 | 651 |
| **2009** | 330 | 565 | 1,525 | 996 | 1,876 | 416 | 936 | 1,358 | 649 |

Table continued on next page.

**Appendix Table 4. Average Reported Value of Nebraska Farmland for Different Types of Land by Agricultural Statistics District, 1978-2017[a] (continued)**

| Year | Agricultural Statistics District | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Northwest | North | Northeast | Central | East | Southwest | South | Southeast | State [b] |
| | - - - - - - - - - - - - - Dollars per Acre- - - - - - - - - - - - - | | | | | | | | |
| **Grazing Land (Tillable)** | | | | | | | | | |
| **2010** | 320 | 595 | 1,640 | 990 | 1,965 | 435 | 960 | 1,430 | 669 |
| **2011** | 340 | 740 | 2,090 | 1,145 | 2,365 | 490 | 1,100 | 1,795 | 797 |
| **2012** | 410 | 880 | 2,690 | 1,670 | 2,965 | 590 | 1,500 | 2,400 | 1,010 |
| **2013** | 425 | 1,050 | 3,575 | 2,075 | 3,390 | 665 | 2,075 | 3,195 | 1,230 |
| **2014** | 550 | 1,150 | 4,075 | 2,300 | 3,620 | 890 | 2,430 | 3,285 | 1,390 |
| **2015** | 535 | 1,395 | 3,695 | 2,615 | 4,205 | 1,135 | 2,350 | 3,035 | 1,515 |
| **2016** | 565 | 1,325 | 3,955 | 2,460 | 4,370 | 1,070 | 2,240 | 3,200 | 1,495 |
| **2017** | 530 | 1,170 | 3,665 | 2,155 | 3,765 | 975 | 2,040 | 2,780 | 1,335 |

Table continued on next page.

**Appendix Table 4. Average Reported Value of Nebraska Farmland for Different Types of Land by Agricultural Statistics District, 1978-2017[a] (continued)**

| Year | Agricultural Statistics District | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Northwest | North | Northeast | Central | East | Southwest | South | Southeast | State [b] |
| | - - - - - - - - - - - - - Dollars per Acre- - - - - - - - - - - - - | | | | | | | | |
| **Grazing Land (Nontillable)** | | | | | | | | | |
| **1978** | 115 | 126 | 308 | 216 | 384 | 119 | 268 | 315 | 153 |
| **1979** | 134 | 156 | 340 | 267 | 486 | 148 | 309 | 417 | 186 |
| **1980** | 143 | 169 | 394 | 304 | 549 | 190 | 346 | 473 | 207 |
| **1981** | 164 | 182 | 418 | 339 | 620 | 217 | 398 | 474 | 228 |
| **1982** | 168 | 183 | 412 | 329 | 584 | 195 | 418 | 472 | 225 |
| **1983** | 151 | 169 | 375 | 283 | 511 | 181 | 339 | 460 | 204 |
| **1984** | 134 | 152 | 350 | 248 | 455 | 168 | 328 | 384 | 183 |
| **1985** | 94 | 115 | 258 | 192 | 341 | 118 | 236 | 243 | 134 |
| **1986** | 71 | 85 | 179 | 131 | 262 | 84 | 158 | 178 | 97 |
| **1987** | 60 | 71 | 166 | 106 | 238 | 68 | 120 | 173 | 82 |
| **1988** | 58 | 76 | 189 | 128 | 270 | 75 | 152 | 220 | 90 |
| **1989** | 71 | 109 | 242 | 183 | 310 | 101 | 209 | 266 | 122 |
| **1990** | 83 | 134 | 272 | 225 | 340 | 113 | 233 | 298 | 144 |
| **1991** | 86 | 148 | 284 | 252 | 357 | 125 | 254 | 314 | 157 |
| **1992** | 90 | 155 | 302 | 267 | 373 | 126 | 261 | 316 | 163 |
| **1993** | 93 | 157 | 322 | 278 | 382 | 136 | 290 | 330 | 169 |
| **1994** | 98 | 167 | 325 | 302 | 388 | 153 | 307 | 354 | 181 |
| **1995** | 106 | 175 | 337 | 308 | 421 | 163 | 308 | 357 | 189 |
| **1996** | 103 | 173 | 347 | 299 | 428 | 155 | 296 | 367 | 186 |
| **1997** | 115 | 183 | 366 | 327 | 468 | 163 | 318 | 412 | 200 |
| **1998** | 128 | 199 | 395 | 366 | 516 | 189 | 337 | 473 | 221 |
| **1999** | 127 | 192 | 411 | 350 | 507 | 187 | 327 | 476 | 216 |
| **2000** | 137 | 206 | 432 | 365 | 510 | 193 | 333 | 478 | 228 |
| **2001** | 142 | 220 | 475 | 386 | 532 | 200 | 353 | 479 | 240 |
| **2002** | 151 | 218 | 515 | 419 | 584 | 213 | 378 | 499 | 250 |
| **2003** | 149 | 210 | 559 | 446 | 590 | 219 | 389 | 490 | 250 |
| **2004** | 163 | 230 | 619 | 494 | 655 | 240 | 422 | 550 | 275 |
| **2005** | 191 | 269 | 706 | 543 | 784 | 273 | 482 | 629 | 317 |
| **2006** | 215 | 307 | 800 | 588 | 907 | 298 | 497 | 688 | 353 |
| **2007** | 250 | 358 | 900 | 668 | 1,033 | 310 | 553 | 749 | 402 |
| **2008** | 287 | 386 | 975 | 781 | 1,219 | 344 | 658 | 883 | 451 |
| **2009** | 281 | 378 | 1,000 | 733 | 1,202 | 370 | 707 | 945 | 449 |

Table continued on next page.

**Appendix Table 4. Average Reported Value of Nebraska Farmland for Different Types of Land by Agricultural Statistics District, 1978-2017[a] (continued)**

| Year | Agricultural Statistics District | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Northwest | North | Northeast | Central | East | Southwest | South | Southeast | State [b] |
| | - - - - - - - - - - - - - Dollars per Acre- - - - - - - - - - - - - | | | | | | | | |
| **Grazing Land (Nontillable)** | | | | | | | | | |
| **2010** | 260 | 340 | 1,060 | 685 | 1,265 | 350 | 710 | 975 | 425 |
| **2011** | 280 | 390 | 1,210 | 810 | 1,530 | 415 | 805 | 1,195 | 490 |
| **2012** | 330 | 450 | 1,460 | 1,005 | 1,975 | 475 | 1,060 | 1,485 | 585 |
| **2013** | 370 | 500 | 1,850 | 1,300 | 2,225 | 570 | 1,375 | 1,875 | 695 |
| **2014** | 405 | 625 | 2,490 | 1,670 | 2,500 | 805 | 1,775 | 2,170 | 865 |
| **2015** | 490 | 745 | 2,580 | 2,030 | 3,010 | 945 | 1,815 | 2,275 | 1,005 |
| **2016** | 480 | 740 | 2,475 | 1,925 | 2,795 | 915 | 1,690 | 2,205 | 975 |
| **2017** | 465 | 705 | 2,230 | 1,685 | 2,495 | 820 | 1,500 | 2,005 | 895 |

Table continued on next page.

**Appendix Table 4. Average Reported Value of Nebraska Farmland for Different Types of Land by Agricultural Statistics District, 1978-2017[a] (continued)**

| Year | Agricultural Statistics District | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Northwest | North | Northeast | Central | East | Southwest | South | Southeast | State [b] |
| | - - - - - - - - - - - - - Dollars per Acre- - - - - - - - - - - - - | | | | | | | | |
| **Hayland** | | | | | | | | | |
| **1978** | 232 | 266 | 370 | 372 | 477 | 231 | 298 | 371 | 306 |
| **1979** | 287 | 308 | 436 | 397 | 593 | 281 | 545 | 509 | 367 |
| **1980** | 301 | 338 | 506 | 441 | 699 | 349 | 402 | 554 | 405 |
| **1981** | 323 | 331 | 558 | 482 | 738 | 368 | 417 | 532 | 419 |
| **1982** | 328 | 334 | 544 | 472 | 714 | 344 | 445 | 557 | 417 |
| **1983** | 290 | 286 | 509 | 408 | 658 | 344 | 375 | 496 | 371 |
| **1984** | 283 | 247 | 497 | 295 | 568 | 329 | 369 | 463 | 329 |
| **1985** | 261 | 206 | 332 | 273 | 470 | 250 | 258 | 311 | 265 |
| **1986** | 190 | 154 | 233 | 230 | 335 | 182 | 190 | 219 | 196 |
| **1987** | 160 | 119 | 188 | 195 | 271 | 148 | 175 | 201 | 160 |
| **1988** | 144 | 130 | 238 | 230 | 317 | 178 | 202 | 245 | 181 |
| **1989** | 194 | 183 | 295 | 275 | 382 | 220 | 268 | 291 | 233 |
| **1990** | 217 | 218 | 326 | 328 | 405 | 245 | 278 | 328 | 266 |
| **1991** | 225 | 240 | 330 | 350 | 434 | 252 | 286 | 361 | 284 |
| **1992** | 248 | 247 | 325 | 365 | 452 | 250 | 329 | 341 | 293 |
| **1993** | 242 | 265 | 365 | 366 | 473 | 251 | 360 | 358 | 308 |
| **1994** | 251 | 296 | 392 | 400 | 511 | 278 | 386 | 370 | 335 |
| **1995** | 260 | 300 | 418 | 408 | 528 | 277 | 397 | 385 | 344 |
| **1996** | 270 | 300 | 429 | 403 | 524 | 289 | 396 | 402 | 347 |
| **1997** | 295 | 325 | 459 | 438 | 575 | 300 | 403 | 435 | 375 |
| **1998** | 315 | 345 | 517 | 472 | 640 | 336 | 437 | 497 | 408 |
| **1999** | 318 | 325 | 507 | 457 | 625 | 330 | 412 | 502 | 395 |
| **2000** | 313 | 358 | 539 | 444 | 618 | 350 | 398 | 463 | 409 |
| **2001** | 306 | 381 | 563 | 458 | 677 | 364 | 450 | 502 | 430 |
| **2002** | 313 | 388 | 611 | 502 | 694 | 373 | 483 | 529 | 449 |
| **2003** | 319 | 380 | 660 | 557 | 765 | 375 | 508 | 575 | 468 |
| **2004** | 339 | 433 | 715 | 577 | 815 | 413 | 513 | 611 | 509 |
| **2005** | 383 | 438 | 780 | 600 | 928 | 416 | 600 | 669 | 541 |
| **2006** | 430 | 481 | 871 | 679 | 1,071 | 449 | 633 | 760 | 604 |
| **2007** | 500 | 568 | 1,005 | 791 | 1,255 | 530 | 717 | 875 | 705 |
| **2008** | 570 | 688 | 1,220 | 998 | 1,525 | 660 | 859 | 1,006 | 853 |
| **2009** | 550 | 660 | 1,250 | 904 | 1,440 | 700 | 870 | 991 | 827 |

Table continued on next page.

**Appendix Table 4. Average Reported Value of Nebraska Farmland for Different Types of Land by Agricultural Statistics District, 1978-2017[a] (continued)**

| Year | Agricultural Statistics District | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Northwest | North | Northeast | Central | East | Southwest | South | Southeast | State [b] |
| | - - - - - - - - - - - - - Dollars per Acre- - - - - - - - - - - - - | | | | | | | | |
| **Hayland** | | | | | | | | | |
| **2010** | 525 | 625 | 1,275 | 880 | 1,465 | 660 | 880 | 1,015 | 810 |
| **2011** | 550 | 785 | 1,485 | 1,100 | 1,840 | 700 | 1,085 | 1,250 | 978 |
| **2012** | 620 | 950 | 1,985 | 1,425 | 2,500 | 925 | 1,450 | 1,665 | 1,245 |
| **2013** | 780 | 1,150 | 2,625 | 1,850 | 3,325 | 1,160 | 1,800 | 2,065 | 1,585 |
| **2014** | 1,025 | 1,660 | 2,915 | 2,350 | 3,280 | 1,545 | 2,350 | 2,515 | 1,965 |
| **2015** | 1,115 | 1,905 | 3,630 | 2,890 | 4,080 | 1,965 | 2,955 | 3,100 | 2,355 |
| **2016** | 890 | 1,460 | 3,430 | 2,585 | 3,200 | 1,700 | 2,340 | 2,780 | 1,965 |
| **2017** | 795 | 1,370 | 3,295 | 2,170 | 3,090 | 1,485 | 2,160 | 2,680 | 1,815 |

Table continued on next page.

**Appendix Table 4. Average Reported Value of Nebraska Farmland for Different Types of Land by Agricultural Statistics District, 1978-2017[a] (continued)**

| Year | Agricultural Statistics District | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Northwest | North | Northeast | Central | East | Southwest | South | Southeast | State [b] |
| | - - - - - - - - - - - - - Dollars per Acre- - - - - - - - - - - - - | | | | | | | | |
| **Gravity Irrigated Cropland** | | | | | | | | | |
| **1978** | 1,246 | 796 | 1,030 | 1,545 | 1,624 | 1,134 | 1,412 | 1,404 | 1,435 |
| **1979** | 1,300 | 964 | 1,289 | 1,705 | 1,910 | 1,197 | 1,746 | 1,772 | 1,668 |
| **1980** | 1,369 | 1,020 | 1,547 | 1,976 | 2,317 | 1,329 | 2,046 | 2,026 | 1,940 |
| **1981** | 1,555 | 1,054 | 1,781 | 2,088 | 2,403 | 1,493 | 2,230 | 2,026 | 2,063 |
| **1982** | 1,580 | 1,033 | 1,771 | 2,053 | 2,269 | 1,598 | 2,254 | 1,924 | 2,023 |
| **1983** | 1,361 | 1,000 | 1,430 | 1,798 | 1,969 | 1,412 | 1,872 | 1,854 | 1,763 |
| **1984** | 1,269 | 1,020 | 1,429 | 1,613 | 1,838 | 1,250 | 1,762 | 1,639 | 1,623 |
| **1985** | 1,042 | 817 | 1,102 | 1,304 | 1,329 | 1,010 | 1,283 | 1,171 | 1,229 |
| **1986** | 754 | 612 | 900 | 940 | 975 | 867 | 963 | 957 | 925 |
| **1987** | 650 | 567 | 775 | 802 | 959 | 718 | 863 | 843 | 831 |
| **1988** | 668 | 691 | 862 | 948 | 1,151 | 740 | 994 | 956 | 956 |
| **1989** | 815 | 900 | 1,100 | 1,210 | 1,462 | 841 | 1,232 | 1,170 | 1,194 |
| **1990** | 841 | 900 | 1,186 | 1,413 | 1,513 | 895 | 1,390 | 1285 | 1,304 |
| **1991** | 834 | 917 | 1,250 | 1,518 | 1,622 | 975 | 1,480 | 1,306 | 1,381 |
| **1992** | 889 | 1,035 | 1,221 | 1,563 | 1,653 | 1,021 | 1,583 | 1,413 | 1,439 |
| **1993** | 857 | 1,058 | 1,246 | 1,609 | 1,730 | 1,018 | 1,643 | 1,479 | 1,484 |
| **1994** | 875 | 1,070 | 1,250 | 1,666 | 1,842 | 1,093 | 1,728 | 1,568 | 1,558 |
| **1995** | 857 | 1,065 | 1,260 | 1,671 | 1,887 | 1,090 | 1,731 | 1,606 | 1,573 |
| **1996** | 870 | 1,070 | 1,361 | 1,738 | 1,989 | 1,138 | 1,800 | 1,697 | 1,646 |
| **1997** | 890 | 1,115 | 1,466 | 1,858 | 2,160 | 1,167 | 1,943 | 1,853 | 1,768 |
| **1998** | 925 | 1,150 | 1,575 | 1,972 | 2,340 | 1,200 | 2,042 | 1,936 | 1,876 |
| **1999** | 894 | 1,050 | 1,575 | 1,861 | 2,247 | 1,198 | 1,945 | 1,813 | 1,792 |
| **2000** | 907 | 1,025 | 1,696 | 1,754 | 2,279 | 1,325 | 1,856 | 1,831 | 1,777 |
| **2001** | 900 | 1,033 | 1,715 | 1,729 | 2,273 | 1,279 | 1,810 | 1,843 | 1,760 |
| **2002** | 914 | 1,080 | 1,759 | 1,825 | 2,298 | 1,350 | 1,827 | 1,928 | 1,809 |
| **2003** | 890 | 1,075 | 1,760 | 1,835 | 2,401 | 1,213 | 1,863 | 1,899 | 1,828 |
| **2004** | 925 | 1,125 | 1,867 | 1,961 | 2,531 | 1,297 | 1,969 | 2,087 | 1,944 |
| **2005** | 975 | 1,183 | 1,980 | 2,153 | 2,691 | 1,365 | 2,021 | 2,173 | 2,061 |
| **2006** | 1,036 | 1,199 | 2,310 | 2,295 | 2,953 | 1,340 | 1,925 | 2,400 | 2,186 |
| **2007** | 1,195 | 1,305 | 2,795 | 2,431 | 3,323 | 1,275 | 2,199 | 2,719 | 2,430 |
| **2008** | 1,475 | 1,633 | 3,550 | 2,934 | 4,080 | 1,550 | 2,689 | 3,477 | 2,992 |
| **2009** | 1,495 | 1,715 | 3,580 | 3,030 | 4,096 | 1,690 | 3,075 | 3,545 | 3,109 |

Table continued on next page.

**Appendix Table 4. Average Reported Value of Nebraska Farmland for Different Types of Land by Agricultural Statistics District, 1978-2017[a] (continued)**

| Year | Agricultural Statistics District | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Northwest | North | Northeast | Central | East | Southwest | South | Southeast | State [b] |
| | - - - - - - - - - - - - - Dollars per Acre- - - - - - - - - - - - - | | | | | | | | |
| **Gravity Irrigated Cropland** | | | | | | | | | |
| **2010** | 1,625 | 1,800 | 3,715 | 3,155 | 4,510 | 1,785 | 3,095 | 3,560 | 3,271 |
| **2011** | 1,980 | 2,050 | 4,500 | 3,940 | 5,725 | 1,975 | 3,940 | 4,300 | 4,071 |
| **2012** | 2,440 | 2,625 | 6,250 | 5,215 | 7,420 | 2,865 | 5,170 | 5,800 | 5,365 |
| **2013** | 2,875 | 3,100 | 7,850 | 6,900 | 8,750 | 3,850 | 7,060 | 7,715 | 6,835 |
| **2014** | 3,040 | 4,215 | 7,455 | 8,065 | 8,750 | 4,515 | 7,290 | 8,330 | 7,310 |
| **2015** | 3,235 | 4,135 | 7,355 | 6,905 | 8,445 | 4,435 | 7,095 | 7,995 | 6,900 |
| **2016** | 2,970 | 3,970 | 7,220 | 6,560 | 8,115 | 4,390 | 6,265 | 7,375 | 6,480 |
| **2017** | 2,580 | 3,835 | 6,890 | 6,195 | 7,640 | 4,155 | 6,020 | 6,615 | 6,070 |

Table continued on next page.

**Appendix Table 4. Average Reported Value of Nebraska Farmland for Different Types of Land by Agricultural Statistics District, 1978-2017[a] (continued)**

| Year | Agricultural Statistics District | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Northwest | North | Northeast | Central | East | Southwest | South | Southeast | State [b] |
| | - - - - - - - - - - - - Dollars per Acre- - - - - - - - - - - - | | | | | | | | |
| **Center Pivot Irrigated Cropland[c]** | | | | | | | | | |
| **1978** | 771 | 678 | 956 | 877 | 1,484 | 813 | 1,023 | 1,286 | 1,015 |
| **1979** | 915 | 770 | 1164 | 1,076 | 1,690 | 895 | 1,291 | 1,590 | 1,201 |
| **1980** | 894 | 886 | 1,372 | 1,223 | 2,043 | 971 | 1,535 | 1,795 | 1,384 |
| **1981** | 973 | 816 | 1,456 | 1,312 | 2,110 | 1,105 | 1,732 | 1,900 | 1,470 |
| **1982** | 989 | 810 | 1,332 | 1,270 | 2,010 | 1,123 | 1,681 | 1,748 | 1,410 |
| **1983** | 847 | 769 | 1,217 | 1,016 | 1,727 | 926 | 1,391 | 1,643 | 1,222 |
| **1984** | 809 | 698 | 1,130 | 969 | 1,655 | 827 | 1,350 | 1,465 | 1,143 |
| **1985** | 691 | 581 | 875 | 850 | 1,243 | 691 | 1,055 | 1,020 | 899 |
| **1986** | 496 | 400 | 700 | 628 | 970 | 558 | 788 | 788 | 689 |
| **1987** | 417 | 396 | 703 | 541 | 888 | 487 | 665 | 723 | 626 |
| **1988** | 446 | 441 | 800 | 622 | 1,038 | 548 | 792 | 820 | 718 |
| **1989** | 532 | 604 | 993 | 779 | 1,320 | 683 | 1,021 | 1,056 | 910 |
| **1990** | 619 | 710 | 1,090 | 910 | 1,393 | 765 | 1,117 | 1,133 | 1,003 |
| **1991** | 651 | 714 | 1,129 | 1,053 | 1,461 | 748 | 1,229 | 1,194 | 1,060 |
| **1992** | 681 | 740 | 1,084 | 1,085 | 1,510 | 783 | 1,263 | 1,228 | 1,083 |
| **1993** | 641 | 745 | 1,156 | 1,160 | 1,593 | 799 | 1,356 | 1,346 | 1,140 |
| **1994** | 690 | 800 | 1,215 | 1,200 | 1,707 | 850 | 1,425 | 1,413 | 1,206 |
| **1995** | 693 | 825 | 1,254 | 1,268 | 1,793 | 882 | 1,454 | 1,474 | 1,254 |
| **1996** | 710 | 913 | 1,320 | 1,340 | 1,930 | 981 | 1,550 | 1,565 | 1,342 |
| **1997** | 748 | 962 | 1,427 | 1,507 | 2,111 | 1,058 | 1,696 | 1,725 | 1,465 |
| **1998** | 829 | 1,020 | 1,583 | 1,698 | 2,332 | 1,139 | 1,863 | 1,907 | 1,614 |
| **1999** | 750 | 984 | 1,581 | 1,616 | 2,288 | 1,124 | 1,830 | 1,806 | 1,569 |
| **2000** | 750 | 981 | 1,609 | 1,579 | 2,424 | 1,192 | 1,795 | 1,810 | 1,600 |
| **2001** | 742 | 965 | 1,653 | 1,602 | 2,420 | 1,152 | 1,778 | 1,898 | 1,608 |
| **2002** | 775 | 1,043 | 1,775 | 1,693 | 2,401 | 1,167 | 1,830 | 1,959 | 1,660 |
| **2003** | 750 | 1,075 | 1,840 | 1,785 | 2,460 | 1,033 | 1,846 | 1,981 | 1,679 |
| **2004** | 806 | 1,211 | 2,004 | 1,901 | 2,669 | 1,123 | 2,044 | 2,218 | 1,833 |
| **2005** | 924 | 1,342 | 2,234 | 2,140 | 3,042 | 1,279 | 2,145 | 2,414 | 2,045 |
| **2006** | 967 | 1,480 | 2,600 | 2,224 | 3,253 | 1,344 | 2,010 | 2,743 | 2,197 |
| **2007** | 1,112 | 1,733 | 3,077 | 2,521 | 3,646 | 1,575 | 2,254 | 3,055 | 2,509 |
| **2008** | 1,400 | 2,221 | 3,871 | 3,082 | 4,464 | 2,071 | 3,034 | 3,818 | 3,157 |
| **2009** | 1,535 | 2,378 | 3,912 | 3,277 | 4,422 | 2,391 | 3,474 | 3,850 | 3,304 |

Table continued on next page.

**Appendix Table 4. Average Reported Value of Nebraska Farmland for Different Types of Land by Agricultural Statistics District, 1978-2017[a] (continued)**

| Year | Agricultural Statistics District | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Northwest | North | Northeast | Central | East | Southwest | South | Southeast | State [b] |
| | - - - - - - - - - - - - - Dollars per Acre- - - - - - - - - - - - - | | | | | | | | |
| **Center Pivot Irrigated Cropland[c]** | | | | | | | | | |
| **2010** | 1,650 | 2,485 | 4,140 | 3,470 | 4,890 | 2,475 | 3,575 | 4,125 | 3,520 |
| **2011** | 1,975 | 2,955 | 5,100 | 4,530 | 6,175 | 2,760 | 4,470 | 5,020 | 4,343 |
| **2012** | 2,535 | 3,970 | 7,100 | 6,190 | 7,950 | 3,830 | 5,925 | 6,820 | 5,835 |
| **2013** | 3,115 | 5,225 | 8,715 | 8,120 | 10,025 | 5,200 | 8,350 | 9,400 | 7,590 |
| **2014** | 3,700 | 4,985 | 8,855 | 8,940 | 9,860 | 5,750 | 8,440 | 9,760 | 7,685 |
| **2015** | 3,625 | 4,835 | 8,150 | 7,825 | 9,575 | 5,790 | 8,270 | 9,425 | 7,315 |
| **2016** | 3,290 | 4,350 | 7,880 | 7,530 | 9,410 | 5,330 | 7,240 | 9,185 | 6,940 |
| **2017** | 2,815 | 4,150 | 7,445 | 6,885 | 8,700 | 4,510 | 6,700 | 7,820 | 6,295 |

Table continued on next page.

**Appendix Table 4. Average Reported Value of Nebraska Farmland for Different Types of Land by Agricultural Statistics District, 1978-2017[a] (continued)**

| Year | Agricultural Statistics District | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Northwest | North | Northeast | Central | East | Southwest | South | Southeast | State [b] |
| | - - - - - - - - - - - - Dollars per Acre- - - - - - - - - - - - | | | | | | | | |
| **All Land Average[d]** | | | | | | | | | |
| **1978** | 261 | 205 | 686 | 571 | 1,116 | 659 | 747 | 810 | 489 |
| **1979** | 290 | 248 | 846 | 669 | 1,348 | 402 | 914 | 1,005 | 584 |
| **1980** | 310 | 274 | 998 | 764 | 1,634 | 465 | 1,069 | 1,165 | 677 |
| **1981** | 366 | 275 | 1,078 | 826 | 1,709 | 531 | 1,206 | 1,219 | 729 |
| **1982** | 365 | 273 | 998 | 803 | 1,611 | 518 | 1,199 | 1,138 | 701 |
| **1983** | 319 | 251 | 898 | 687 | 1,411 | 46 | 997 | 1,068 | 621 |
| **1984** | 299 | 232 | 833 | 617 | 1,319 | 426 | 954 | 957 | 574 |
| **1985** | 244 | 182 | 661 | 511 | 996 | 338 | 765 | 669 | 446 |
| **1986** | 181 | 137 | 518 | 371 | 746 | 266 | 538 | 498 | 335 |
| **1987** | 157 | 116 | 505 | 318 | 700 | 231 | 466 | 167 | 305 |
| **1988** | 165 | 126 | 572 | 375 | 805 | 243 | 539 | 558 | 342 |
| **1989** | 199 | 173 | 697 | 478 | 998 | 306 | 675 | 688 | 428 |
| **1990** | 209 | 206 | 756 | 561 | 1,059 | 340 | 735 | 738 | 470 |
| **1991** | 217 | 216 | 762 | 627 | 1,103 | 341 | 792 | 743 | 490 |
| **1992** | 230 | 229 | 748 | 648 | 1,145 | 350 | 825 | 777 | 506 |
| **1993** | 229 | 229 | 804 | 683 | 1,206 | 351 | 884 | 825 | 528 |
| **1994** | 239 | 248 | 852 | 716 | 1,310 | 378 | 936 | 872 | 563 |
| **1995** | 240 | 256 | 879 | 739 | 1,368 | 389 | 949 | 903 | 581 |
| **1996** | 245 | 262 | 915 | 765 | 1,470 | 409 | 990 | 952 | 608 |
| **1997** | 261 | 281 | 985 | 839 | 1,595 | 432 | 1,071 | 1,033 | 657 |
| **1998** | 279 | 301 | 1,083 | 916 | 1,754 | 468 | 1,153 | 1,141 | 716 |
| **1999** | 266 | 291 | 1,081 | 878 | 1,722 | 457 | 1,121 | 1,098 | 697 |
| **2000** | 268 | 306 | 1,097 | 864 | 1,760 | 480 | 1,087 | 1,105 | 707 |
| **2001** | 265 | 318 | 1,136 | 879 | 1,771 | 484 | 1,091 | 1,129 | 719 |
| **2002** | 275 | 325 | 1,226 | 931 | 1,784 | 505 | 1,118 | 1,193 | 746 |
| **2003** | 270 | 312 | 1,270 | 976 | 1,860 | 471 | 1,130 | 1,201 | 756 |
| **2004** | 293 | 348 | 1,392 | 1,044 | 2,011 | 505 | 1,221 | 1,347 | 824 |
| **2005** | 317 | 385 | 1,542 | 1,156 | 2,284 | 550 | 1,296 | 1,507 | 914 |
| **2006** | 342 | 431 | 1,782 | 1,240 | 2,508 | 584 | 1,249 | 1,696 | 1,001 |
| **2007** | 388 | 513 | 2,145 | 1,384 | 2,813 | 644 | 1,377 | 1,942 | 1,145 |
| **2008** | 452 | 606 | 2,726 | 1,681 | 3,490 | 780 | 1,763 | 2,451 | 1,414 |
| **2009** | 461 | 604 | 2,692 | 1,698 | 3,418 | 847 | 1,977 | 2,503 | 1,431 |

Table continued on next page.

**Appendix Table 4. Average Reported Value of Nebraska Farmland for Different Types of Land by Agricultural Statistics District, 1978-2017[a] (continued)**

| Year | Agricultural Statistics District | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Northwest | North | Northeast | Central | East | Southwest | South | Southeast | State [b] |
| | - - - - - - - - - - - - - Dollars per Acre- - - - - - - - - - - - - | | | | | | | | |
| **All Land Average[d]** | | | | | | | | | |
| **2010** | 463 | 598 | 2,898 | 1,748 | 3,762 | 870 | 2,029 | 2,596 | 1,503 |
| **2011** | 520 | 706 | 3,624 | 2,183 | 4,225 | 991 | 2,535 | 3,160 | 1,833 |
| **2012** | 635 | 875 | 4,975 | 2,945 | 6,080 | 1,335 | 3,355 | 4,280 | 2,425 |
| **2013** | 715 | 1,055 | 6,165 | 3,750 | 7,185 | 1,750 | 4,460 | 5,400 | 3,040 |
| **2014** | 855 | 1,220 | 6,460 | 4,195 | 7,285 | 1,985 | 4,815 | 6,185 | 3,315 |
| **2015** | 860 | 1,330 | 6,140 | 3,955 | 7,100 | 2,065 | 4,625 | 5,990 | 3,250 |
| **2016** | 820 | 1,245 | 5,980 | 3,780 | 6,990 | 1,960 | 4,255 | 5,675 | 3,115 |
| **2017** | 755 | 1,170 | 5,505 | 3,385 | 6,395 | 1,745 | 3,875 | 4,880 | 2,820 |

Source: [a] Average reported from the UNL Nebraska Farm Real Estate Market Surveys, 1978-2017.

[b] Weighted average based upon acreage in each land type.

[c] Pivot not included in per acre value.

[d] All land average for the state may not conform to USDA series due to different acreage weighting. In addition, the USDA series includes farm buildings in the per acre estimates of value.

**Appendix Table 5. Historical Per Acre Value Range for Different Types and Quality Grades of Land in Nebraska by Agricultural Statistics District, 2013-2017[a]**

| District and Type of Land | Reported Value Per Acre | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Low Grade | | | | | High Grade | | | | |
| | 2013 | 2014 | 2015 | 2016 | 2017 | 2013 | 2014 | 2015 | 2016 | 2017 |
| | ----------Dollars per Acre---------- | | | | | | | | | |
| **Northwest:** | | | | | | | | | | |
| Dry Crop (No Irr. Potential) | 450 | 630 | 580 | 555 | 540 | 850 | 1,075 | 935 | 965 | 935 |
| Dry Crop (Irr. Pot.) | 540 | 785 | 785 | 600 | 565 | 875 | 1,280 | 1,080 | 910 | 895 |
| Grazing (Tillable) | 400 | 450 | 485 | 480 | 450 | 500 | 700 | 715 | 620 | 615 |
| Grazing (Nontillable) | 300 | 375 | 415 | 420 | 400 | 455 | 540 | 605 | 590 | 585 |
| Hayland | 575 | 840 | 850 | 650 | 685 | 900 | 1,375 | 1,275 | 1,010 | 885 |
| Gravity Irrigated | 2,015 | 2,240 | 3,065 | 2,610 | 2,250 | 3,700 | 3,800 | 4,465 | 3,890 | 3,475 |
| Center Pivot Irrigated[b] | 2,700 | 3,080 | 3,415 | 3,100 | 2,385 | 4,000 | 4,835 | 4,925 | 4,415 | 3,265 |
| **North:** | | | | | | | | | | |
| Dry Crop (No Irr. Potential) | 870 | 1,550 | 1,440 | 1,565 | 1,430 | 1,570 | 2,215 | 2,150 | 2,220 | 2,080 |
| Dry Crop (Irr. Pot.) | 1,300 | 2,000 | 1,965 | 1,910 | 1,810 | 2,200 | 3,250 | 3,065 | 2,685 | 2,450 |
| Grazing (Tillable) | 900 | 815 | 1,250 | 1,120 | 1,035 | 1,250 | 1,570 | 1,905 | 1,775 | 1,425 |
| Grazing (Nontillable) | 350 | 560 | 615 | 630 | 620 | 600 | 805 | 975 | 940 | 935 |
| Hayland | 900 | 1,240 | 1,535 | 1,110 | 1,085 | 1,400 | 1,930 | 2,250 | 1,710 | 1,585 |
| Gravity Irrigated | 2,250 | 3,075 | 3,325 | 2,870 | 2,800 | 3,400 | 5,250 | 4,745 | 4,520 | 4,265 |
| Center Pivot Irrigated[b] | 3,500 | 4,635 | 4,435 | 3,935 | 3,750 | 6,900 | 7,230 | 5,985 | 5,620 | 5,560 |
| **Northeast:** | | | | | | | | | | |
| Dry Crop (No Irr. Potential) | 4,740 | 4,635 | 4,475 | 4,140 | 4,020 | 7,330 | 7,110 | 7,085 | 7,010 | 6,980 |
| Dry Crop (Irr. Pot.) | 5,695 | 5,985 | 5,345 | 4,930 | 4,805 | 8,445 | 7,875 | 8,190 | 7,280 | 7,250 |
| Grazing (Tillable) | 3,045 | 3,050 | 3,070 | 2,830 | 2,560 | 4,500 | 4,530 | 4,270 | 4,240 | 3,910 |
| Grazing (Nontillable) | 1,620 | 1,935 | 1,975 | 1,935 | 1,820 | 2,525 | 2,890 | 3,040 | 2,865 | 2,860 |
| Hayland | 2,150 | 2,360 | 3,235 | 2,995 | 2,520 | 2,795 | 3,300 | 4,350 | 4,305 | 3,825 |
| Gravity Irrigated | 7,500 | 6,385 | 6,250 | 6,480 | 5,895 | 9,950 | 8,515 | 9,050 | 8,810 | 8,555 |
| Center Pivot Irrigated[b] | 7,585 | 7,800 | 6,650 | 7,015 | 6,350 | 10,600 | 9,305 | 9,245 | 9,240 | 8,875 |
| **Central:** | | | | | | | | | | |
| Dry Crop (No Irr. Potential) | 2,050 | 2,800 | 2,285 | 2,490 | 2,105 | 3,450 | 4,325 | 3,635 | 3,940 | 3,160 |
| Dry Crop (Irr. Pot.) | 2,715 | 3,750 | 3,795 | 2,970 | 2,520 | 4,500 | 5,300 | 4,430 | 4,400 | 3,640 |
| Grazing (Tillable) | 1,525 | 1,900 | 2,015 | 2,250 | 1,600 | 2,335 | 3,565 | 3,050 | 2,930 | 2,445 |
| Grazing (Nontillable) | 1,075 | 1,305 | 1,470 | 1,655 | 1,190 | 1,750 | 2,295 | 2,390 | 2,340 | 1,905 |
| Hayland | 1,245 | 1,525 | 2,260 | 2,300 | 1,800 | 1,975 | 2,500 | 3,110 | 3,015 | 2,350 |
| Gravity Irrigated | 5,440 | 6,195 | 5,370 | 5,240 | 5,205 | 7,900 | 9,110 | 7,600 | 7,575 | 6,925 |
| Center Pivot Irrigated[b] | 5,900 | 6,470 | 5,830 | 6,255 | 5,845 | 9,150 | 10,055 | 8,475 | 8,200 | 7,900 |

Table continued on next page.

## Table of Contents

**Appendix Table 5. Historical Per Acre Value Range for Different Types and Quality Grades of Land in Nebraska by Agricultural Statistics District, 2013-2017[a] (continued)**

| District and Type of land | Reported Value Per Acre | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Low Grade | | | | | High Grade | | | | |
| | 2013 | 2014 | 2015 | 2016 | 2017 | 2013 | 2014 | 2015 | 2016 | 2017 |
| | Dollars per Acre | | | | | | | | | |
| **East:** | | | | | | | | | | |
| Dry Crop (No Irr. Potential) | 4,800 | 4,800 | 4,650 | 4,820 | 4,610 | 7,965 | 7,515 | 7,595 | 7,635 | 6,945 |
| Dry Crop (Irr. Pot.) | 6,175 | 6,055 | 5,490 | 5,660 | 5,050 | 8,350 | 8,965 | 8,240 | 8,435 | 7,225 |
| Grazing (Tillable) | 2,990 | 2,700 | 2,840 | 2,890 | 2,765 | 4,090 | 4,385 | 4,475 | 4,560 | 4,110 |
| Grazing (Nontillable) | 1,975 | 1,985 | 2,135 | 2,005 | 1,925 | 2,750 | 3,195 | 3,275 | 3,290 | 2,950 |
| Hayland | 2,650 | 2,625 | 2,955 | 2,440 | 2,310 | 3,855 | 3,925 | 4,340 | 3,675 | 3,565 |
| Gravity Irrigated | 7,710 | 7,080 | 7,335 | 7,190 | 6,530 | 9,850 | 9,770 | 9,550 | 9,175 | 8,765 |
| Center Pivot Irrigated[b] | 8,640 | 8,150 | 7,915 | 8,035 | 7,315 | 11,500 | 10,810 | 10,885 | 10,410 | 9,670 |
| **Southwest:** | | | | | | | | | | |
| Dry Crop (No Irr. Potential) | 1,125 | 1535 | 1,260 | 1,480 | 1,170 | 2,025 | 2725 | 2,180 | 2,395 | 2,095 |
| Dry Crop (Irr. Pot.) | 1,600 | 1,865 | 1,765 | 1,670 | 1,540 | 2,300 | 2,600 | 2,615 | 2,430 | 2,065 |
| Grazing (Tillable) | 625 | 790 | 940 | 895 | 865 | 900 | 1,090 | 1,340 | 1,255 | 1,195 |
| Grazing (Nontillable) | 475 | 620 | 705 | 825 | 650 | 745 | 965 | 1,150 | 1,160 | 965 |
| Hayland | 940 | 1,480 | 1,370 | 1,285 | 1,205 | 1,600 | 1,780 | 2,440 | 1,935 | 1,620 |
| Gravity Irrigated | 3,025 | 3,030 | 4,260 | 4,135 | 3,280 | 5,750 | 5,750 | 5,860 | 5,760 | 4,580 |
| Center Pivot Irrigated[b] | 4,375 | 4,480 | 4,880 | 4,840 | 3,810 | 6,800 | 6,100 | 7,055 | 6,890 | 5,320 |
| **South:** | | | | | | | | | | |
| Dry Crop (No Irr. Potential) | 2,400 | 2,610 | 2,465 | 2,405 | 2,205 | 4,400 | 4,335 | 4,050 | 4,440 | 3,625 |
| Dry Crop (Irr. Pot.) | 3,925 | 4,620 | 3,125 | 2,940 | 2,740 | 4,300 | 6,400 | 4,750 | 4,685 | 4,400 |
| Grazing (Tillable) | 1,825 | 2,060 | 1,725 | 1,580 | 1,450 | 2,500 | 3,085 | 2,575 | 2,440 | 2,370 |
| Grazing (Nontillable) | 965 | 1,370 | 1,320 | 1,355 | 1,330 | 1,950 | 2,090 | 2,310 | 1,980 | 1,945 |
| Hayland | 1,300 | 1,590 | 2,455 | 1,525 | 1,490 | 2,250 | 2,585 | 3,500 | 2,950 | 2,875 |
| Gravity Irrigated | 5,925 | 6,155 | 5,775 | 4,585 | 4,420 | 9,300 | 8,525 | 8,660 | 7,970 | 7,060 |
| Center Pivot Irrigated[b] | 6,400 | 6,840 | 6,675 | 5,710 | 5,530 | 11,025 | 9,440 | 9,155 | 8,355 | 7,840 |
| **Southeast:** | | | | | | | | | | |
| Dry Crop (No Irr. Potential) | 3,585 | 3,610 | 3,560 | 3,305 | 3,075 | 6,350 | 6,520 | 6,655 | 5,910 | 5,060 |
| Dry Crop (Irr. Pot.) | 5,135 | 5,145 | 5,030 | 4,310 | 4,030 | 7,945 | 8,585 | 8,325 | 7,635 | 6,315 |
| Grazing (Tillable) | 2,325 | 2,370 | 2,635 | 2,580 | 2,305 | 3,340 | 3,925 | 3,815 | 3,430 | 3,195 |
| Grazing (Nontillable) | 1,250 | 1,620 | 1,865 | 1,735 | 1,900 | 2,200 | 2,815 | 2,905 | 2,630 | 2,190 |
| Hayland | 1,600 | 2,000 | 2,505 | 2,330 | 2,290 | 2,400 | 2,905 | 3,350 | 3,290 | 3,060 |
| Gravity Irrigated | 6,850 | 6,885 | 6,650 | 6,800 | 5,500 | 9,000 | 9,605 | 8,895 | 8,525 | 7,140 |
| Center Pivot Irrigated[b] | 7,600 | 8,015 | 7,320 | 7,400 | 6,490 | 11,300 | 11,455 | 10,645 | 9,865 | 8,330 |

Source: [a] UNL Nebraska Farm Real Estate Market Surveys, 2013-2017.

[b] Pivot not included in per acre value.

**Appendix Table 6. Estimated Annual Net Rates of Return to Nebraska Farmland for Different Types of Land by Agricultural Statistics District, 1990-2017[ab]**

| Year | Agricultural Statistics District | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Northwest | North | Northeast | Central | East | Southwest | South | Southeast | State |
| | ---------- Dollars per Acre- ---------- | | | | | | | | |
| **Dryland Cropland** | | | | | | | | | |
| **1990** | 6.2 | 6.3 | 5.9 | 6.4 | 5.9 | 4.7 | 6.1 | 6.3 | 6.0 |
| **1991** | 5.9 | 5.0 | 6.0 | 5.9 | 5.8 | 4.7 | 6.1 | 5.8 | 5.7 |
| **1992** | 4.8 | 5.0 | 5.6 | 5.9 | 5.7 | 5.6 | 5.2 | 6.1 | 5.5 |
| **1993** | 5.0 | 4.3 | 5.8 | 5.7 | 5.3 | 5.3 | 6.1 | 5.2 | 5.4 |
| **1994** | 4.5 | 5.2 | 6.0 | 5.4 | 5.2 | 5.2 | 5.3 | 5.4 | 5.3 |
| **1995** | 4.2 | 6.0 | 6.2 | 5.3 | 5.2 | 5.1 | 5.4 | 5.0 | 5.3 |
| **1996** | 4.1 | 5.0 | 6.3 | 5.6 | 5.0 | 5.3 | 5.5 | 5.2 | 5.3 |
| **1997** | 5.1 | 5.8 | 6.4 | 5.6 | 5.3 | 5.3 | 5.4 | 5.4 | 5.5 |
| **1998** | 4.5 | 5.5 | 5.8 | 5.3 | 4.8 | 4.8 | 5.4 | 5.0 | 5.1 |
| **1999** | 4.3 | 4.9 | 5.4 | 5.1 | 4.5 | 3.9 | 4.5 | 4.9 | 4.7 |
| **2000** | 4.0 | 5.2 | 5.4 | 5.1 | 4.7 | 4.5 | 4.7 | 5.0 | 4.8 |
| **2001** | 4.1 | 5.3 | 5.5 | 5.0 | 4.6 | 4.3 | 4.6 | 4.7 | 4.8 |
| **2002** | 4.0 | 4.6 | 5.3 | 5.1 | 4.5 | 4.7 | 4.6 | 4.9 | 4.7 |
| **2003** | 3.6 | 4.5 | 4.8 | 4.6 | 4.1 | 4.1 | 4.7 | 4.4 | 4.4 |
| **2004** | 3.5 | 4.4 | 4.5 | 4.3 | 3.8 | 3.9 | 4.4 | 4.6 | 4.2 |
| **2005** | 3.6 | 3.9 | 4.2 | 4.5 | 3.5 | 4.0 | 4.6 | 4.4 | 4.1 |
| **2006** | 3.5 | 4.4 | 3.6 | 4.2 | 3.4 | 3.8 | 4.6 | 4.1 | 4.0 |
| **2007** | 4.1 | 4.4 | 4.3 | 4.6 | 3.4 | 3.7 | 4.8 | 4.0 | 4.1 |
| **2008** | 4.5 | 4.8 | 4.4 | 4.7 | 3.9 | 4.0 | 5.0 | 4.4 | 4.5 |
| **2009** | 4.0 | 4.0 | 4.0 | 4.3 | 3.5 | 3.5 | 4.1 | 3.8 | 3.9 |
| **2010** | 4.1 | 3.5 | 4.1 | 3.7 | 3.2 | 4.1 | 4.0 | 3.7 | 3.8 |
| **2011** | 3.8 | 3.7 | 3.8 | 3.8 | 3.5 | 3.5 | 4.0 | 3.5 | 3.7 |
| **2012** | 4.0 | 4.0 | 3.3 | 3.7 | 3.2 | 3.2 | 3.3 | 3.2 | 3.5 |
| **2013** | 3.5 | 2.9 | 3.3 | 2.8 | 2.8 | 3.0 | 1.9 | 2.7 | 2.9 |
| **2014** | 3.5 | 2.4 | 3.0 | 2.5 | 3.0 | 2.6 | 2.2 | 2.5 | 2.8 |
| **2015** | 3.4 | 2.4 | 2.9 | 2.4 | 2.6 | 2.5 | 2.3 | 2.4 | 2.6 |
| **2016** | 3.6 | 2.5 | 3.0 | 2.7 | 2.6 | 2.4 | 2.2 | 2.5 | 2.7 |
| **2017** | 3.5 | 2.4 | 2.8 | 2.5 | 2.3 | 2.5 | 2.2 | 2.4 | 2.6 |

Table continued on next page.

**Appendix Table 6. Estimated Annual Net Rates of Return to Nebraska Farmland for Different Types of Land by Agricultural Statistics District, 1990-2017[ab] (continued)**

| Year | Agricultural Statistics District | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Northwest | North | Northeast | Central | East | Southwest | South | Southeast | State |
| | - - - - - - - - - - - - Dollars per Acre- - - - - - - - - - - - | | | | | | | | |
| **Irrigated Cropland** | | | | | | | | | |
| **1990** | 8.3 | 9.3 | 6.9 | 6.8 | 6.7 | 6.3 | 6.3 | 6.0 | 7.1 |
| **1991** | 8.7 | 8.0 | 6.8 | 6.5 | 6.4 | 6.4 | 6.2 | 5.9 | 6.9 |
| **1992** | 6.8 | 6.5 | 6.6 | 6.6 | 6.0 | 6.5 | 6.0 | 6.1 | 6.4 |
| **1993** | 6.6 | 6.0 | 6.5 | 6.1 | 5.7 | 6.5 | 6.5 | 6.0 | 6.2 |
| **1994** | 6.9 | 6.5 | 6.3 | 6.3 | 5.6 | 6.2 | 5.7 | 5.7 | 6.2 |
| **1995** | 6.6 | 6.8 | 6.5 | 5.9 | 5.3 | 5.9 | 6.0 | 5.0 | 6.0 |
| **1996** | 6.7 | 6.3 | 6.9 | 5.8 | 5.2 | 6.5 | 6.2 | 5.4 | 6.1 |
| **1997** | 7.2 | 7.0 | 7.0 | 6.0 | 5.3 | 6.7 | 6.3 | 5.7 | 6.4 |
| **1998** | 6.7 | 6.7 | 6.0 | 5.8 | 5.0 | 6.6 | 5.7 | 5.4 | 6.0 |
| **1999** | 6.0 | 5.9 | 5.9 | 5.3 | 4.6 | 6.1 | 4.9 | 5.0 | 5.5 |
| **2000** | 6.0 | 6.2 | 6.0 | 5.6 | 5.0 | 6.3 | 5.5 | 5.0 | 5.7 |
| **2001** | 5.6 | 6.2 | 5.9 | 5.4 | 4.9 | 6.5 | 5.2 | 5.0 | 5.6 |
| **2002** | 5.4 | 5.9 | 5.5 | 5.3 | 4.5 | 6.2 | 5.3 | 5.1 | 5.4 |
| **2003** | 5.3 | 5.8 | 5.2 | 5.2 | 4.4 | 6.3 | 5.4 | 5.1 | 5.3 |
| **2004** | 5.3 | 6.1 | 5.2 | 5.2 | 4.7 | 5.6 | 5.3 | 5.3 | 5.3 |
| **2005** | 5.9 | 5.9 | 4.9 | 5.0 | 4.0 | 5.6 | 5.4 | 5.0 | 5.2 |
| **2006** | 5.5 | 5.8 | 4.2 | 4.9 | 3.7 | 5.4 | 5.3 | 4.4 | 4.9 |
| **2007** | 5.4 | 5.9 | 4.7 | 5.0 | 3.9 | 6.0 | 5.6 | 4.9 | 5.0 |
| **2008** | 6.0 | 6.0 | 4.9 | 5.2 | 4.2 | 5.8 | 5.6 | 5.1 | 5.4 |
| **2009** | 5.8 | 5.0 | 4.8 | 4.7 | 3.9 | 4.8 | 4.9 | 4.6 | 4.8 |
| **2010** | 5.2 | 4.7 | 4.7 | 4.6 | 3.5 | 5.0 | 4.2 | 4.2 | 4.4 |
| **2011** | 5.1 | 4.5 | 4.3 | 4.4 | 3.9 | 4.8 | 4.5 | 4.2 | 4.5 |
| **2012** | 4.9 | 4.8 | 3.7 | 3.6 | 3.3 | 4.0 | 3.3 | 3.6 | 3.9 |
| **2013** | 4.4 | 3.5 | 3.8 | 3.1 | 3.3 | 3.7 | 2.8 | 3.0 | 3.4 |
| **2014** | 4.6 | 2.7 | 3.6 | 2.5 | 3.4 | 3.4 | 2.4 | 3.1 | 3.2 |
| **2015** | 4.4 | 2.6 | 3.5 | 2.4 | 3.0 | 3.3 | 2.4 | 2.8 | 3.1 |
| **2016** | 4.3 | 2.5 | 3.6 | 2.6 | 2.9 | 3.2 | 2.3 | 2.8 | 3.0 |
| **2017** | 4.0 | 2.6 | 3.4 | 2.7 | 2.8 | 3.1 | 2.4 | 2.7 | 3.0 |

Table continued on next page.

**Appendix Table 6. Estimated Annual Net Rates of Return to Nebraska Farmland for Different Types of Land by Agricultural Statistics District, 1990-2017[ab] (continued)**

| Year | Agricultural Statistics District | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Northwest | North | Northeast | Central | East | Southwest | South | Southeast | State |
| | - - - - - - - - - - - - Dollars per Acre- - - - - - - - - - - - | | | | | | | | |
| **Grazing Land** | | | | | | | | | |
| **1990** | 4.0 | 5.8 | 4.6 | 4.9 | 5.0 | 4.5 | 5.4 | 5.0 | 4.9 |
| **1991** | 5.5 | 5.9 | 5.4 | 5.0 | 5.3 | 5.8 | 5.5 | 5.5 | 5.4 |
| **1992** | 4.0 | 5.3 | 4.9 | 4.6 | 4.4 | 5.1 | 5.0 | 5.0 | 4.8 |
| **1993** | 4.3 | 4.6 | 5.0 | 4.6 | 4.3 | 4.6 | 4.5 | 4.6 | 4.6 |
| **1994** | 4.7 | 4.5 | 5.1 | 4.4 | 4.3 | 4.7 | 4.1 | 4.5 | 4.5 |
| **1995** | 3.7 | 4.7 | 4.9 | 4.0 | 4.2 | 4.5 | 4.2 | 4.0 | 4.3 |
| **1996** | 3.8 | 4.3 | 4.9 | 4.3 | 4.0 | 4.3 | 3.8 | 4.1 | 4.2 |
| **1997** | 3.6 | 4.3 | 4.9 | 4.5 | 4.0 | 4.0 | 3.6 | 4.2 | 4.1 |
| **1998** | 3.4 | 4.2 | 4.6 | 4.1 | 3.9 | 4.2 | 4.0 | 3.8 | 4.0 |
| **1999** | 3.1 | 3.5 | 4.4 | 4.2 | 3.6 | 3.2 | 3.6 | 3.9 | 3.7 |
| **2000** | 3.3 | 4.4 | 4.6 | 3.7 | 3.8 | 3.6 | 4.0 | 4.1 | 3.9 |
| **2001** | 2.9 | 4.0 | 4.3 | 3.9 | 4.0 | 3.4 | 3.5 | 4.1 | 3.8 |
| **2002** | 2.8 | 4.1 | 4.4 | 3.8 | 3.7 | 4.0 | 3.8 | 4.1 | 3.8 |
| **2003** | 2.4 | 3.3 | 3.8 | 3.3 | 3.4 | 3.4 | 3.9 | 3.8 | 3.4 |
| **2004** | 2.8 | 3.1 | 3.6 | 3.3 | 3.7 | 3.3 | 3.4 | 4.1 | 3.4 |
| **2005** | 2.6 | 3.3 | 3.7 | 3.8 | 2.9 | 3.1 | 3.6 | 4.3 | 3.4 |
| **2006** | 2.7 | 3.1 | 3.0 | 3.6 | 3.0 | 3.1 | 3.7 | 3.8 | 3.3 |
| **2007** | 2.3 | 2.5 | 3.0 | 2.9 | 2.9 | 2.8 | 3.5 | 3.0 | 2.9 |
| **2008** | 2.8 | 3.1 | 3.3 | 2.9 | 3.4 | 2.9 | 3.3 | 3.6 | 3.2 |
| **2009** | 2.6 | 2.7 | 3.0 | 2.9 | 2.5 | 2.5 | 2.9 | 3.1 | 2.8 |
| **2010** | 2.0 | 2.5 | 3.1 | 2.1 | 2.3 | 2.9 | 3.0 | 2.9 | 2.6 |
| **2011** | 2.0 | 2.9 | 2.6 | 2.5 | 2.7 | 2.5 | 3.0 | 2.5 | 2.6 |
| **2012** | 2.0 | 2.4 | 2.4 | 2.4 | 2.0 | 2.2 | 3.1 | 2.2 | 2.4 |
| **2013** | 1.9 | 2.3 | 2.4 | 1.6 | 2.0 | 1.8 | 1.7 | 1.7 | 1.9 |
| **2014** | 2.1 | 2.0 | 2.1 | 1.7 | 1.9 | 2.1 | 1.7 | 1.4 | 1.7 |
| **2015** | 2.3 | 2.6 | 2.7 | 2.1 | 2.2 | 2.6 | 2.2 | 1.7 | 2.3 |
| **2016** | 2.2 | 2.7 | 2.6 | 2.1 | 2.0 | 2.3 | 2.1 | 1.5 | 2.2 |
| **2017** | 2.1 | 2.5 | 2.4 | 2.0 | 1.7 | 2.1 | 1.9 | 1.6 | 2.0 |

Source: [a] Panel members reported annual estimates of net rates of return in the annual UNL Nebraska Farm Real Estate Market Surveys, 1990-2017.

[b] Panel members reported estimates of annual net returns as percentage rates of current land values. Real estate appraisers refer to this percentage as the market-derived capitalization rate.

**Appendix Table 7. Historical Average Cash Rental Rates of Nebraska Farmland for Different Types of Land by Agricultural Statistics District, 1981-2017[a]**

| Type of Land and Year | Agricultural Statistics District | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Northwest | North | Northeast | Central | East | Southwest | South | Southeast |
| | Dollars per Acre | | | | | | | |
| **Dryland Cropland** | | | | | | | | |
| **1981** | b | b | 60 | 43 | 68 | 35 | 38 | 55 |
| **1982** | b | b | 67 | 38 | 71 | 34 | 38 | 60 |
| **1983** | b | b | 63 | 43 | 66 | 25 | 41 | 57 |
| **1984** | b | b | 63 | 41 | 72 | 29 | 44 | 57 |
| **1985** | b | b | 55 | 38 | 65 | 26 | 40 | 50 |
| **1986** | b | b | 52 | 29 | 58 | 25 | 35 | 45 |
| **1987** | b | b | 55 | 29 | 58 | 23 | 35 | 45 |
| **1988** | b | b | 58 | 35 | 62 | 25 | 38 | 48 |
| **1989** | b | b | 65 | 42 | 70 | 26 | 43 | 52 |
| **1990** | b | b | 65 | 44 | 72 | 31 | 41 | 54 |
| **1991** | b | b | 64 | 45 | 73 | 27 | 41 | 58 |
| **1992** | b | b | 60 | 47 | 73 | 28 | 43 | 57 |
| **1993** | 24 | 28 | 65 | 46 | 74 | 28 | 47 | 60 |
| **1994** | b | 33 | 66 | 44 | 79 | 32 | 45 | 62 |
| **1995** | 21 | 36 | 69 | 48 | 79 | 29 | 46 | 61 |
| **1996** | 21 | 35 | 69 | 49 | 81 | 31 | 47 | 62 |
| **1997** | 22 | 38 | 74 | 53 | 85 | 32 | 49 | 65 |
| **1998** | 22 | 39 | 79 | 53 | 88 | 32 | 51 | 70 |
| **1999** | 21 | 38 | 79 | 51 | 85 | 30 | 49 | 67 |
| **2000** | 20 | 38 | 79 | 53 | 86 | 29 | 49 | 66 |
| **2001** | 20 | 37 | 78 | 53 | 87 | 29 | 51 | 64 |
| **2002** | 21 | 38 | 85 | 54 | 87 | 31 | 53 | 69 |
| **2003** | 22 | 32 | 86 | 59 | 89 | 32 | 52 | 71 |
| **2004** | 22 | 35 | 91 | 60 | 94 | 33 | 55 | 75 |
| **2005** | 24 | 37 | 92 | 62 | 99 | 33 | 56 | 79 |
| **2006** | 24 | 38 | 97 | 63 | 102 | 31 | 52 | 83 |
| **2007** | 26 | 41 | 109 | 71 | 113 | 34 | 56 | 93 |
| **2008** | 33 | 50 | 134 | 86 | 135 | 40 | 69 | 113 |
| **2009** | 29 | 49 | 136 | 81 | 136 | 38 | 72 | 112 |
| **2010** | 31 | b | 144 | 83 | 146 | 41 | 74 | 116 |
| **2011** | 35 | 52 | 180 | 94 | 178 | 48 | 96 | 142 |
| **2012** | 39 | 55 | 212 | 110 | 204 | 56 | 116 | 162 |
| **2013** | 40 | 57 | 234 | 118 | 219 | 59 | 125 | 174 |
| **2014** | 40 | 70 | 245 | 110 | 215 | 50 | 90 | 175 |
| **2015** | 35 | 65 | 235 | 105 | 205 | 45 | 85 | 170 |
| **2016** | 32 | 60 | 225 | 96 | 200 | 42 | 80 | 165 |
| **2017** | 29 | 55 | 215 | 88 | 195 | 39 | 72 | 155 |

Table continued on next page.

**Appendix Table 7. Historical Average Cash Rental Rates of Nebraska Farmland for Different Types of Land by Agricultural Statistics District, 1981-2017[a] (continued)**

| Type of Land and Year | Agricultural Statistics District | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Northwest | North | Northeast | Central | East | Southwest | South | Southeast |
| | Dollars per Acre | | | | | | | |
| **Gravity Irrigated Cropland** | | | | | | | | |
| **1981** | b | b | 107 | 114 | 114 | 97 | 117 | 115 |
| **1982** | 100 | 96 | b | 119 | 116 | 97 | 115 | 115 |
| **1983** | 93 | 95 | b | 110 | 111 | 92 | 110 | 112 |
| **1984** | 110 | 95 | 100 | 115 | 113 | 89 | 115 | 113 |
| **1985** | 91 | 90 | 89 | 105 | 99 | 80 | 103 | 98 |
| **1986** | 78 | 73 | 80 | 90 | 97 | 77 | 93 | 88 |
| **1987** | b | 67 | 83 | 88 | 96 | 76 | 91 | 85 |
| **1988** | b | 70 | 94 | 94 | 103 | 76 | 95 | 93 |
| **1989** | b | 87 | 102 | 111 | 115 | 88 | 106 | 97 |
| **1990** | 74 | 88 | 99 | 113 | 113 | 96 | 106 | 104 |
| **1991** | 84 | 95 | 99 | 119 | 118 | 101 | 112 | 103 |
| **1992** | 83 | 101 | 98 | 109 | 119 | 99 | 118 | 109 |
| **1993** | 77 | 93 | 107 | 118 | 124 | 94 | 124 | 114 |
| **1994** | 83 | 100 | 110 | 121 | 131 | 107 | 124 | 122 |
| **1995** | 80 | 98 | 108 | 120 | 127 | 101 | 123 | 116 |
| **1996** | 78 | 99 | 108 | 124 | 127 | 104 | 126 | 118 |
| **1997** | 80 | 105 | 114 | 129 | 136 | 108 | 132 | 125 |
| **1998** | 91 | 105 | 116 | 129 | 136 | 103 | 133 | 128 |
| **1999** | 85 | 102 | 111 | 123 | 133 | 98 | 130 | 119 |
| **2000** | 82 | 98 | 118 | 123 | 133 | 100 | 128 | 120 |
| **2001** | 84 | 98 | 122 | 128 | 133 | 106 | 127 | 126 |
| **2002** | 84 | 100 | 124 | 128 | 136 | 104 | 128 | 131 |
| **2003** | 86 | 98 | 120 | 129 | 135 | 97 | 125 | 128 |
| **2004** | 88 | 105 | 129 | 134 | 138 | 101 | 128 | 131 |
| **2005** | 94 | 104 | 133 | 134 | 142 | 105 | 130 | 134 |
| **2006** | 97 | 105 | 135 | 135 | 144 | 101 | 130 | 138 |
| **2007** | 103 | 115 | 156 | 150 | 160 | 107 | 139 | 152 |
| **2008** | 126 | 142 | 188 | 173 | 189 | 116 | 168 | 185 |
| **2009** | 110 | 139 | 190 | 169 | 196 | 117 | 171 | 187 |
| **2010** | 115 | b | 207 | 174 | 208 | 130 | 183 | 197 |
| **2011** | b | b | 248 | 197 | 259 | b | 211 | 236 |
| **2012** | b | b | 285 | 230 | 297 | 184 | 247 | 267 |
| **2013** | b | b | 319 | 260 | 320 | 210 | 275 | 299 |
| **2014** | 145 | 205 | 290 | 250 | 315 | 190 | 225 | 295 |
| **2015** | 135 | 195 | 285 | 235 | 300 | 185 | 220 | 255 |
| **2016** | 125 | 175 | 275 | 230 | 285 | 180 | 215 | 250 |
| **2017** | 120 | 165 | 255 | 220 | 260 | 170 | 205 | 235 |

Table continued on next page.

**Appendix Table 7. Historical Average Cash Rental Rates of Nebraska Farmland for Different Types of Land by Agricultural Statistics District, 1981-2017[a] (continued)**

| Type of Land and Year | Agricultural Statistics District | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Northwest | North | Northeast | Central | East | Southwest | South | Southeast |
| | Dollars per Acre | | | | | | | |
| **Center Pivot Irrigated Cropland** | | | | | | | | |
| **1981** | b | 71 | 117 | 102 | 118 | 91 | 126 | 119 |
| **1982** | 98 | 82 | 116 | 108 | 120 | 93 | 127 | 119 |
| **1983** | 90 | 86 | 101 | 100 | 114 | 83 | 117 | 116 |
| **1984** | 98 | 81 | 99 | 101 | 118 | 80 | 120 | 114 |
| **1985** | b | 69 | 93 | 90 | 104 | 81 | 111 | 96 |
| **1986** | b | 60 | 86 | 75 | 99 | 69 | 91 | 86 |
| **1987** | b | 62 | 83 | 77 | 97 | 66 | 82 | 86 |
| **1988** | b | 67 | 91 | 82 | 100 | 73 | 89 | 93 |
| **1989** | b | 88 | 99 | 98 | 110 | 81 | 101 | 100 |
| **1990** | 77 | 97 | 106 | 99 | 114 | 91 | 104 | 108 |
| **1991** | 85 | 98 | 108 | 109 | 120 | 94 | 115 | 110 |
| **1992** | 79 | 96 | 105 | 102 | 120 | 92 | 119 | 113 |
| **1993** | 79 | 83 | 107 | 108 | 124 | 93 | 124 | 114 |
| **1994** | 85 | 104 | 115 | 116 | 130 | 98 | 126 | 122 |
| **1995** | 86 | 100 | 118 | 117 | 128 | 101 | 127 | 122 |
| **1996** | 80 | 107 | 117 | 119 | 130 | 105 | 128 | 124 |
| **1997** | 90 | 115 | 124 | 130 | 142 | 110 | 138 | 132 |
| **1998** | 95 | 115 | 125 | 132 | 143 | 111 | 138 | 132 |
| **1999** | 90 | 109 | 122 | 124 | 143 | 110 | 136 | 127 |
| **2000** | 93 | 105 | 125 | 124 | 144 | 111 | 135 | 129 |
| **2001** | 94 | 106 | 130 | 129 | 144 | 113 | 132 | 134 |
| **2002** | 96 | 108 | 132 | 131 | 146 | 115 | 133 | 135 |
| **2003** | 97 | 105 | 137 | 134 | 145 | 115 | 135 | 138 |
| **2004** | 97 | 114 | 144 | 139 | 151 | 117 | 139 | 143 |
| **2005** | 107 | 119 | 142 | 139 | 155 | 121 | 143 | 147 |
| **2006** | 102 | 120 | 147 | 140 | 157 | 120 | 139 | 152 |
| **2007** | 118 | 136 | 173 | 156 | 176 | 128 | 154 | 169 |
| **2008** | 140 | 159 | 208 | 185 | 211 | 139 | 183 | 198 |
| **2009** | 135 | 158 | 207 | 182 | 216 | 160 | 190 | 208 |
| **2010** | 140 | 168 | 232 | 193 | 234 | 162 | 198 | 214 |
| **2011** | 171 | 195 | 279 | 221 | 273 | 193 | 233 | 257 |
| **2012** | 200 | 234 | 330 | 256 | 315 | 236 | 279 | 305 |
| **2013** | 225 | 265 | 379 | 287 | 355 | 269 | 313 | 345 |
| **2014** | 200 | 250 | 370 | 260 | 355 | 305 | 270 | 335 |
| **2015** | 175 | 235 | 365 | 245 | 330 | 250 | 255 | 300 |
| **2016** | 170 | 220 | 345 | 240 | 320 | 225 | 240 | 290 |
| **2017** | 155 | 205 | 305 | 230 | 290 | 200 | 225 | 265 |

Table continued on next page.

**Appendix Table 7. Historical Average Cash Rental Rates of Nebraska Farmland for Different Types of Land by Agricultural Statistics District, 1981-2017[a] (continued)**

| Type of Land and Year | Agricultural Statistics District | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Northwest | North | Northeast | Central | East | Southwest | South | Southeast |
| | Dollars per Acre | | | | | | | |
| **Dryland Alfalfa** | | | | | | | | |
| **1981** | b | b | 53 | 47 | 56 | 31 | 45 | 45 |
| **1982** | b | b | 57 | 47 | 64 | 31 | 43 | 47 |
| **1983** | b | b | 56 | 43 | 64 | 32 | 43 | 50 |
| **1984** | b | b | 50 | 46 | 63 | 36 | 44 | 45 |
| **1985** | b | b | 50 | 44 | 59 | 28 | 42 | 40 |
| **1986** | b | b | 47 | 32 | 52 | 25 | 44 | 40 |
| **1987** | b | b | 41 | 32 | 53 | b | 41 | 37 |
| **1988** | b | b | 52 | 36 | 58 | b | 42 | 39 |
| **1989** | b | b | 59 | 41 | 64 | b | 56 | 48 |
| **1990** | b | b | 62 | 49 | 67 | 30 | b | 48 |
| **1991** | b | 38 | 62 | 57 | 71 | 28 | b | 49 |
| **1992** | b | 36 | 56 | 46 | 58 | b | 50 | 48 |
| **1993** | b | 27 | 65 | 47 | 66 | 31 | 50 | 54 |
| **1994** | b | b | 65 | 46 | 70 | 37 | 51 | 52 |
| **1995** | b | b | 68 | 50 | 73 | b | 54 | 57 |
| **1996** | b | b | 68 | 52 | 78 | b | 51 | 54 |
| **1997** | b | b | 72 | 56 | 82 | b | 54 | 60 |
| **1998** | b | b | 79 | 58 | 86 | b | 59 | 64 |
| **1999** | b | b | 80 | 54 | 82 | b | b | 64 |
| **2000** | b | b | 80 | 56 | 82 | b | b | b |
| **2001** | b | b | 79 | 53 | 79 | b | b | b |
| **2002** | b | b | 86 | 55 | 82 | b | 56 | b |
| **2003** | b | b | 84 | 62 | 77 | b | 53 | 68 |
| **2004** | b | b | 92 | 63 | 85 | b | 53 | 74 |
| **2005** | b | b | 90 | 59 | 82 | b | 58 | b |
| **2006** | b | b | 89 | 54 | 87 | b | 59 | 80 |
| **2007** | b | b | 105 | 63 | 96 | b | b | b |
| **2008** | b | b | 126 | 73 | 120 | b | b | b |
| **2009** | b | b | 121 | 68 | 120 | b | b | b |
| **2010** | b | b | 124 | 71 | 118 | b | b | b |
| **2011** | b | b | 152 | 81 | 140 | b | b | b |
| **2012** | b | b | 198 | 105 | 182 | b | b | b |
| **2013** | b | b | 235 | 122 | 200 | b | b | b |
| **2014** | 40 | 100 | 244 | 91 | 168 | 46 | 88 | 147 |
| **2015** | 30 | 75 | 220 | 85 | 165 | 35 | 80 | 140 |
| **2016** | 28 | 58 | 205 | 80 | 155 | 32 | 76 | 130 |
| **2017** | 26 | 47 | 190 | 75 | 160 | 30 | 71 | 120 |

Table continued on next page.

**Appendix Table 7. Historical Average Cash Rental Rates of Nebraska Farmland for Different Types of Land by Agricultural Statistics District, 1981-2017[a] (continued)**

| Type of Land and Year | Agricultural Statistics District | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Northwest | North | Northeast | Central | East | Southwest | South | Southeast |
| | Dollars per Acre | | | | | | | |
| **Irrigated Alfalfa** | | | | | | | | |
| **1981** | b | b | 88 | 92 | 96 | b | 90 | b |
| **1982** | b | b | 75 | 87 | 100 | 56 | 90 | b |
| **1983** | b | b | 78 | 89 | 105 | 70 | 84 | b |
| **1984** | b | b | 80 | 83 | 96 | 68 | 84 | b |
| **1985** | b | b | 74 | 80 | 87 | b | 69 | b |
| **1986** | b | b | 68 | 58 | 69 | b | 68 | b |
| **1987** | b | b | 61 | 62 | 70 | b | 68 | b |
| **1988** | b | b | 72 | 66 | 78 | b | 68 | b |
| **1989** | b | b | 89 | 88 | 92 | b | 100 | b |
| **1990** | b | b | 96 | 95 | 93 | 90 | 111 | b |
| **1991** | b | b | 98 | 98 | 102 | 78 | 98 | b |
| **1992** | b | b | 88 | 81 | 82 | b | 94 | b |
| **1993** | b | b | 96 | 96 | 92 | b | 100 | b |
| **1994** | b | b | 99 | 93 | 101 | b | 95 | b |
| **1995** | b | b | 99 | 102 | 101 | b | 103 | b |
| **1996** | b | b | 108 | 106 | 108 | b | 109 | b |
| **1997** | b | b | 113 | 106 | 119 | b | b | b |
| **1998** | b | b | 118 | 112 | 124 | b | b | b |
| **1999** | b | b | 112 | 108 | 115 | b | b | b |
| **2000** | b | b | 105 | 107 | 114 | b | b | b |
| **2001** | b | b | 118 | 107 | 118 | b | b | b |
| **2002** | b | b | 124 | 111 | 121 | b | 116 | b |
| **2003** | b | b | 125 | 121 | 124 | b | 117 | b |
| **2004** | b | b | 132 | 126 | 128 | b | 123 | 126 |
| **2005** | b | b | 130 | 121 | 119 | b | 124 | b |
| **2006** | b | b | 132 | 123 | 120 | b | 125 | b |
| **2007** | b | b | b | 138 | 162 | b | b | b |
| **2008** | b | b | 142 | 165 | 172 | b | b | b |
| **2009** | b | b | 158 | 159 | 170 | b | b | b |
| **2010** | b | b | b | 153 | b | b | b | b |
| **2011** | b | b | b | 172 | b | b | b | b |
| **2012** | b | b | b | 197 | 265 | b | b | b |
| **2013** | b | b | b | 254 | 293 | b | b | b |
| **2014** | 198 | 250 | 350 | 216 | 275 | 211 | 240 | 335 |
| **2015** | 150 | 165 | 290 | 175 | 265 | 175 | 235 | 295 |
| **2016** | 145 | 155 | 260 | 170 | 255 | 165 | 215 | 280 |
| **2017** | 120 | 150 | 250 | 165 | 245 | 140 | 215 | 260 |

Table continued on next page.

**Appendix Table 7. Historical Average Cash Rental Rates of Nebraska Farmland for Different Types of Land by Agricultural Statistics District, 1981-2017[a] (continued)**

| Type of Land and Year | Agricultural Statistics District | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Northwest | North | Northeast | Central | East | Southwest | South | Southeast |
| | Dollars per Acre | | | | | | | |
| **Other Hayland** | | | | | | | | |
| **1981** | b | 21 | b | 37 | 39 | 34 | b | 34 |
| **1982** | b | 18 | b | 30 | b | b | b | 34 |
| **1983** | b | b | b | 41 | b | b | b | 31 |
| **1984** | b | b | b | 32 | 44 | 29 | b | 36 |
| **1985** | b | b | b | 38 | 38 | b | b | 28 |
| **1986** | b | b | b | 26 | 29 | b | b | 26 |
| **1987** | b | b | b | 28 | 32 | b | b | 24 |
| **1988** | b | b | b | 26 | 31 | b | b | 31 |
| **1989** | b | b | b | 30 | 44 | b | b | 34 |
| **1990** | b | b | b | 39 | 44 | 34 | b | 38 |
| **1991** | b | 18 | 37 | 37 | 43 | 35 | b | 33 |
| **1992** | b | 21 | 31 | 30 | 34 | b | 27 | 30 |
| **1993** | b | 22 | 38 | 34 | 38 | b | 35 | 29 |
| **1994** | b | b | 38 | 37 | 39 | b | 33 | 29 |
| **1995** | b | b | 41 | 40 | 44 | b | 31 | 34 |
| **1996** | b | b | 42 | 40 | 40 | b | 31 | 36 |
| **1997** | b | b | 42 | 43 | 44 | b | 32 | 38 |
| **1998** | b | b | 48 | 43 | 50 | b | 35 | 40 |
| **1999** | b | b | 48 | 38 | 48 | b | b | b |
| **2000** | b | b | 48 | 35 | 43 | b | b | b |
| **2001** | b | b | 50 | 37 | 47 | b | b | b |
| **2002** | b | b | 50 | 38 | 51 | b | 36 | b |
| **2003** | b | b | 46 | 36 | 53 | b | 33 | b |
| **2004** | b | b | b | 42 | 57 | b | 36 | 42 |
| **2005** | b | b | 52 | 42 | 56 | b | 36 | b |
| **2006** | b | b | b | 39 | 55 | b | 39 | b |
| **2007** | b | b | b | 51 | b | b | b | b |
| **2008** | b | b | b | 59 | b | b | b | b |
| **2009** | 27 | 29 | 67 | 57 | 71 | b | b | b |
| **2010** | 27 | 29 | 52 | 57 | 61 | b | b | b |
| **2011** | b | b | b | b | b | b | b | b |
| **2012** | b | b | b | b | b | b | b | b |
| **2013** | b | b | b | 92 | 75 | b | b | b |
| **2014** | 33 | 55 | 138 | 40 | 78 | 39 | 58 | 89 |
| **2015** | 30 | 55 | 105 | 65 | 95 | 45 | 55 | 65 |
| **2016** | 27 | 53 | 98 | 62 | 86 | 41 | 50 | 62 |
| **2017** | 25 | 48 | 95 | 55 | 83 | 42 | 45 | 59 |

Table continued on next page.

## Table of Contents (continued)



## List of Figures

**Appendix Table 7. Historical Average Cash Rental Rates of Nebraska Farmland for Different Types of Land by Agricultural Statistics District, 1981-2017[a] (continued)**

| Type of Land and Year | Agricultural Statistics District | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Northwest | North | Northeast | Central | East | Southwest | South | Southeast |
| | - - - - - - - - - - - - Dollars per Acre- - - - - - - - - - |
| **Pastureland (Per Acre)** | | | | | | | | |
| **1981** | 6 | 8 | 33 | 16 | 28 | 10 | 14 | 26 |
| **1982** | 5 | 9 | 31 | 15 | 22 | 9 | 16 | 24 |
| **1983** | 6 | 9 | 26 | 16 | 21 | 9 | 14 | 24 |
| **1984** | 6 | 8 | 25 | 16 | 23 | 9 | 16 | 23 |
| **1985** | 5 | 6 | 20 | 13 | 23 | 7 | 14 | 20 |
| **1986** | 5 | b | 16 | 10 | 22 | 6 | 10 | 16 |
| **1987** | 4 | 4 | 18 | 10 | 20 | 5 | 11 | 15 |
| **1988** | 4 | 5 | 20 | 12 | 21 | 6 | 12 | 18 |
| **1989** | 5 | 7 | 23 | 15 | 23 | 7 | 15 | 19 |
| **1990** | 5 | 9 | 25 | 17 | 25 | 9 | 15 | 20 |
| **1991** | 6 | 10 | 26 | 20 | 27 | 10 | 17 | 22 |
| **1992** | 7 | 12 | 25 | 18 | 25 | 12 | 18 | 21 |
| **1993** | 6 | 10 | 24 | 21 | 27 | 10 | 19 | 21 |
| **1994** | 9 | 11 | 30 | 21 | 28 | 11 | 20 | 23 |
| **1995** | 7 | 11 | 31 | 21 | 27 | 12 | 19 | 24 |
| **1996** | 7 | 11 | 30 | 20 | 28 | 12 | 19 | 24 |
| **1997** | 8 | 12 | 30 | 21 | 29 | 12 | 20 | 25 |
| **1998** | 8 | 12 | 31 | 22 | 30 | 12 | 21 | 25 |
| **1999** | 7 | 12 | 31 | 21 | 29 | 11 | 20 | 23 |
| **2000** | 7 | 13 | 32 | 22 | 29 | 11 | 20 | 21 |
| **2001** | 7 | 12 | 32 | 23 | 30 | 11 | 20 | 22 |
| **2002** | 8 | 13 | 33 | 24 | 32 | 12 | 21 | 25 |
| **2003** | 7 | 11 | 33 | 23 | 28 | 11 | 22 | 24 |
| **2004** | 8 | 13 | 36 | 24 | 32 | 13 | 22 | 27 |
| **2005** | 8 | 13 | 37 | 25 | 32 | 12 | 23 | 27 |
| **2006** | 9 | 14 | 36 | 26 | 33 | 13 | 22 | 29 |
| **2007** | 9 | 15 | 38 | 26 | 36 | 12 | 21 | 30 |
| **2008** | 10 | 16 | 39 | 30 | 36 | 13 | 27 | 35 |
| **2009** | 11 | 16 | 39 | 28 | 36 | 13 | 30 | 34 |
| **2010** | 11 | 14 | 40 | 27 | 35 | 13 | 29 | 32 |
| **2011** | 11 | 14 | 47 | 30 | 37 | 14 | 32 | 34 |
| **2012** | 13 | 16 | 51 | 33 | 42 | 16 | 36 | 39 |
| **2013** | 13 | 16 | 53 | 35 | 49 | 17 | 37 | 42 |
| **2014** | 10 | 25 | 70 | 30 | 55 | 20 | 35 | 50 |
| **2015** | 14 | 30 | 90 | 40 | 65 | 25 | 40 | 55 |
| **2016** | 12 | 26 | 75 | 36 | 61 | 24 | 37 | 54 |
| **2017** | 11 | 25 | 62 | 34 | 53 | 22 | 35 | 49 |

Table continued on next page.

**Appendix Table 7. Historical Average Cash Rental Rates of Nebraska Farmland for Different Types of Land by Agricultural Statistics District, 1981-2017[a] (continued)**

| Type of Land and Year | Agricultural Statistics District | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Northwest | North | Northeast | Central | East | Southwest | South | Southeast |
| | ---------- Dollars per Month- ---------- | | | | | | | |
| **Cow-Calf Pair (Per-Month)** | | | | | | | | |
| **1981** | 13.00 | 13.30 | 12.85 | 15.80 | 12.65 | 14.40 | 13.75 | 12.90 |
| **1982** | 13.00 | 12.50 | 15.25 | 15.95 | 13.85 | 16.00 | 15.00 | 14.95 |
| **1983** | 13.40 | 16.60 | 16.50 | 16.65 | 14.50 | 15.45 | 15.21 | 15.81 |
| **1984** | 13.20 | 15.90 | 15.30 | 16.55 | 14.10 | 15.25 | 14.75 | 15.60 |
| **1985** | 12.20 | 12.70 | 12.90 | 13.00 | 12.80 | 13.60 | 12.80 | 13.60 |
| **1986** | 10.70 | 10.50 | 11.00 | 10.60 | 10.10 | 10.40 | 10.70 | 11.30 |
| **1987** | 9.55 | 10.35 | 10.10 | 10.55 | 10.20 | 10.25 | 10.50 | 10.50 |
| **1988** | 9.50 | 11.00 | 10.90 | 11.30 | 13.00 | 12.70 | 12.65 | 13.50 |
| **1989** | 11.35 | 14.50 | 14.00 | 14.50 | 13.25 | 12.80 | 14.20 | 13.70 |
| **1990** | 12.90 | 16.75 | 15.55 | 17.80 | 15.70 | 17.40 | 15.00 | 15.35 |
| **1991** | 14.85 | 20.00 | 18.00 | 20.30 | 19.50 | 18.25 | 17.50 | 18.00 |
| **1992** | 14.60 | 21.00 | 18.80 | 19.95 | 17.40 | 17.65 | 19.00 | 18.00 |
| **1993** | 16.40 | 21.30 | 18.50 | 22.35 | 19.85 | 20.75 | 20.40 | 19.85 |
| **1994** | 17.20 | 23.25 | 19.70 | 23.00 | 21.55 | 23.00 | 23.00 | 21.60 |
| **1995** | 16.75 | 23.40 | 19.90 | 23.00 | 20.50 | 22.30 | 22.20 | 20.30 |
| **1996** | 16.40 | 23.00 | 18.35 | 21.80 | 21.00 | 20.35 | 21.15 | 20.05 |
| **1997** | 17.00 | 23.50 | 20.50 | 22.25 | 22.30 | 21.20 | 21.20 | 20.75 |
| **1998** | 18.10 | 23.70 | 21.00 | 23.40 | 23.60 | 23.40 | 22.20 | 21.70 |
| **1999** | 16.70 | 23.00 | 21.60 | 23.25 | 21.90 | 23.25 | 22.00 | 20.40 |
| **2000** | 18.25 | 23.15 | 23.80 | 23.80 | 22.50 | 24.50 | 22.00 | 21.35 |
| **2001** | 19.65 | 25.10 | 23.40 | 24.45 | 24.00 | 25.00 | 22.20 | 22.75 |
| **2002** | 20.35 | 26.35 | 23.80 | 25.10 | 24.30 | 25.00 | 23.30 | 24.40 |
| **2003** | 19.15 | 26.15 | 25.10 | 24.90 | 24.45 | 24.60 | 23.00 | 23.15 |
| **2004** | 21.00 | 27.65 | 26.80 | 26.35 | 26.00 | 26.25 | 24.00 | 25.15 |
| **2005** | 23.15 | 28.30 | 28.10 | 28.55 | 27.90 | 26.70 | 24.60 | 25.15 |
| **2006** | 23.00 | 29.40 | 29.70 | 28.70 | 28.00 | 26.70 | 26.00 | 25.80 |
| **2007** | 25.00 | 29.55 | 29.15 | 27.75 | 26.00 | 25.70 | 25.00 | 25.15 |
| **2008** | 26.25 | 33.65 | 31.90 | 33.10 | 31.60 | 31.40 | 27.75 | 29.85 |
| **2009** | 26.90 | 33.60 | 33.00 | 33.35 | 30.70 | 30.50 | 30.00 | 29.50 |

Table continued on next page.

**Appendix Table 7. Historical Average Cash Rental Rates of Nebraska Farmland for Different Types of Land by Agricultural Statistics District, 1981-2017[a] (continued)**

| Type of Land and Year | Agricultural Statistics District | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Northwest | North | Northeast | Central | East | Southwest | South | Southeast |
| | ---------- Dollars per Month- ---------- | | | | | | | |
| **Cow-Calf Pair (Per-Month)** | | | | | | | | |
| **2010** | 26.40 | 33.00 | 33.60 | 32.90 | 31.25 | 29.50 | 28.50 | 30.80 |
| **2011** | 28.00 | 34.00 | 35.70 | 33.30 | 35.80 | 33.85 | 32.00 | 32.90 |
| **2012** | 30.80 | 38.60 | 40.00 | 38.10 | 38.35 | 37.00 | 38.30 | 38.20 |
| **2013** | 30.50 | 39.00 | 42.35 | 40.75 | 41.30 | 39.20 | 39.00 | 39.40 |
| **2014** | 32.30 | 48.55 | 55.00 | 59.95 | 49.00 | 45.45 | 32.10 | 43.00 |
| **2015** | 40.90 | 65.55 | 62.05 | 64.10 | 64.55 | 60.70 | 57.50 | 58.90 |
| **2016** | 36.15 | 63.80 | 59.70 | 58.10 | 56.40 | 57.20 | 49.10 | 52.00 |
| **2017** | 35.05 | 61.05 | 53.20 | 53.30 | 51.10 | 51.65 | 47.30 | 48.50 |

Source: [a] Panel members reported annual estimates of cash rental rates in the annual UNL Nebraska Farm Real Estate Market Surveys, 1981-2017.

[b] Insufficient number of reports.

[c] A cow-calf pair is typically considered to be 1.25 to 1.30 animal units. However, this may vary depending on weight of cow and age of calf.

## Introduction

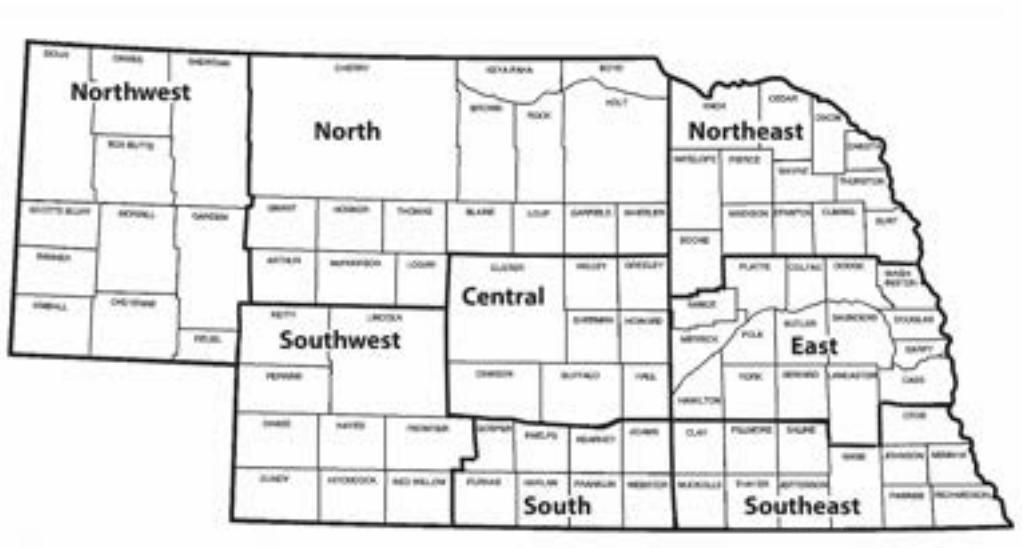
The Nebraska Farm Real Estate Market Highlights 2016-2017 report represents the 39th edition to the annual series. These reports provide an important insight on agricultural land market dynamics for stakeholders across Nebraska. In today's market, where market transactions exceeding a million dollars are the norm, objective market information and analysis is more critical than ever. The focus of the report continues to provide unbiased information on agricultural land values and rental rates so industry participants can make educated and informed decisions.

This year, the February 2017 survey of nearly 150 expert-panel members from across the state provided current information and insight regarding the agricultural land market conditions in their areas. The panel members have been selected on the basis of being actively engaged in agricultural land markets as certified agricultural appraisers, professional farm managers, agricultural lenders primarily focused on agricultural land transactions, and other professionals engaged in the Nebraska agricultural land industry due to the inherit nature of their positions. The majority of panelists participating in the survey have reported annually for a considerable number of years which provides valuable historical consistency and context to the agricultural land values and rental rates provided.

Based on their knowledge of market activity, reporters provide point-in-time estimates of current agricultural land values and cash rental rates for a variety of land types and classes. Comparing these current measures against previous years' results provides important trend analysis. The appendix in this report includes: the historical UNL data series for Nebraska agricultural land values dating back to 1978, the agricultural cash rental rate series dating back to 1981, and the USDA historical all-land value series.

In addition to the point-in-time estimates, panel members provide details regarding actual sales transactions which have occurred over the previous 12 months. This year the panel provided information on 433 sales that were considered representative of the recent agricultural land market. This gives insight into the characteristics of recent sales as well as benchmark indicators for studying trends. Changes in the nature of market participants engaged in land transactions from year-to-year may also be ascertained from evaluating this information.

**Figure 1. Nebraska Agricultural Statistics Districts**



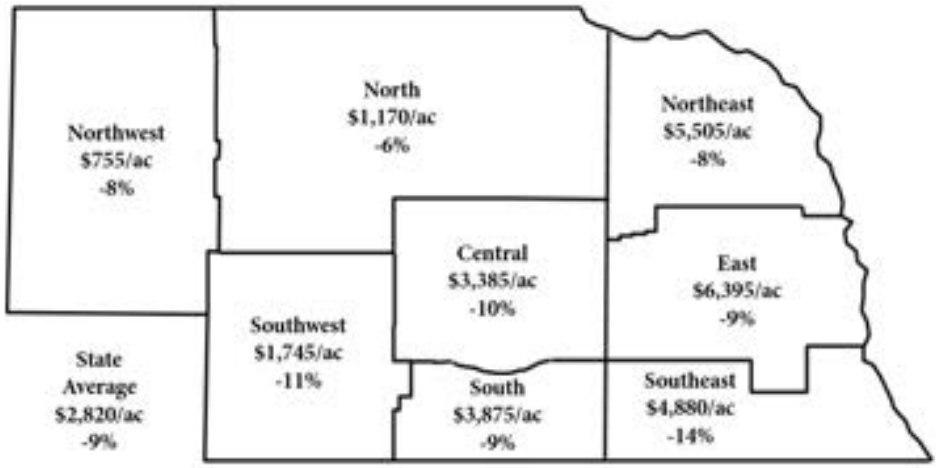

Nebraska has diverse land resource characteristics and agricultural patterns. Most of the market information is provided down to sub-state regions which are the Nebraska Agricultural Statistics Districts (Figure 1). Land within these regions share similar geographical attributes and production expectations. The districts provide greater geographically-appropriate detail that are not available from other data sources, such as quarterly value estimates from the Kansas City Federal Reserve, the Economic Research Service-USDA annual Farm Value and Cash Rent series for the state as a whole.

Variability exists within these eight sub-state regions. Therefore, sub-state regions of values and cash rents appropriately may not necessarily reflect the conditions of any local market in that geographic area. Differences in local values and rents can range from small to extreme. The information and analysis to follow in the report is a more realistic measure of general patterns and trends. Should one need information for one specific parcel, the services of a certified agricultural appraiser or a professional farm management firm should be solicited.

## 2017 Nebraska Agricultural Land Values

Marking the third consecutive year of value decline from the record high of 2014, the all-land category across the entire State of Nebraska for the year ending February 1, 2017 averaged about 9 percent lower than the prior year. Figure 2 summarizes these averages along with the percent changes over last year's all-land average for the eight districts of the state.

**Figure 2. Average Value of Nebraska Farmland, February 1, 2017 and Percent Change From Year Earlier**




Source: UNL Nebraska Farm Real Estate Market Surveys, 2016 and 2017.

- The state wide all-land average value for the year ending February 1, 2017 averaged $2,820 per acre or about a 9 percent ($295 per acre) decline to the prior year's value of $3,115 per acre (Figure 2).
- Rates of decline varied across Nebraska for the all-land average depending upon the region of the state.
- In the western two-thirds of Nebraska, including the Northwest, North, Central, Southwest, and South Districts these regions averaged around 5 to 10 percent lower, whereas the Northeast, East, and Southwest declined between approximately 10 to 15 percent, respectively.
- Panel members listed current crop and livestock prices being the most negative factors leading to the decline in the current market value of land. Additional concerns expressed by panel members leading to the current dynamics reported in the farm real estate market included current property tax levels, farm input costs, and financial health of current owners.
- Non-farmer investor interest in land purchases and 1031 tax exchanges were listed as the only slightly positive factors lending to future land value gains. Expectations amongst panel member remained very bleak for future increases in the market value of agricultural land in Nebraska.
- Based on 2017 market values, the estimated total value of agricultural land and buildings in Nebraska fell to approximately $127.7 billion. Appendix Table 1 gives a historical perspective on the estimated market value of land and related buildings in the state. Between 2016 and 2017, the decline in agricultural land and building values totaled about $5.6 billion.

# Land Transition can lead to Unintended Consequences

**Allan Vyhnalek, Extension Educator, Farm Transition, avyhnalek@unl.edu**

Grandpa and Grandma farmed. They retired. They had two irrigated quarters. They had two sons who had started farming operations themselves. So, their transition plan was to give a quarter to each of the sons at their passing. Grandpa passed away, followed by the Grandmother about a year or so later. The lawyer handling the estate was not given specific instructions about the transfer of the quarters. He just put number one and number two in a hat, the sons drew a number.

Then there were problems. Turns out that one quarter was nearly perfect. Good soil, highly productive, and had a good well. The second quarter was sandy, alkali spots, significantly less productive and had a well that was in trouble, actually sucked air at times. There was a huge argument about being fair. One son felt it was fair that each got a quarter. The son who got quarter two didn't feel like he was treated equitably at all.

I call this the story of unintended consequences. The grandparents didn't set this transition up to succeed. They probably made several assumptions that I've heard before. 1) "We probably should designate who gets which quarter, but I won't be here, I really won't care at that point." 2)"Those two boys always got along while we were alive, and I'm sure that they will in the future." 3) "The farmland will always be in the family." All of these are easy assumptions to make, but simply do not set up the remaining family members for a successful farm/ranch transfer.

Of the three assumptions, the first two were the problems in this situation. First, we should not assume anything. Especially about family getting along after one generation is gone. If you have a distribution of assets in place, be sure that information is communicated those involved parties prior to your passing. In this case, if the brothers had known what the distribution plans were, they may have asked the parents to devise a way to make that transfer more equal or fair.

It would have been easy to make this transition more equitable. Many options exist; however, the simplest might be to have the land evaluated by a certified agriculture land appraiser. When the difference in value was calculated, the son who got the land that was worth more would compensate the other for ½ of the value difference. For example, if the poorer land was appraised at $250,000, and the good quarter was appraised at $350,000, then the difference is $100,000. The son who received the first quarter would compensate the other son $50,000 – or ½ of the difference in the two quarters. I'd also suggest that the money not be due all at once, but could be paid out in installments over a period of time. For $50,000 you might space payments out over 10 years, or $5,000 per year.

If we receive assets, we should feel blessed to have parents who are able to give that farm, for example, worth hundreds of thousands, if not millions of dollars, to the next generation. But because the assets are worth that large sum of money, we have to be sure to think through the unintended consequences of our actions or inactions.

When you visit with agriculture professionals who work with farm families, the number one problem in setting up successful farm/ranch transfers is the lack of communication. Be sure to get good communications started within the generations and across generations. Some of the older generation feel that sharing personal information isn't appropriate. In the case of asset and business transfer or succession, all those involved should be included in discussions and negotiations when appropriate.

For those who don't have their farm transition or succession plan in place, be sure to get started on that process. To begin with, don't get caught up in the legal terms of passing assets. For example, don't worry about the tools like a will, trust, LLC, or corporation. To get your affairs in order, just think about what you'd like to have happen to your assets. Set that vision first. When you know what you'd like to do with your 'stuff', then go see a lawyer who will recommend the right 'tool' to use to get the desired result.

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# VI. BUDGETS

Institute of Agriculture and Natural Resources
EC872
(Revised November 2016)

# 2017 Nebraska Crop Budgets

Developed and Edited by
Robert N. Klein, Senior Editor, *Western Nebraska Extension Crops Specialist*
Roger K. Wilson, *Farm Management/Enterprise Budget Analyst, (Retired)*
Jessica T. Groskopf, Extension Educator — Agricultural Economics
Jim A. Jansen, Extension Educator — Agricultural Economics

Note: These budget projections were created using assumptions thought to be valid for many Nebraska producers; however, each farming operation is unique. These budgets are being released in both Adobe PDF and Excel® worksheet formats. The worksheet format allows producers to modify them to match their specific situation. The danger of releasing a tool that can subsequently be modified is that there is no way to verify whether alterations were made or unrealistic data was entered. Users of this tool are responsible for independently verifying all results prior to relying on them. Original files for these budgets are available at h*ttp://extension.unl.edu/publications* and *http://cropwatch.unl.edu/economics/budgets*.

## Additional Resource Persons

The following individuals contributed to the budgets in their specialty areas:

Robert J. Wright, Extension Entomologist
Tamra A. Jackson-Ziems, Extension Plant Pathologist — Corn and Sorghum
Loren J. Giesler, Extension Plant Pathologist — Soybean and Turf
Stephen N. Wegulo, Extension Plant Pathologist — Wheat and Ornamental
Paul J. Jasa, Extension Biological Systems Engineer
James A. Schild, Extension Educator in Scotts Bluff and Morrill Counties

**Table 3. Material Prices Used for 2017 Budgets (Continued)**

| *Item* | *Price per Unit* |
|---|---|
| **Seed** | |
| Alfalfa RR w/Inoculant | $9.00/pound |
| Alfalfa w/Inoculant | $6.00/pound |
| Corn | $200.00/bag |
| Corn Bt & ECB | $230.00/bag |
| Corn Bt, ECB & RW | $230.00/bag |
| Corn Bt, ECB, RW & RR2 | $270.00/bag |
| Corn ECB & RR2 | $260.00/bag |
| Corn RR2 | $240.00/bag |
| Corn SmartStax RIB Complete | $330.00/bag |
| Cover Crop | $15.00/acre |
| Cover Crop Legume | $30.00/acre |
| Edible Beans | $92.00/cwt |
| Grass Seed | $75.00/acre |
| Millet | $0.45/pound |
| Oats | $9.00/bushel |

| *Item* | *Price per Unit* |
|---|---|
| **Seed** | |
| Peas | $18.00/bushel |
| RR Soybeans | $50.00/bag |
| RR Soybeans Treated | $65.00/bag |
| RR2 Soybeans Extend | $65.00/bag |
| RR2 Soybeans Treated | $65.00/bag |
| Sorghum Safened/Insect | $2.10/pound |
| Sorghum Sudan | $0.60/pound |
| Sorghum Sudan (Treated) | $0.80/pound |
| Sorghum Sudan Brown (Treated) | $1.50/pound |
| Sorghum Sudan Brown Midrib | $1.30/pound |
| Sugar Beets RR Poncho | $180.00/acre |
| Sunflower Clearfield | $320.00/bag |
| Wheat | $0.10/pound |
| Wheat (Certified and Treated) | $0.20/pound |

## Converting Energy Numbers in Budgets

If your energy source is different from that used in the 2017 crop budgets, use *Table 4*, developed by Extension Irrigation Engineer Derrel Martin, to convert from diesel to other energy sources.

For example, to convert diesel in gallons to kilowatt-hours of electricity, the multiplier is 14.12. If electricity is $0.138 per kilowatt, the calculation would be 14.12 x 0.138 = $1.95. The 2017 crop budgets use $2.25/gallon of diesel. If you use electricity, the cost would be about 50 percent of that cost. However, with electricity you must also include connect charges, and in order to get the best rates, you'll need to sign up for load management.

### Table 4. Conversion of Diesel to Electricity

*Propane, Gasoline, and Natural Gas*.*

| Energy Source | Units | Multiplier |
|---|---|---|
| Electricity | Kilowatt-hours | 14.12 |
| Propane | Gallons | 1.814 |
| Gasoline | Gallons | 1.443 |
| Natural Gas | 1000 Cubic Feet | 0.2026 |

*Source: Estimating the Savings from Improving Pumping Plant Performance by Nebraska Extension Irrigation Specialist Derrel Martin

## Diesel Fuel Conversion for Center Pivots

The 2017 crop production budgets with center pivot irrigation were developed with a pumping lift of 125 feet and 35 psi pressure to determine the amount of diesel fuel used per hour. *Table 5* was developed by Derrel Martin to determine the amount of diesel fuel for various pumping lifts and pressures to pump an acre-inch of water.

For example, the amount of diesel required to pump an acre-inch of water with 125 feet of lift at 35 psi is 1.88 gallons with a pump performance rating of 100 percent. If the producer has a lift of 300 feet and a pressure of 50 psi, the diesel fuel required at a performance rating of 100 percent is 3.79 gallons per acre-inch. If the rating on the producer's pump is 80 percent, the diesel fuel required will be 4.74 gallons per acre-inch of water.

With this information, the producer can calculate the additional cost since the diesel fuel required is now 4.74 gallons per acre-inch vs. 1.88 gallons per acre-inch. This is 2.86 gallons more per acre-inch. If a crop budget requires 9 inches, the additional diesel fuel would be 25.74 gallons of diesel at $2.25/gallon (9 inches x 2.86 gallons). The producer's additional cost would be $57.92/acre.

**Table 5. Table for adjusting the amount of diesel fuel required by center pivots for lifts and pressures other than the 125 feet of lift and 35 PSI used in the budgets. Gallons of diesel fuel required to pump an acre-inch of water at pump performance ratings of 100 percent***

| Lift Feet | Pressure at | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 10 | 20 | 30 | 35 | 40 | 50 | 60 | 80 |
| 0 | 0.21 | 0.42 | 0.63 | 0.74 | 0.84 | 1.05 | 1.26 | 1.69 |
| 25 | 0.44 | 0.65 | 0.86 | 0.97 | 1.07 | 1.28 | 1.49 | 1.91 |
| 50 | 0.67 | 0.88 | 1.09 | 1.20 | 1.30 | 1.51 | 1.72 | 2.14 |
| 75 | 0.89 | 1.11 | 1.32 | 1.43 | 1.53 | 1.74 | 1.95 | 2.37 |
| 100 | 1.12 | 1.33 | 1.54 | 1.65 | 1.75 | 1.97 | 2.18 | 2.60 |
| 125 | 1.35 | 1.56 | 1.77 | 1.88 | 1.98 | 2.19 | 2.40 | 2.83 |
| 150 | 1.58 | 1.79 | 2.00 | 2.11 | 2.21 | 2.42 | 2.63 | 3.05 |
| 200 | 2.03 | 2.25 | 2.46 | 2.57 | 2.67 | 2.88 | 3.09 | 3.51 |
| 250 | 2.49 | 2.70 | 2.91 | 3.02 | 3.12 | 3.33 | 3.54 | 3.97 |
| 300 | 2.95 | 3.16 | 3.37 | 3.48 | 3.58 | 3.79 | 4.00 | 4.42 |
| 350 | 3.40 | 3.61 | 3.82 | 3.93 | 4.03 | 4.25 | 4.46 | 4.88 |
| 400 | 3.86 | 4.07 | 4.28 | 4.39 | 4.49 | 4.70 | 4.91 | 5.33 |

*Multiplier when pumping plant performance rating is less than 100 percent.

| Rating % | 100 | 90 | 80 | 70 | 60 | 50 |
|---|---|---|---|---|---|---|
| Multiplier | 1.00 | 1.11 | 1.25 | 1.43 | 1.67 | 2.00 |

* Source: *Estimating the Savings From Improving Pumping Plant Performance* by Nebraska Extension Irrigation Specialist Derrel Martin.

**2017 Budget 1-Alfalfa, Fall Establishment**
**Dryland**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spread Fertilizer | 1 | | 1.57 | 0.79 | 0.68 | 0.00 | 2.26 | 0.00 | 5.30 | |
| 2 | Disk | 1 | | 2.02 | 1.97 | 0.30 | 1.27 | 4.32 | 1.23 | 11.11 | |
| 3 | Harrow | 1 | | 1.18 | 0.28 | 0.46 | 0.00 | 1.54 | 0.00 | 3.46 | |
| 4 | Harrow | 1 | | 1.18 | 0.28 | 0.46 | 0.00 | 1.54 | 0.00 | 3.46 | |
| 5 | Roll | 1 | | 2.22 | 1.57 | 0.96 | 0.00 | 3.18 | 0.00 | 7.93 | |
| 6 | Drill | 1 | | 1.76 | 1.03 | 0.69 | 2.94 | 2.29 | 2.62 | 11.33 | |
| 7 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 8 | Spray | 0.2 | | 0.20 | 0.05 | 0.07 | 0.13 | 0.23 | 0.18 | 0.86 | |
| | **Total for Field Operations** | | | 11.13 | 6.24 | 3.97 | 4.98 | 16.51 | 4.91 | 47.74 | |

| Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|
| 11-52-0 | Fertilizer | 1 | 100% | 100 | pound | 0.24 | 24.00 | |
| Alfalfa w/Inoculant | Seed | 6 | 100% | 12 | pound | 6.00 | 72.00 | |
| Pursuit | Herbicide | 7 | 100% | 3 | ounce | 3.83 | 11.48 | |
| Crop Oil Concentrate | Additive | 7 | 100% | 1.6 | pint | 1.13 | 1.80 | |
| UAN | Additive | 7 | 100% | 2 | pint | 0.19 | 0.38 | |
| Lorsban Advanced | Insecticide | 8 | 20% | 1 | pint | 6.88 | 1.38 | |
| **Total Materials & Services** | | | | | | | 111.04 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 158.78 | |
| Interest on Operations Capital | $ 137.36 | cash expense @ | 5.50% | for 6.0 mo. | 3.78 | |
| **Total Operating and Use Related Ownership Costs** | | | | | 162.56 | |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 | |
| Real Estate Opportunity | Fall Establishment | $ - | per acre @ | 4.00% | 0.00 | |
| Real Estate Taxes | | $ - | per acre @ | 1.00% | 0.00 | |
| **Total Cost per Acre Including Overhead** | | | | | 182.56 | |

**2017 Budget 2-Alfalfa, Roundup Ready No-Till, Fall Establishment**
**Dryland**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 2 | Drill w/ Fertilizer | 1 | | 2.18 | 1.18 | 0.78 | 3.85 | 2.60 | 2.62 | 13.21 | |
| 3 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 4 | Spray | 0.2 | | 0.20 | 0.05 | 0.07 | 0.13 | 0.23 | 0.18 | 0.86 | |
| | **Total for Field Operations** | | | 4.38 | 1.77 | 1.55 | 5.26 | 5.13 | 4.56 | 22.65 | |

| Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|
| Gramoxone SL | Herbicide | 1 | 100% | 2 | pint | 4.75 | 9.50 | |
| 11-52-0 | Fertilizer | 2 | 100% | 100 | pound | 0.24 | 24.00 | |
| Alfalfa RR w/Inoculant | Seed | 7 | 100% | 12 | pound | 9.00 | 108.00 | |
| Roundup WeatherMax | Herbicide | 7 | 100% | 44 | ounce | 0.25 | 11.00 | |
| 21-0-0-24S | Additive | 7 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| Lorsban Advanced | Insecticide | 8 | 20% | 1 | pint | 6.88 | 1.38 | |
| **Total Materials & Services** | | | | | | | 154.48 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 177.13 | |
| Interest on Operations Capital | $ 167.44 | cash expense @ | 5.50% | for 6.0 mo. | 4.60 | |
| **Total Operating and Use Related Ownership Costs** | | | | | 181.73 | |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 | |
| Real Estate Opportunity | Fall Establishment | $ - | per acre @ | 4.00% | 0.00 | |
| Real Estate Taxes | | $ - | per acre @ | 1.00% | 0.00 | |
| **Total Cost per Acre Including Overhead** | | | | | 201.73 | |

**2017 Budget 3-Alfalfa, Roundup Ready, Fall Establishment**
**Dryland**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spread Fertilizer | 1 | | 1.57 | 0.79 | 0.68 | 0.00 | 2.26 | 0.00 | 5.30 | |
| 2 | Disk | 1 | | 2.02 | 1.97 | 0.30 | 1.27 | 4.32 | 1.23 | 11.11 | |
| 3 | Harrow | 1 | | 1.18 | 0.28 | 0.46 | 0.00 | 1.54 | 0.00 | 3.46 | |
| 4 | Harrow | 1 | | 1.18 | 0.28 | 0.46 | 0.00 | 1.54 | 0.00 | 3.46 | |
| 5 | Roll | 1 | | 2.22 | 1.57 | 0.96 | 0.00 | 3.18 | 0.00 | 7.93 | |
| 6 | Drill | 1 | | 1.76 | 1.03 | 0.69 | 2.94 | 2.29 | 2.62 | 11.33 | |
| 7 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 8 | Spray | 0.2 | | 0.20 | 0.05 | 0.07 | 0.13 | 0.23 | 0.18 | 0.86 | |
| | **Total for Field Operations** | | | 11.13 | 6.24 | 3.97 | 4.98 | 16.51 | 4.91 | 47.74 | |

| Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|
| 11-52-0 | Fertilizer | 1 | 100% | 100 | pound | 0.24 | 24.00 | |
| Alfalfa RR w/Inoculant | Seed | 6 | 100% | 12 | pound | 9.00 | 108.00 | |
| Roundup WeatherMax | Herbicide | 7 | 100% | 44 | ounce | 0.25 | 11.00 | |
| 21-0-0-24S | Additive | 7 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| Lorsban Advanced | Insecticide | 8 | 20% | 1 | pint | 6.88 | 1.38 | |
| **Total Materials & Services** | | | | | | | 144.98 | |
| **Total listed costs for Field Operations and Materials and Services** | | | | | | | 192.72 | |
| Interest on Operations Capital | $ 171.30 | cash expense @ | | 5.50% | for 6.0 mo. | | 4.71 | |
| **Total Operating and Use Related Ownership Costs** | | | | | | | 197.43 | |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | | | 20.00 | |
| Real Estate Opportunity | Fall Establishment | $ - | per acre @ | 4.00% | | | 0.00 | |
| Real Estate Taxes | | $ - | per acre @ | 1.00% | | | 0.00 | |
| **Total Cost per Acre Including Overhead** | | | | | | | 217.43 | |

**2017 Budget 4-Alfalfa, Establish Spring Seed with Herbicides (2.8 ton Actual Yield)**
**Dryland**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spread Fertilizer | 1 | | 1.57 | 0.79 | 0.68 | 0.00 | 2.26 | 0.00 | 5.30 | |
| 2 | Disk | 1 | | 2.02 | 1.97 | 0.30 | 1.27 | 4.32 | 1.23 | 11.11 | |
| 3 | Field Cultivation | 1 | | 1.47 | 1.41 | 0.58 | 1.33 | 1.91 | 1.64 | 8.34 | |
| 4 | Seeder/Packer | 1 | | 3.00 | 1.39 | 1.08 | 3.48 | 3.58 | 3.34 | 15.87 | |
| 5 | Spray | 0.2 | | 0.20 | 0.05 | 0.07 | 0.13 | 0.23 | 0.18 | 0.86 | |
| 6 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 7 | Swath/Condition Hay | 2 | | 4.00 | 2.59 | 4.62 | 0.00 | 7.30 | 0.00 | 18.51 | |
| 8 | Turn Windrows | 0.5 | | 0.83 | 0.23 | 0.36 | 0.05 | 1.19 | 0.16 | 2.82 | |
| 9 | Bale Small Square | 2.80 | ton | 15.40 | 6.34 | 6.04 | 10.97 | 20.06 | 2.75 | 61.56 | |
| 10 | Stack Small Square | 2.80 | ton | 5.60 | 1.45 | 2.42 | 0.80 | 8.02 | 1.26 | 19.55 | |
| | **Total for Field Operations** | | | 35.09 | 16.49 | 16.50 | 18.67 | 50.02 | 11.44 | 148.21 | |

| Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|
| 11-52-0 | Fertilizer | 1 | 100% | 100 | pound | 0.24 | 24.00 | |
| Seeder/Packer | Rental | 4 | 100% | 1 | acre | 13.00 | 13.00 | |
| Alfalfa w/Inoculant | Seed | 4 | 100% | 12 | pound | 6.00 | 72.00 | |
| Lorsban Advanced | Insecticide | 5 | 20% | 1 | pint | 6.88 | 1.38 | |
| Brox 2EC | Herbicide | 6 | 100% | 0.5 | pint | 4.25 | 2.13 | |
| Pursuit | Herbicide | 6 | 100% | 3 | ounce | 3.83 | 11.48 | |
| Twine Small Square | Other | 9 | 100% | 2.8 | ton | 2.33 | 6.53 | |
| **Total Materials & Services** | | | | | | | 130.52 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 278.73 | |
| Interest on Operations Capital | $ 217.27 | cash expense @ | 5.50% | for 6.0 mo. | 5.97 | |
| **Total Operating and Use Related Ownership Costs** | | | | | 284.70 | |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 | |
| Real Estate Opportunity | Dryland (State) | $ 3,470 | per acre @ | 4.00% | 138.80 | |
| Real Estate Taxes | | $ 3,470 | per acre @ | 1.00% | 34.70 | |
| **Total Cost per Acre Including Overhead** | | | | | 478.20 | |
| **Cost per ton** | | | | | 170.79 | |
| **Cash Cost per ton** | | | | | 92.12 | |

**2017 Budget 5-Alfalfa, Roundup Ready, Establish Spring Seed (2.8 ton Actual Yield)**
**Dryland**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spread Fertilizer | 1 | | 1.57 | 0.79 | 0.68 | 0.00 | 2.26 | 0.00 | 5.30 | |
| 2 | Disk | 1 | | 2.02 | 1.97 | 0.30 | 1.27 | 4.32 | 1.23 | 11.11 | |
| 3 | Field Cultivation | 1 | | 1.47 | 1.41 | 0.58 | 1.33 | 1.91 | 1.64 | 8.34 | |
| 4 | Seeder/Packer | 1 | | 3.00 | 1.39 | 1.08 | 3.48 | 3.58 | 3.34 | 15.87 | |
| 5 | Spray | 0.2 | | 0.20 | 0.05 | 0.07 | 0.13 | 0.23 | 0.18 | 0.86 | |
| 6 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 7 | Swath/Condition Hay | 2 | | 4.00 | 2.59 | 4.62 | 0.00 | 7.30 | 0.00 | 18.51 | |
| 8 | Turn Windrows | 0.5 | | 0.83 | 0.23 | 0.36 | 0.05 | 1.19 | 0.16 | 2.82 | |
| 9 | Bale Small Square | 2.80 | ton | 15.40 | 6.34 | 6.04 | 10.97 | 20.06 | 2.75 | 61.56 | |
| 10 | Stack Small Square | 2.80 | ton | 5.60 | 1.45 | 2.42 | 0.80 | 8.02 | 1.26 | 19.55 | |
| | **Total for Field Operations** | | | 35.09 | 16.49 | 16.50 | 18.67 | 50.02 | 11.44 | 148.21 | |

| Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|
| 11-52-0 | Fertilizer | 1 | 100% | 100 | pound | 0.24 | 24.00 | |
| Seeder/Packer | Rental | 4 | 100% | 1 | acre | 13.00 | 13.00 | |
| Alfalfa RR w/Inoculant | Seed | 4 | 100% | 12 | pound | 9.00 | 108.00 | |
| Lorsban Advanced | Insecticide | 5 | 20% | 1 | pint | 6.88 | 1.38 | |
| Roundup WeatherMax | Herbicide | 6 | 100% | 44 | ounce | 0.25 | 11.00 | |
| 21-0-0-24S | Additive | 6 | 100% | 1.70 | pound | 0.35 | 0.60 | |
| Twine Small Square | Other | 9 | 100% | 2.80 | ton | 2.33 | 6.53 | |
| **Total Materials & Services** | | | | | | | 164.51 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 312.72 | |
| Interest on Operations Capital | $ 251.26 | cash expense @ | 5.50% | for 6.0 mo. | 6.91 | |
| **Total Operating and Use Related Ownership Costs** | | | | | 319.63 | |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 | |
| Real Estate Opportunity | Dryland (State) | $ 3,470 | per acre @ | 4.00% | 138.80 | |
| Real Estate Taxes | | $ 3,470 | per acre @ | 1.00% | 34.70 | |
| **Total Cost per Acre Including Overhead** | | | | | 513.13 | |
| **Cost per ton** | | | | | 183.26 | |
| **Cash Cost per ton** | | | | | 104.60 | |

**2017 Budget 6-Alfalfa, Establish Spring Seed with Herbicides (3.8 ton Actual Yield)**
**Pivot Irrigated, 800 GPM 35 PSI, 12 acre/inches**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spread Fertilizer | 1 | | 1.57 | 0.79 | 0.68 | 0.00 | 2.26 | 0.00 | 5.30 | |
| 2 | Disk | 1 | | 2.02 | 1.97 | 0.30 | 1.27 | 4.32 | 1.23 | 11.11 | |
| 3 | Field Cultivation | 1 | | 1.47 | 1.41 | 0.58 | 1.33 | 1.91 | 1.64 | 8.34 | |
| 4 | Seeder/Packer | 1 | | 3.00 | 1.39 | 1.08 | 3.48 | 3.58 | 3.34 | 15.87 | |
| 5 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 6 | Pivot D 125' Lift | 12 | ai | 8.33 | 57.62 | 4.12 | 19.37 | 5.96 | 11.58 | 106.98 | |
| 7 | Swath/Condition Hay | 2 | | 4.00 | 2.59 | 4.62 | 0.00 | 7.30 | 0.00 | 18.51 | |
| 8 | Turn Windrows | 0.5 | | 0.83 | 0.23 | 0.36 | 0.05 | 1.19 | 0.16 | 2.82 | |
| 9 | Large Square Bale | 3.80 | ton | 5.23 | 3.80 | 2.05 | 2.19 | 6.81 | 22.95 | 43.03 | |
| 10 | Load Large Square | 3.80 | ton | 4.18 | 1.97 | 1.64 | 0.18 | 5.44 | 0.23 | 13.64 | |
| 11 | Spray | 0.5 | | 0.50 | 0.14 | 0.17 | 0.32 | 0.57 | 0.44 | 2.14 | |
| | **Total for Field Operations** | | | 32.13 | 72.18 | 15.95 | 28.83 | 40.49 | 42.45 | 232.03 | |

| Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|
| 11-52-0 | Fertilizer | 1 | 100% | 100 | pound | 0.24 | 24.00 | |
| Seeder/Packer | Rental | 4 | 100% | 1 | acre | 13.00 | 13.00 | |
| Alfalfa w/Inoculant | Seed | 4 | 100% | 12 | pound | 6.00 | 72.00 | |
| Brox 2EC | Herbicide | 6 | 100% | 0.5 | pint | 4.25 | 2.13 | |
| Pursuit | Herbicide | 6 | 100% | 3 | ounce | 3.83 | 11.48 | |
| Twine Large Square | Other | 10 | 100% | 3.80 | ton | 1.81 | 6.86 | |
| Lorsban Advanced | Insecticide | 11 | 50% | 1 | pint | 6.88 | 3.44 | |
| **Total Materials & Services** | | | | | | | 132.91 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 364.94 | |
| Interest on Operations Capital | $ 282.00 | cash expense @ | 5.50% | for 6.0 mo. | 7.76 | |
| **Total Operating and Use Related Ownership Costs** | | | | | 372.70 | |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 | |
| Real Estate Opportunity | Pivot (State) | $ 6,940 | per acre @ | 4.00% | 277.60 | |
| Real Estate Taxes | | $ 6,940 | per acre @ | 1.00% | 69.40 | |
| **Total Cost per Acre Including Overhead** | | | | | 739.70 | |
| **Cost per ton** | | | | | 194.66 | |
| **Cash Cost per ton** | | | | | 94.51 | |

**2017 Budget 7-Alfalfa, Roundup Ready, Establish Spring Seed (4 ton Actual Yield)**
**Pivot Irrigated, 800 GPM 35 PSI, 12 acre/inches**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spread Fertilizer | 1 | | 1.57 | 0.79 | 0.68 | 0.00 | 2.26 | 0.00 | 5.30 | |
| 2 | Disk | 1 | | 2.02 | 1.97 | 0.30 | 1.27 | 4.32 | 1.23 | 11.11 | |
| 3 | Field Cultivation | 1 | | 1.47 | 1.41 | 0.58 | 1.33 | 1.91 | 1.64 | 8.34 | |
| 4 | Seeder/Packer | 1 | | 3.00 | 1.39 | 1.08 | 3.48 | 3.58 | 3.34 | 15.87 | |
| 5 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 6 | Pivot D 125' Lift | 12 | ai | 8.33 | 57.62 | 4.12 | 19.37 | 5.96 | 11.58 | 106.98 | |
| 7 | Swath/Condition Hay | 2 | | 4.00 | 2.59 | 4.62 | 0.00 | 7.30 | 0.00 | 18.51 | |
| 8 | Turn Windrows | 0.5 | | 0.83 | 0.23 | 0.36 | 0.05 | 1.19 | 0.16 | 2.82 | |
| 9 | Large Square Bale | 4.00 | ton | 5.50 | 4.00 | 2.16 | 2.31 | 7.16 | 24.16 | 45.29 | |
| 10 | Load Large Square | 4.00 | ton | 4.40 | 2.07 | 1.73 | 0.19 | 5.73 | 0.24 | 14.36 | |
| 11 | Spray | 0.5 | | 0.50 | 0.14 | 0.17 | 0.32 | 0.57 | 0.44 | 2.14 | |
| | **Total for Field Operations** | | | 32.62 | 72.48 | 16.15 | 28.96 | 41.13 | 43.67 | 235.01 | |

| Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|
| 11-52-0 | Fertilizer | 1 | 100% | 100 | pound | 0.24 | 24.00 | |
| Seeder/Packer | Rental | 4 | 100% | 1 | acre | 13.00 | 13.00 | |
| Alfalfa RR w/Inoculant | Seed | 4 | 100% | 12 | pound | 9.00 | 108.00 | |
| Roundup WeatherMax | Herbicide | 5 | 100% | 44 | ounce | 0.25 | 11.00 | |
| 21-0-0-24S | Additive | 5 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| Twine Large Square | Other | 9 | 100% | 4 | ton | 1.81 | 7.22 | |
| Lorsban Advanced | Insecticide | 11 | 50% | 1 | pint | 6.88 | 3.44 | |
| **Total Materials & Services** | | | | | | | 167.26 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 402.27 | |
| Interest on Operations Capital | $ 317.47 | cash expense @ | 5.50% | for 6.0 mo. | 8.73 | |
| **Total Operating and Use Related Ownership Costs** | | | | | 411.00 | |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 | |
| Real Estate Opportunity | Pivot (State) | $ 6,940 | per acre @ | 4.00% | 277.60 | |
| Real Estate Taxes | | $ 6,940 | per acre @ | 1.00% | 69.40 | |
| **Total Cost per Acre Including Overhead** | | | | | 778.00 | |
| **Cost per ton** | | | | | 194.50 | |
| **Cash Cost per ton** | | | | | 98.90 | |

**2017 Budget 8-Alfalfa, Fall Seeded with Subsequent Year Production (2.5 ton Actual Yield)**
**Gravity Irrigated, Canal, 18 acre/inches**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Disk | 1 | | 2.02 | 1.97 | 0.30 | 1.27 | 4.32 | 1.23 | 11.11 | |
| 2 | Spread Fertilizer | 1 | | 1.57 | 0.79 | 0.68 | 0.00 | 2.26 | 0.00 | 5.30 | |
| 3 | Roll | 1 | | 2.22 | 1.57 | 0.96 | 0.00 | 3.18 | 0.00 | 7.93 | |
| 4 | Drill | 1 | | 1.76 | 1.03 | 0.69 | 2.94 | 2.29 | 2.62 | 11.33 | |
| 5 | Spray | 0.2 | | 0.20 | 0.05 | 0.07 | 0.13 | 0.23 | 0.18 | 0.86 | |
| 6 | Corrugate | 1 | | 3.13 | 1.62 | 1.23 | 0.90 | 4.08 | 5.47 | 16.43 | |
| 7 | Swath/Condition Hay | 2 | | 4.00 | 2.59 | 4.62 | 0.00 | 7.30 | 0.00 | 18.51 | |
| 8 | Turn Windrows | 0.5 | | 0.83 | 0.23 | 0.36 | 0.05 | 1.19 | 0.16 | 2.82 | |
| 9 | Large Round Bale | 2.50 | ton | 5.50 | 1.86 | 2.16 | 2.69 | 7.16 | 2.81 | 22.18 | |
| 10 | Move Large Round | 2.50 | ton | 2.75 | 1.29 | 1.08 | 0.00 | 3.58 | 0.15 | 8.85 | |
| 11 | Ditch Irrigation | 18 | ai | 20.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 20.00 | |
| 12 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| | **Total for Field Operations** | | | 44.98 | 13.27 | 12.50 | 8.62 | 36.74 | 13.50 | 129.61 | |

| Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|
| 11-52-0 | Fertilizer | 2 | 100% | 100 | pound | 0.24 | 24.00 | |
| Alfalfa w/Inoculant | Seed | 4 | 100% | 12 | pound | 6.00 | 72.00 | |
| Oats | Seed | 4 | 100% | 0.5 | bushel | 9.00 | 4.50 | |
| Lorsban Advanced | Insecticide | 5 | 20% | 1 | pint | 6.88 | 1.38 | |
| Twine Large Round | Other | 9 | 100% | 2.5 | ton | 0.91 | 2.27 | |
| Irrigation District O&M Charge | Other | 11 | 100% | 1 | acre | 30.00 | 30.00 | |
| Raptor | Herbicide | 12 | 100% | 5 | ounce | 4.77 | 23.83 | |
| Crop Oil Concentrate | Additive | 12 | 100% | 1.6 | pint | 1.13 | 1.80 | |
| UAN | Additive | 12 | 100% | 2 | pint | 0.19 | 0.38 | |
| **Total Materials & Services** | | | | | | | 160.16 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 289.77 | |
| Interest on Operations Capital | $ 239.53 | cash expense @ | 5.50% | for 6.0 mo. | 6.59 | |
| **Total Operating and Use Related Ownership Costs** | | | | | 296.36 | |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 | |
| Real Estate Opportunity | Gravity (Panhandle) | $ 2,970 | per acre @ | 4.00% | 118.80 | |
| Real Estate Taxes | | $ 2,970 | per acre @ | 1.00% | 29.70 | |
| **Total Cost per Acre Including Overhead** | | | | | 464.86 | |
| **Cost per ton** | | | | | 185.94 | |
| **Cash Cost per ton** | | | | | 110.33 | |

# Table of Contents



**Disclaimer**
Reference to commercial products or trade names is made to the understanding that no discrimination is intended of those not mentioned and no endorsement by Nebraska Extension is implied for those mentioned.

**2017 Budget 9-Alfalfa, Large Round Bale (4.4 ton Actual Yield)**
**Dryland**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spread Fertilizer | 1 | | 1.57 | 0.79 | 0.68 | 0.00 | 2.26 | 0.00 | 5.30 | |
| 2 | Swath/Condition Hay | 4 | | 8.00 | 5.18 | 9.23 | 0.00 | 14.60 | 0.00 | 37.01 | |
| 3 | Turn Windrows | 1 | | 1.67 | 0.45 | 0.72 | 0.11 | 2.39 | 0.32 | 5.66 | |
| 4 | Double Windrows | 3 | | 3.30 | 0.82 | 1.30 | 0.16 | 4.30 | 1.22 | 11.10 | |
| 5 | Large Round Bale | 4.4 | ton | 9.68 | 3.27 | 3.80 | 4.73 | 12.61 | 4.94 | 39.03 | |
| 6 | Move Large Round | 4.4 | ton | 4.84 | 2.28 | 1.90 | 0.00 | 6.30 | 0.27 | 15.59 | |
| 7 | Spray | 0.25 | | 0.25 | 0.07 | 0.09 | 0.16 | 0.29 | 0.22 | 1.08 | |
| | **Total for Field Operations** | | | 29.31 | 12.86 | 17.72 | 5.16 | 42.75 | 6.97 | 114.77 | |

| Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|
| 11-52-0 | Fertilizer | 1 | 100% | 75 | pound | 0.24 | 18.00 | |
| Twine Large Round | Other | 5 | 100% | 4.4 | ton | 0.91 | 4.00 | |
| Mustang Max EC | Insecticide | 7 | 25% | 3 | ounce | 1.48 | 1.11 | |
| **Total Materials & Services** | | | | | | | 23.11 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 137.88 | |
| Interest on Operations Capital | $ 88.16 | cash expense @ | 5.50% | for 6.0 mo. | 2.42 | |
| **Total Operating and Use Related Ownership Costs** | | | | | 140.30 | |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 | |
| Real Estate Opportunity | Dryland (State) | $ 3,470 | per acre @ | 4.00% | 138.80 | |
| Real Estate Taxes | | $ 3,470 | per acre @ | 1.00% | 34.70 | |
| **Total Cost per Acre Including Overhead** | | | | | 333.80 | |
| **Cost per ton** | | | | | 75.86 | |
| **Cash Cost per ton** | | | | | 28.47 | |

**2017 Budget 10-Alfalfa, Large and Small Square Bale (6.7 ton Actual Yield)**
**Pivot Irrigated, 800 GPM 35 PSI, 16 acre/inches**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spread Fertilizer | 1 | | 1.57 | 0.79 | 0.68 | 0.00 | 2.26 | 0.00 | 5.30 | |
| 2 | Swath/Condition Hay | 4 | | 8.00 | 5.18 | 9.23 | 0.00 | 14.60 | 0.00 | 37.01 | |
| 3 | Turn Windrows | 1 | | 1.67 | 0.45 | 0.72 | 0.11 | 2.39 | 0.32 | 5.66 | |
| 4 | Double Windrows | 4 | | 4.40 | 1.09 | 1.73 | 0.22 | 5.73 | 1.63 | 14.80 | |
| 5 | Large Square Bale | 4.5 | ton | 6.14 | 4.47 | 2.41 | 2.58 | 8.00 | 26.98 | 50.58 | |
| 6 | Load Large Square | Custom | ton | | | | | | | | |
| 7 | Bale Small Square | 2.2 | ton | 12.28 | 5.06 | 4.82 | 8.75 | 16.00 | 2.20 | 49.11 | |
| 8 | Stack Small Square | 2.2 | ton | 4.47 | 1.16 | 1.93 | 0.64 | 6.40 | 1.00 | 15.60 | |
| 9 | Pivot E 125' Lift | 16 | ai | 11.11 | 44.59 | 4.68 | 25.82 | 8.48 | 15.45 | 110.13 | |
| 10 | Spray | 0.25 | | 0.25 | 0.07 | 0.09 | 0.16 | 0.29 | 0.22 | 1.08 | |
| 11 | Spray | 0.25 | | 0.25 | 0.07 | 0.09 | 0.16 | 0.29 | 0.22 | 1.08 | |
| | **Total for Field Operations** | | | 50.14 | 62.93 | 26.38 | 38.44 | 64.44 | 48.02 | 290.35 | |

| Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|
| 11-52-0 | Fertilizer | 1 | 100% | 75 | pound | 0.24 | 18.00 | |
| Twine Large Square | Other | 5 | 67% | 4.467 | ton | 1.81 | 5.38 | |
| Load Large Square Bales | Custom | 6 | 100% | 4.467 | ton | 2.94 | 13.12 | |
| Twine Small Square | Other | 7 | 33% | 2.233 | ton | 2.33 | 1.74 | |
| Electricity Fixed | Other | 9 | 100% | 1 | acre | 30.00 | 30.00 | |
| Pursuit | Herbicide | 10 | 25% | 4.5 | ounce | 3.83 | 4.31 | |
| Crop Oil Concentrate | Additive | 10 | 25% | 1.6 | pint | 1.13 | 0.45 | |
| UAN | Additive | 10 | 25% | 2 | pint | 0.19 | 0.09 | |
| Mustang Max EC | Insecticide | 11 | 25% | 3 | ounce | 1.48 | 1.11 | |
| **Total Materials & Services** | | | | | | | 74.20 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 364.55 | |
| Interest on Operations Capital | $ 252.09 | cash expense @ | 5.50% | for 6.0 mo. | 6.93 | |
| **Total Operating and Use Related Ownership Costs** | | | | | 371.48 | |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 | |
| Real Estate Opportunity | Pivot (State) | $ 6,940 | per acre @ | 4.00% | 277.60 | |
| Real Estate Taxes | | $ 6,940 | per acre @ | 1.00% | 69.40 | |
| **Total Cost per Acre Including Overhead** | | | | | 738.48 | |
| **Cost per ton** | | | | | 110.22 | |
| **Cash Cost per ton** | | | | | 49.02 | |

**2017 Budget 11-Alfalfa, Roundup Ready, Large and Small Square Bale (6.8 ton Actual Yield)**
**Pivot Irrigated, 800 GPM 35 PSI, 16 acre/inches**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spread Fertilizer | 1 | | 1.57 | 0.79 | 0.68 | 0.00 | 2.26 | 0.00 | 5.30 | |
| 2 | Swath/Condition Hay | 4 | | 8.00 | 5.18 | 9.23 | 0.00 | 14.60 | 0.00 | 37.01 | |
| 3 | Turn Windrows | 1 | | 1.67 | 0.45 | 0.72 | 0.11 | 2.39 | 0.32 | 5.66 | |
| 4 | Double Windrows | 4 | | 4.40 | 1.09 | 1.73 | 0.22 | 5.73 | 1.63 | 14.80 | |
| 5 | Large Square Bale | 4.5 | ton | 6.23 | 4.54 | 2.45 | 2.62 | 8.12 | 27.38 | 51.34 | |
| 6 | Load Lg Sq | Custom | ton | | | | | | | | |
| 7 | Bale Small Square | 2.3 | ton | 12.47 | 5.13 | 4.89 | 8.88 | 16.24 | 2.23 | 49.84 | |
| 8 | Stack Small Square | 2.3 | ton | 4.53 | 1.17 | 1.96 | 0.65 | 6.49 | 1.02 | 15.82 | |
| 9 | Pivot E 125' Lift | 16 | ai | 11.11 | 44.59 | 4.68 | 25.82 | 8.48 | 15.45 | 110.13 | |
| 10 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 11 | Spray | 0.25 | | 0.25 | 0.07 | 0.09 | 0.16 | 0.29 | 0.22 | 1.08 | |
| | **Total for Field Operations** | | | 51.23 | 63.28 | 26.78 | 39.10 | 65.75 | 49.13 | 295.27 | |

| Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|
| 11-52-0 | Fertilizer | 1 | 100% | 80 | pound | 0.24 | 19.20 | |
| Twine Large Square | Other | 5 | 67% | 4.53 | ton | 1.81 | 5.46 | |
| Load Large Square Bales | Custom | 6 | 100% | 4.4 | ton | 2.94 | 12.92 | |
| Twine Small Square | Other | 7 | 33% | 2.27 | ton | 2.33 | 1.76 | |
| Electricity Fixed | Other | 9 | 100% | 1 | acre | 30.00 | 30.00 | |
| Roundup WeatherMax | Herbicide | 10 | 100% | 44 | ounce | 0.25 | 11.00 | |
| 21-0-0-24S | Additive | 10 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| Mustang Max EC | Insecticide | 11 | 25% | 3 | ounce | 1.48 | 1.11 | |
| **Total Materials & Services** | | | | | | | 82.05 | |

| | | | | | |
|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 377.32 |
| Interest on Operations Capital | $ 262.44 | cash expense @ | 5.50% | for 6.0 mo. | 7.22 |
| **Total Operating and Use Related Ownership Costs** | | | | | 384.54 |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 |
| Real Estate Opportunity | Pivot (State) | $ 6,940 | per acre @ | 4.00% | 277.60 |
| Real Estate Taxes | | $ 6,940 | per acre @ | 1.00% | 69.40 |
| **Total Cost per Acre Including Overhead** | | | | | 751.54 |
| **Cost per ton** | | | | | 110.52 |
| **Cash Cost per ton** | | | | | 49.86 |

**2017 Budget 12-Alfalfa, Large and Small Square Bale (6.6 ton Actual Yield)**
**Pivot Irrigated, 800 GPM 35 PSI, 16 acre/inches**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spread Fertilizer | 1 | | 1.57 | 0.79 | 0.68 | 0.00 | 2.26 | 0.00 | 5.30 | |
| 2 | Swath/Condition Hay | 3 | | 6.00 | 3.88 | 6.93 | 0.00 | 10.95 | 0.00 | 27.76 | |
| 3 | Large Square Bale | 4.4 | ton | 6.05 | 4.40 | 2.37 | 2.54 | 7.88 | 26.57 | 49.81 | |
| 4 | Load Lg Sq | Custom | ton | | | | | | | | |
| 5 | Bale Small Square | 2.2 | ton | 12.10 | 4.98 | 4.75 | 8.62 | 15.76 | 2.16 | 48.37 | |
| 6 | Stack Small Square | 2.2 | ton | 4.40 | 1.14 | 1.90 | 0.63 | 6.30 | 0.99 | 15.36 | |
| 7 | Pivot E 125' Lift | 16 | ai | 11.11 | 44.59 | 4.68 | 25.82 | 8.48 | 15.45 | 110.13 | |
| 8 | Spray | 0.25 | | 0.25 | 0.07 | 0.09 | 0.16 | 0.29 | 0.22 | 1.08 | |
| 9 | Spray | 0.25 | | 0.25 | 0.07 | 0.09 | 0.16 | 0.29 | 0.22 | 1.08 | |
| | **Total for Field Operations** | | | 41.73 | 59.92 | 21.49 | 37.93 | 52.21 | 45.61 | 258.89 | |

| Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|
| 11-52-0 | Fertilizer | 1 | 100% | 75 | pound | 0.24 | 18.00 | |
| Twine Large Square | Other | 3 | 100% | 4.4 | ton | 1.81 | 7.95 | |
| Load Large Square Bales | Custom | 4 | 100% | 4.4 | ton | 2.94 | 12.92 | |
| Twine Small Square | Other | 5 | 100% | 2.2 | ton | 2.33 | 5.13 | |
| Electricity Fixed | Other | 7 | 100% | 1 | acre | 30.00 | 30.00 | |
| Velpar 75DF | Herbicide | 8 | 25% | 0.66 | pound | 37.00 | 6.11 | |
| Mustang Max EC | Insecticide | 9 | 25% | 3 | ounce | 1.48 | 1.11 | |
| **Total Materials & Services** | | | | | | | 81.22 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 340.11 | |
| Interest on Operations Capital | $ 242.29 | cash expense @ | 5.50% | for 6.0 mo. | 6.66 | |
| **Total Operating and Use Related Ownership Costs** | | | | | 346.77 | |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 | |
| Real Estate Opportunity | Pivot (Panhandle) | $ 3,290 | per acre @ | 4.00% | 131.60 | |
| Real Estate Taxes | | $ 3,290 | per acre @ | 1.00% | 32.90 | |
| **Total Cost per Acre Including Overhead** | | | | | 531.27 | |
| **Cost per ton** | | | | | 80.50 | |
| **Cash Cost per ton** | | | | | 37.72 | |

**2017 Budget 13-Alfalfa, Large Square Bale (6.6 ton Actual Yield)**
**Canal Irrigated, 22 acre/inches**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spread Fertilizer | 1 | | 1.57 | 0.79 | 0.68 | 0.00 | 2.26 | 0.00 | 5.30 | |
| 2 | Swath/Condition Hay | 4 | | 8.00 | 5.18 | 9.23 | 0.00 | 14.60 | 0.00 | 37.01 | |
| 3 | Turn Windrows | 1 | | 1.67 | 0.45 | 0.72 | 0.11 | 2.39 | 0.32 | 5.66 | |
| 4 | Double Windrows | 4 | | 4.40 | 1.09 | 1.73 | 0.22 | 5.73 | 1.63 | 14.80 | |
| 5 | Large Square Bale | Custom | | | | | | | | | |
| 6 | Load Lg Sq | Custom | | | | | | | | | |
| 7 | Corrugate | 1 | | 3.13 | 1.62 | 1.23 | 0.90 | 4.08 | 5.47 | 16.43 | |
| 8 | Ditch Irrigation | 22 | ai | 24.44 | | | | | | 24.44 | |
| 9 | Spray | 0.25 | | 0.25 | 0.07 | 0.09 | 0.16 | 0.29 | 0.22 | 1.08 | |
| 10 | Spray | 0.25 | | 0.25 | 0.07 | 0.09 | 0.16 | 0.29 | 0.22 | 1.08 | |
| | **Total for Field Operations** | | | 43.71 | 9.27 | 13.77 | 1.55 | 29.64 | 7.86 | 105.80 | |

| Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|
| 11-52-0 | Fertilizer | 1 | 100% | 75 | pound | 0.24 | 18.00 | |
| Bale Lg Sq 1360 lb | Custom | 5 | 100% | 6.6 | ton | 22.06 | 145.59 | |
| Load Large Square Bales | Custom | 6 | 100% | 6.6 | ton | 2.94 | 19.38 | |
| Irrigation District O&M Charge | Other | 8 | 100% | 1 | acre | 30.00 | 30.00 | |
| Pursuit | Herbicide | 9 | 25% | 4.5 | ounce | 3.83 | 4.31 | |
| Crop Oil Concentrate | Additive | 9 | 25% | 1.6 | pint | 1.13 | 0.45 | |
| UAN | Additive | 9 | 25% | 2 | pint | 0.19 | 0.09 | |
| Mustang Max EC | Insecticide | 10 | 25% | 3 | ounce | 1.48 | 1.11 | |
| **Total Materials & Services** | | | | | | | 218.93 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 324.73 | |
| Interest on Operations Capital | $ 287.23 | cash expense @ | 5.50% | for 6.0 mo. | 7.90 | |
| **Total Operating and Use Related Ownership Costs** | | | | | 332.63 | |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 | |
| Real Estate Opportunity | Gravity (State) | $ 6,480 | per acre @ | 4.00% | 259.20 | |
| Real Estate Taxes | | $ 6,480 | per acre @ | 1.00% | 64.80 | |
| **Total Cost per Acre Including Overhead** | | | | | 676.63 | |
| **Cost per ton** | | | | | 102.52 | |
| **Cash Cost per ton** | | | | | 54.53 | |

**2017 Budget 14-Alfalfa, Roundup Ready, Large Square Bale (6.8 ton Actual Yield)**
**Canal Irrigated, 22 acre/inches**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spread Fertilizer | 1 | | 1.57 | 0.79 | 0.68 | 0.00 | 2.26 | 0.00 | 5.30 | |
| 2 | Swath/Condition Hay | 4 | | 8.00 | 5.18 | 9.23 | 0.00 | 14.60 | 0.00 | 37.01 | |
| 3 | Turn Windrows | 1 | | 1.67 | 0.45 | 0.72 | 0.11 | 2.39 | 0.32 | 5.66 | |
| 4 | Double Windrows | 4 | | 4.40 | 1.09 | 1.73 | 0.22 | 5.73 | 1.63 | 14.80 | |
| 5 | Lg Sq Bale | Custom | | | | | | | | | |
| 6 | Load Lg Sq | Custom | | | | | | | | | |
| 7 | Corrugate | 1 | | 3.13 | 1.62 | 1.23 | 0.90 | 4.08 | 5.47 | 16.43 | |
| 8 | Ditch Irrigation | 22 | ai | 24.44 | | | | | | 24.44 | |
| 9 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 10 | Spray | 0.25 | | 0.25 | 0.07 | 0.09 | 0.16 | 0.29 | 0.22 | 1.08 | |
| | **Total for Field Operations** | | | 44.46 | 9.47 | 14.03 | 2.03 | 30.50 | 8.52 | 109.01 | |

| Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|
| 11-52-0 | Fertilizer | 1 | 100% | 80 | pound | 0.24 | 19.20 | |
| Bale Lg Sq 1360 lb | Custom | 5 | 100% | 6.8 | ton | 22.06 | 150.00 | |
| Load Large Square Bales | Custom | 6 | 100% | 6.6 | ton | 2.94 | 19.38 | |
| Irrigation District O&M Charge | Other | 8 | 100% | 1 | acre | 30.00 | 30.00 | |
| Roundup WeatherMax | Herbicide | 9 | 100% | 44 | ounce | 0.25 | 11.00 | |
| 21-0-0-24S | Additive | 9 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| Mustang Max EC | Insecticide | 10 | 25% | 3 | ounce | 1.48 | 1.11 | |
| **Total Materials & Services** | | | | | | | 231.29 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 340.30 | |
| Interest on Operations Capital | $ 301.28 | cash expense @ | 5.50% | for 6.0 mo. | 8.29 | |
| **Total Operating and Use Related Ownership Costs** | | | | | 348.59 | |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 | |
| Real Estate Opportunity | Gravity (State) | $ 6,480 | per acre @ | 4.00% | 259.20 | |
| Real Estate Taxes | | $ 6,480 | per acre @ | 1.00% | 64.80 | |
| **Total Cost per Acre Including Overhead** | | | | | 692.59 | |
| **Cost per ton** | | | | | 101.85 | |
| **Cash Cost per ton** | | | | | 55.05 | |

**2017 Budget 15-Corn, Conventional Tillage, Continuous, 90 bu Yield Goal (85 bu Actual Yield)**
**Dryland**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Disk | 1 | | 2.02 | 1.97 | 0.30 | 1.27 | 4.32 | 1.23 | 11.11 | |
| 2 | Anhydrous Apply | 1 | | 1.83 | 1.37 | 0.72 | 0.58 | 2.39 | 3.94 | 10.83 | |
| 3 | Field Cultivation | 1 | | 1.47 | 1.41 | 0.58 | 1.33 | 1.91 | 1.64 | 8.34 | |
| 4 | Plant | 1 | | 2.40 | 0.71 | 0.86 | 2.54 | 2.87 | 3.89 | 13.27 | |
| 5 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 6 | Row Crop Cultivation | 1 | | 2.00 | 0.82 | 0.78 | 0.44 | 2.60 | 1.64 | 8.28 | |
| 7 | Row Crop Cultivation | 0.25 | | 0.50 | 0.21 | 0.20 | 0.11 | 0.65 | 0.41 | 2.08 | |
| 8 | Spray | 0.5 | | 0.50 | 0.14 | 0.17 | 0.32 | 0.57 | 0.44 | 2.14 | |
| 9 | Spray | Custom | | | | | | | | | |
| 10 | Combine Dryland Corn | 1 | | 3.14 | 3.88 | 7.31 | 1.53 | 5.99 | 4.64 | 26.49 | |
| 11 | Cart | 85 | bu | 1.21 | 0.43 | 0.48 | 0.78 | 1.58 | 0.50 | 4.98 | |
| 12 | Truck | Custom | | | | | | | | | |
| 13 | Dry Grain | Custom | | | | | | | | | |
| 14 | Chop Stalks | 1 | | 1.78 | 1.20 | 0.70 | 0.35 | 2.32 | 1.72 | 8.07 | |
| | **Total for Field Operations** | | | 17.85 | 12.41 | 12.45 | 9.89 | 26.35 | 20.93 | 99.88 | |

| Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|
| 82-0-0 | Fertilizer | 2 | 100% | 85 | lbs N | 0.28 | 23.80 | |
| Corn | Seed | 4 | 100% | 13.1 | k seed | 2.50 | 32.69 | |
| Capture LFR | Insecticide | 4 | 100% | 6.6 | ounce | 2.81 | 18.56 | |
| 10-34-0 | Fertilizer | 4 | 100% | 6 | gallon | 2.40 | 14.40 | |
| Lumax EZ | Herbicide | 5 | 100% | 2.7 | quart | 20.00 | 54.00 | |
| Spray | Custom | 8 | 50% | 1 | acre | 7.00 | 3.50 | |
| Distinct | Herbicide | 8 | 50% | 4 | ounce | 0.31 | 0.63 | |
| NIS | Additive | 8 | 50% | 6 | ounce | 0.13 | 0.38 | |
| UAN | Additive | 8 | 50% | 2 | pint | 0.19 | 0.19 | |
| Spray | Custom | 9 | 30% | 1 | acre | 7.00 | 2.10 | |
| Brigade 2EC | Insecticide | 9 | 10% | 5.12 | ounce | 1.13 | 0.58 | |
| Mustang Max EC | Insecticide | 9 | 20% | 2 | ounce | 1.48 | 0.59 | |
| Haul Grain Bushels | Custom | 12 | 100% | 85 | bushel | 0.11 | 9.35 | |
| Dry 2 Points Removed | Custom | 13 | 30% | 85 | bushel | 0.08 | 2.04 | |
| Scouting Dryland Corn | Scouting | | 100% | 1 | acre | 7.00 | 7.00 | |
| | Crop Insurance | | | | | 15.00 | 0.00 | |
| **Total Materials & Services** | | | | | | | 169.81 | |

| | | | | | |
|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 269.69 |
| Interest on Operations Capital | $ 222.41 | cash expense @ | 5.50% | for 6.0 mo. | 6.12 |
| **Total Operating and Use Related Ownership Costs** | | | | | 275.81 |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 |
| Real Estate Opportunity | Dryland (State) | $ 3,470 | per acre @ | 4.00% | 138.80 |
| Real Estate Taxes | | $ 3,470 | per acre @ | 1.00% | 34.70 |
| **Total Cost per Acre Including Overhead** | | | | | 469.31 |
| **Cost per bu** | | | | | 5.52 |
| **Cash Cost per bu** | | | | | 3.10 |

**2017 Budget 16-Corn, Eastern Nebraska Conventional Tillage, Continuous, 155 bu Yield Goal (135 bu Actual Yield) Dryland**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Disk | 1 | | 2.02 | 1.97 | 0.30 | 1.27 | 4.32 | 1.23 | 11.11 | |
| 2 | Anhydrous Apply | 1 | | 1.83 | 1.37 | 0.72 | 0.58 | 2.39 | 3.94 | 10.83 | |
| 3 | Field Cultivation | 1 | | 1.47 | 1.41 | 0.58 | 1.33 | 1.91 | 1.64 | 8.34 | |
| 4 | Plant | 1 | | 2.40 | 0.71 | 0.86 | 2.54 | 2.87 | 3.89 | 13.27 | |
| 5 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 6 | Spray | 0.5 | | 0.50 | 0.14 | 0.17 | 0.32 | 0.57 | 0.44 | 2.14 | |
| 7 | Spray | Custom | | | | | | | | | |
| 8 | Combine Dryland Corn | 1 | | 3.14 | 3.88 | 7.31 | 1.53 | 5.99 | 4.64 | 26.49 | |
| 9 | Cart | 135 | bu | 1.93 | 0.68 | 0.76 | 1.24 | 2.51 | 0.79 | 7.91 | |
| 10 | Truck | Custom | | | | | | | | | |
| 11 | Dry Grain | Custom | | | | | | | | | |
| 12 | Chop Stalks | 1 | | 1.78 | 1.20 | 0.70 | 0.35 | 2.32 | 1.72 | 8.07 | |
| | **Total for Field Operations** | | | 16.07 | 11.63 | 11.75 | 9.80 | 24.03 | 19.17 | 92.45 | |

| Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|
| 82-0-0 | Fertilizer | 2 | 100% | 150 | lbs N | 0.28 | 42.00 | |
| Corn | Seed | 4 | 100% | 23.1 | k seed | 2.50 | 57.75 | |
| Capture LFR | Insecticide | 4 | 100% | 6.6 | ounce | 2.81 | 18.56 | |
| 10-34-0 | Fertilizer | 4 | 100% | 6 | gallon | 2.40 | 14.40 | |
| Lumax EZ | Herbicide | 5 | 100% | 2.7 | quart | 20.00 | 54.00 | |
| Distinct | Herbicide | 6 | 50% | 4 | ounce | 0.31 | 0.63 | |
| NIS | Additive | 6 | 50% | 6 | ounce | 0.13 | 0.38 | |
| UAN | Additive | 6 | 50% | 2 | pint | 0.19 | 0.19 | |
| Spray | Custom | 7 | 30% | 1 | acre | 7.00 | 2.10 | |
| Brigade 2EC | Insecticide | 7 | 10% | 5.12 | ounce | 1.13 | 0.58 | |
| Mustang Max EC | Insecticide | 7 | 20% | 2 | ounce | 1.48 | 0.59 | |
| Haul Grain Bushels | Custom | 10 | 100% | 135 | bushel | 0.11 | 14.85 | |
| Dry 2 Points Removed | Custom | 11 | 50% | 135 | bushel | 0.08 | 5.40 | |
| Scouting Dryland Corn | Scouting | | 100% | 1 | acre | 7.00 | 7.00 | |
| | Crop Insurance | | | | | 19.00 | 0.00 | |
| **Total Materials & Services** | | | | | | | 218.43 | |

| | | | | | |
|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 310.88 |
| Interest on Operations Capital | $ 267.68 | cash expense @ | 5.50% | for 6.0 mo. | 7.36 |
| **Total Operating and Use Related Ownership Costs** | | | | | 318.24 |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 |
| Real Estate Opportunity | Dryland (Eastern) $ 6,360 | per acre @ | 4.00% | | 254.40 |
| Real Estate Taxes | $ 6,360 | per acre @ | 1.00% | | 63.60 |
| **Total Cost per Acre Including Overhead** | | | | | 656.24 |
| **Cost per bu** | | | | | 4.86 |
| **Cash Cost per bu** | | | | | 2.51 |

**2017 Budget 17-Corn, No-Till, Bt, ECB, RW & RR2, Continuous, 125 bu Yield Goal (115 bu Actual Yield)**
**Dryland**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spray Spring Burndown Herbicide | 0.5 | | 0.50 | 0.14 | 0.17 | 0.32 | 0.57 | 0.44 | 2.14 | |
| 2 | Spray Fertilizer and Herbicide | 1 | | 1.00 | 0.27 | 0.35 | 0.19 | 1.15 | 2.21 | 5.17 | |
| 3 | Plant No-Till | 1 | | 2.40 | 0.87 | 0.86 | 4.41 | 2.87 | 6.77 | 18.18 | |
| 4 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 5 | Spray | Custom | | | | | | | | | |
| 6 | Combine Dryland Corn | 1 | | 3.14 | 3.88 | 7.31 | 1.53 | 5.99 | 4.64 | 26.49 | |
| 7 | Cart | 115 | bu | 1.64 | 0.58 | 0.64 | 1.05 | 2.14 | 0.67 | 6.72 | |
| 8 | Truck | Custom | | | | | | | | | |
| 9 | Dry Grain | Custom | | | | | | | | | |
| | **Total for Field Operations** | | | 9.68 | 6.01 | 9.68 | 8.14 | 13.87 | 15.61 | 62.99 | |

| | Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|
| | Glyphosate w/Surf | Herbicide | 1 | 50% | 32 | ounce | 0.10 | 1.56 | |
| | 2,4-D Ester 4# | Herbicide | 1 | 50% | 1 | pint | 2.25 | 1.13 | |
| | 21-0-0-24S | Additive | 1 | 50% | 1.7 | pound | 0.35 | 0.30 | |
| | 32-0-0 | Fertilizer | 2 | 100% | 115 | lbs N | 0.42 | 48.30 | |
| | Expert | Herbicide | 2 | 100% | 3 | quart | 9.25 | 27.75 | |
| | Corn Bt, ECB, RW & RR2 | Seed | 3 | 80% | 17.69 | k seed | 3.38 | 47.77 | |
| | Corn RR2 | Seed | 3 | 20% | 17.69 | k seed | 3.00 | 10.62 | |
| * | Capture LFR | Insecticide | 3 | 20% | 6.6 | ounce | 2.81 | 3.71 | |
| | 10-34-0-1Z | Fertilizer | 3 | 100% | 6 | gallon | 2.45 | 14.70 | |
| | Glyphosate w/Surf | Herbicide | 4 | 100% | 32 | ounce | 0.10 | 3.13 | |
| | 21-0-0-24S | Additive | 4 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| | Status | Herbicide | 4 | 50% | 2.5 | ounce | 4.30 | 5.38 | |
| * | Spray | Custom | 5 | 30% | 1 | acre | 7.00 | 2.10 | |
| * | Brigade 2EC | Insecticide | 5 | 10% | 5.12 | ounce | 1.13 | 0.58 | |
| * | Mustang Max EC | Insecticide | 5 | 20% | 2 | ounce | 1.48 | 0.59 | |
| | Haul Grain Bushels | Custom | 8 | 100% | 115 | bushel | 0.11 | 12.65 | |
| | Dry 2 Points Removed | Custom | 9 | 30% | 115 | bushel | 0.08 | 2.76 | |
| | Scouting Dryland Corn | Scouting | | 100% | 1 | acre | 7.00 | 7.00 | |
| | | Crop Insurance | | | | | 17.00 | 17.00 | |
| | **Total Materials & Services** | | | | | | | 207.63 | |

*Insecticides for rootworm (refuge), 1st brood European Corn Borer (10% of refuge), Western Bean Cutworm, and Spider Mites, respectively.

| | | | | | |
|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 270.62 |
| Interest on Operations Capital | $ 241.14 | cash expense @ | 5.50% | for 6.0 mo. | 6.63 |
| **Total Operating and Use Related Ownership Costs** | | | | | 277.25 |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 |
| Real Estate Opportunity | Dryland (State) | $ 3,470 | per acre @ | 4.00% | 138.80 |
| Real Estate Taxes | | $ 3,470 | per acre @ | 1.00% | 34.70 |
| **Total Cost per Acre Including Overhead** | | | | | 470.75 |
| **Cost per bu** | | | | | 4.09 |
| **Cash Cost per bu** | | | | | 2.46 |

**2017 Budget 18-Corn, Eastern Nebraska, No-Till, Bt, ECB, RW & RR2, Continuous, 170 bu Yield Goal (160 bu Actual Yield) Dryland**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spray Spring Burndown Herbicide | 0.5 | | 0.50 | 0.14 | 0.17 | 0.32 | 0.57 | 0.44 | 2.14 | |
| 2 | Spray Fertilizer and Herbicide | 1 | | 1.00 | 0.27 | 0.35 | 0.19 | 1.15 | 2.21 | 5.17 | |
| 3 | Plant No-Till | 1 | | 2.40 | 0.87 | 0.86 | 4.41 | 2.87 | 6.77 | 18.18 | |
| 4 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 5 | Spray | Custom | | | | | | | | | |
| 6 | Combine Dryland Corn | 1 | | 3.14 | 3.88 | 7.31 | 1.53 | 5.99 | 4.64 | 26.49 | |
| 7 | Cart | 160 | bu | 2.29 | 0.81 | 0.90 | 1.46 | 2.98 | 0.94 | 9.38 | |
| 8 | Truck | Custom | | | | | | | | | |
| 9 | Dry Grain | Custom | | | | | | | | | |
| | **Total for Field Operations** | | | 10.33 | 6.24 | 9.94 | 8.55 | 14.71 | 15.88 | 65.65 | |

| | Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|
| | Glyphosate w/Surf | Herbicide | 1 | 50% | 32 | ounce | 0.10 | 1.56 | |
| | 2,4-D Ester 4# | Herbicide | 1 | 50% | 1 | pint | 2.25 | 1.13 | |
| | 21-0-0-24S | Additive | 1 | 50% | 1.7 | pound | 0.35 | 0.30 | |
| | 32-0-0 | Fertilizer | 2 | 100% | 160 | lbs N | 0.42 | 67.20 | |
| | Expert | Herbicide | 2 | 100% | 3 | quart | 9.25 | 27.75 | |
| | Corn Bt, ECB, RW & RR2 | Seed | 3 | 80% | 24.70 | k seed | 3.38 | 66.69 | |
| | Corn RR2 | Seed | 3 | 20% | 24.70 | k seed | 3.00 | 14.82 | |
| * | Capture LFR | Insecticide | 3 | 20% | 6.6 | ounce | 2.81 | 3.71 | |
| | 10-34-0-1Z | Fertilizer | 3 | 100% | 6 | gallon | 2.45 | 14.70 | |
| | Glyphosate w/Surf | Herbicide | 4 | 100% | 32 | ounce | 0.10 | 3.13 | |
| | 21-0-0-24S | Additive | 4 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| | Status | Herbicide | 4 | 50% | 2.5 | ounce | 4.30 | 5.38 | |
| * | Spray | Custom | 5 | 30% | 1 | acre | 7.00 | 2.10 | |
| * | Brigade 2EC | Insecticide | 5 | 10% | 5.12 | ounce | 1.13 | 0.58 | |
| * | Mustang Max EC | Insecticide | 5 | 20% | 2 | ounce | 1.48 | 0.59 | |
| | Haul Grain Bushels | Custom | 8 | 100% | 160 | bushel | 0.11 | 17.60 | |
| | Dry 2 Points Removed | Custom | 9 | 50% | 160 | bushel | 0.08 | 6.40 | |
| | Scouting Dryland Corn | Scouting | | 100% | 1 | acre | 7.00 | 7.00 | |
| | | Crop Insurance | | | | | 22.00 | 0.00 | |
| | **Total Materials & Services** | | | | | | | 241.24 | |

*Insecticides for rootworm (refuge), 1st brood European Corn Borer (10% of refuge), Western Bean Cutworm, and Spider Mites, respectively.

| | | | | | |
|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 306.89 |
| Interest on Operations Capital | $ 276.30 | cash expense @ | 5.50% | for 6.0 mo. | 7.60 |
| **Total Operating and Use Related Ownership Costs** | | | | | 314.49 |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 |
| Real Estate Opportunity | Dryland (Eastern) | $ 6,360 | per acre @ | 4.00% | 254.40 |
| Real Estate Taxes | | $ 6,360 | per acre @ | 1.00% | 63.60 |
| **Total Cost per Acre Including Overhead** | | | | | 652.49 |
| **Cost per bu** | | | | | 4.08 |
| **Cash Cost per bu** | | | | | 2.17 |

# Table of Budgets

**2017 Budget 19-Corn, No-Till, SmartStax RIB Complete, Continuous, 130 bu Yield Goal (120 bu Actual Yield)**
**Dryland**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spray Spring Burndown Herbicide | 0.5 | | 0.50 | 0.14 | 0.17 | 0.32 | 0.57 | 0.44 | 2.14 | |
| 2 | Spray Fertilizer and Herbicide | 1 | | 1.00 | 0.27 | 0.35 | 0.19 | 1.15 | 2.21 | 5.17 | |
| 3 | Plant No-Till | 1 | | 2.40 | 0.87 | 0.86 | 4.41 | 2.87 | 6.77 | 18.18 | |
| 4 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 5 | Spray | Custom | | | | | | | | | |
| 6 | Combine Dryland Corn | 1 | | 3.14 | 3.88 | 7.31 | 1.53 | 5.99 | 4.64 | 26.49 | |
| 7 | Cart | 120 | bu | 1.71 | 0.60 | 0.67 | 1.10 | 2.23 | 0.70 | 7.01 | |
| 8 | Truck | Custom | | | | | | | | | |
| 9 | Dry Grain | Custom | | | | | | | | | |
| | **Total for Field Operations** | | | 9.75 | 6.03 | 9.71 | 8.19 | 13.96 | 15.64 | 63.28 | |

| Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|
| Glyphosate w/Surf | Herbicide | 1 | 50% | 32 | ounce | 0.10 | 1.56 | |
| 2,4-D Ester 4# | Herbicide | 1 | 50% | 1 | pint | 2.25 | 1.13 | |
| 21-0-0-24S | Additive | 1 | 50% | 1.7 | pound | 0.35 | 0.30 | |
| 32-0-0 | Fertilizer | 2 | 100% | 120 | lbs N | 0.42 | 50.40 | |
| Expert | Herbicide | 2 | 100% | 3 | quart | 9.25 | 27.75 | |
| Corn SmartStax RIB Complete | Seed | 3 | 100% | 18.5 | k seed | 4.13 | 76.15 | |
| 10-34-0 | Fertilizer | 3 | 100% | 6 | gallon | 2.40 | 14.40 | |
| Glyphosate w/Surf | Herbicide | 4 | 100% | 32 | ounce | 0.10 | 3.13 | |
| 21-0-0-24S | Additive | 4 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| Status | Herbicide | 4 | 50% | 2.5 | ounce | 4.30 | 5.38 | |
| Spray | Custom | 5 | 10% | 1 | acre | 7.00 | 0.70 | |
| Brigade 2EC | Insecticide | 5 | 10% | 5.12 | ounce | 1.13 | 0.58 | |
| Haul Grain Bushels | Custom | 8 | 100% | 120 | bushel | 0.11 | 13.20 | |
| Dry 2 Points Removed | Custom | 9 | 30% | 120 | bushel | 0.08 | 2.88 | |
| Scouting Dryland Corn | Scouting | | 100% | 1 | acre | 7.00 | 7.00 | |
| | Crop Insurance | | | | | 17.00 | 0.00 | |
| **Total Materials & Services** | | | | | | | 205.16 | |

| | | | | | |
|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 268.44 |
| Interest on Operations Capital | $ 238.84 | cash expense @ | 5.50% | for 6.0 mo. | 6.57 |
| **Total Operating and Use Related Ownership Costs** | | | | | 275.01 |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 |
| Real Estate Opportunity | Dryland (State) | $ 3,470 | per acre @ | 4.00% | 138.80 |
| Real Estate Taxes | | $ 3,470 | per acre @ | 1.00% | 34.70 |
| **Total Cost per Acre Including Overhead** | | | | | 468.51 |
| **Cost per bu** | | | | | 3.90 |
| **Cash Cost per bu** | | | | | 2.33 |

**2017 Budget 20-Corn, Eastern Nebraska No-Till, SmartStax RIB Complete, Continuous, 175 bu Yield Goal (165 bu Actual Yield)**
**Dryland**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spray Spring Burndown Herbicide | 0.5 | | 0.50 | 0.14 | 0.17 | 0.32 | 0.57 | 0.44 | 2.14 | |
| 2 | Spray Fertilizer and Herbicide | 1 | | 1.00 | 0.27 | 0.35 | 0.19 | 1.15 | 2.21 | 5.17 | |
| 3 | Plant No-Till | 1 | | 2.40 | 0.87 | 0.86 | 4.41 | 2.87 | 6.77 | 18.18 | |
| 4 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 5 | Spray | Custom | | | | | | | | | |
| 6 | Combine Dryland Corn | 1 | | 3.14 | 3.88 | 7.31 | 1.53 | 5.99 | 4.64 | 26.49 | |
| 7 | Cart | 165 | bu | 2.36 | 0.83 | 0.93 | 1.51 | 3.07 | 0.97 | 9.67 | |
| 8 | Truck | Custom | | | | | | | | | |
| 9 | Dry Grain | Custom | | | | | | | | | |
| | **Total for Field Operations** | | | 10.40 | 6.26 | 9.97 | 8.60 | 14.80 | 15.91 | 65.94 | |

| Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|
| Glyphosate w/Surf | Herbicide | 1 | 50% | 32 | ounce | 0.10 | 1.56 | |
| 2,4-D Ester 4# | Herbicide | 1 | 50% | 1 | pint | 2.25 | 1.13 | |
| 21-0-0-24S | Additive | 1 | 50% | 1.7 | pound | 0.35 | 0.30 | |
| 32-0-0 | Fertilizer | 2 | 100% | 165 | lbs N | 0.42 | 69.30 | |
| Expert | Herbicide | 2 | 100% | 3 | quart | 9.25 | 27.75 | |
| Corn SmartStax RIB Complete | Seed | 3 | 100% | 25.4 | k seed | 4.13 | 104.71 | |
| 10-34-0 | Fertilizer | 3 | 100% | 6 | gallon | 2.40 | 14.40 | |
| Glyphosate w/Surf | Herbicide | 4 | 100% | 32 | ounce | 0.10 | 3.13 | |
| 21-0-0-24S | Additive | 4 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| Status | Herbicide | 4 | 50% | 2.5 | ounce | 4.30 | 5.38 | |
| Spray | Custom | 5 | 10% | 1 | acre | 7.00 | 0.70 | |
| Brigade 2EC | Insecticide | 5 | 10% | 5.12 | ounce | 1.13 | 0.58 | |
| Haul Grain Bushels | Custom | 8 | 100% | 165 | bushel | 0.11 | 18.15 | |
| Dry 2 Points Removed | Custom | 9 | 50% | 165 | bushel | 0.08 | 6.60 | |
| Scouting Dryland Corn | Scouting | | 100% | 1 | acre | 7.00 | 7.00 | |
| | Crop Insurance | | | | | 23.00 | 0.00 | |
| **Total Materials & Services** | | | | | | | 261.29 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 327.23 | |
| Interest on Operations Capital | $ 296.52 | cash expense @ | 5.50% | for 6.0 mo. | 8.15 | |
| **Total Operating and Use Related Ownership Costs** | | | | | 335.38 | |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 | |
| Real Estate Opportunity | Dryland (Eastern) | $ 6,360 | per acre @ | 4.00% | 254.40 | |
| Real Estate Taxes | | $ 6,360 | per acre @ | 1.00% | 63.60 | |
| **Total Cost per Acre Including Overhead** | | | | | 673.38 | |
| **Cost per bu** | | | | | 4.08 | |
| **Cash Cost per bu** | | | | | 2.23 | |

**2017 Budget 21-Corn, No-Till, Bt & ECB, after Soybeans, 135 bu Yield Goal (125 bu Actual Yield)**
**Dryland**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spray Spring Burndown Herbicide | 0.5 | | 0.50 | 0.14 | 0.17 | 0.32 | 0.57 | 0.44 | 2.14 | |
| 2 | Spray Fertilizer | 1 | | 1.00 | 0.27 | 0.35 | 0.19 | 1.15 | 2.21 | 5.17 | |
| 3 | Plant No-Till | 1 | | 2.40 | 0.87 | 0.86 | 4.41 | 2.87 | 6.77 | 18.18 | |
| 4 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 5 | Spray | 0.5 | | 0.50 | 0.14 | 0.17 | 0.32 | 0.57 | 0.44 | 2.14 | |
| 6 | Spray | Custom | | | | | | | | | |
| 7 | Combine Dryland Corn | 1 | | 3.14 | 3.88 | 7.31 | 1.53 | 5.99 | 4.64 | 26.49 | |
| 8 | Cart | 125 | bu | 1.79 | 0.63 | 0.70 | 1.14 | 2.33 | 0.73 | 7.32 | |
| 9 | Truck | Custom | | | | | | | | | |
| 10 | Dry Grain | Custom | | | | | | | | | |
| | **Total for Field Operations** | | | 10.33 | 6.20 | 9.91 | 8.55 | 14.63 | 16.11 | 65.73 | |

| | Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|
| | Glyphosate w/Surf | Herbicide | 1 | 50% | 32 | ounce | 0.10 | 1.56 | |
| | 2,4-D Ester 4# | Herbicide | 1 | 50% | 1.0 | pint | 2.25 | 1.13 | |
| | 21-0-0-24S | Additive | 1 | 50% | 1.7 | pound | 0.35 | 0.30 | |
| | 32-0-0 | Fertilizer | 2 | 100% | 80 | lbs N | 0.42 | 33.60 | |
| | Corn Bt & ECB | Seed | 3 | 80% | 19.2 | k seed | 2.88 | 44.23 | |
| | Corn | Seed | 3 | 20% | 19.2 | k seed | 2.50 | 9.62 | |
| | 10-34-0 | Fertilizer | 3 | 100% | 6 | gallon | 2.40 | 14.40 | |
| | Acuron | Herbicide | 4 | 100% | 2.5 | quart | 19.25 | 48.13 | |
| | Crop Oil Concentrate | Additive | 4 | 100% | 1.6 | pint | 1.13 | 1.80 | |
| | 21-0-0-24S | Additive | 4 | 100% | 2.5 | pound | 0.35 | 0.88 | |
| | Laudis | Herbicide | 5 | 50% | 3 | ounce | 6.48 | 9.73 | |
| | Atrazine 90 DF | Herbicide | 5 | 50% | 0.5 | pound | 3.30 | 0.83 | |
| | Crop Oil Concentrate | Additive | 5 | 50% | 1 | pint | 1.13 | 0.56 | |
| | UAN | Additive | 5 | 50% | 3 | pint | 0.19 | 0.28 | |
| * | Spray | Custom | 6 | 30% | 1 | acre | 7.00 | 2.10 | |
| * | Brigade 2EC | Insecticide | 6 | 10% | 5.12 | ounce | 1.13 | 0.58 | |
| * | Mustang Max EC | Insecticide | 6 | 20% | 2 | ounce | 1.48 | 0.59 | |
| | Haul Grain Bushels | Custom | 9 | 100% | 125 | bushel | 0.11 | 13.75 | |
| | Dry 2 Points Removed | Custom | 10 | 30% | 125 | bushel | 0.08 | 3.00 | |
| | Scouting Dryland Corn | Scouting | | 100% | 1 | acre | 7.00 | 7.00 | |
| | | Crop Insurance | | | | | 18.00 | 0.00 | |
| | **Total Materials & Services** | | | | | | | 194.07 | |

*Insecticides for 1st & 2nd brood European Corn Borer (10% of refuge), Western Bean Cutworm, and Spider Mites, respectively.

| | | | | | |
|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 259.80 |
| Interest on Operations Capital | $ 229.06 | cash expense @ | 5.50% | for 6.0 mo. | 6.30 |
| **Total Operating and Use Related Ownership Costs** | | | | | 266.10 |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 |
| Real Estate Opportunity | Dryland (State) | $ 3,470 | per acre @ | 4.00% | 138.80 |
| Real Estate Taxes | | $ 3,470 | per acre @ | 1.00% | 34.70 |
| **Total Cost per Acre Including Overhead** | | | | | 459.60 |
| **Cost per bu** | | | | | 3.68 |
| **Cash Cost per bu** | | | | | 2.16 |

**2017 Budget 22-Corn, Eastern Nebraska No-Till, Bt & ECB, after Soybeans, 180 bu Yield Goal (170 bu Actual Yield) Dryland**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spray Spring Burndown Herbicide | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 2 | Spray Fertilizer | 1 | | 1.00 | 0.27 | 0.35 | 0.19 | 1.15 | 2.21 | 5.17 | |
| 3 | Plant No-Till | 1 | | 2.40 | 0.87 | 0.86 | 4.41 | 2.87 | 6.77 | 18.18 | |
| 4 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 5 | Spray | 0.5 | | 0.50 | 0.14 | 0.17 | 0.32 | 0.57 | 0.44 | 2.14 | |
| 6 | Spray | Custom | | | | | | | | | |
| 7 | Combine Dryland Corn | 1 | | 3.14 | 3.88 | 7.31 | 1.53 | 5.99 | 4.64 | 26.49 | |
| 8 | Cart | 170 | bu | 2.43 | 0.86 | 0.95 | 1.56 | 3.16 | 1.00 | 9.96 | |
| 9 | Truck | Custom | | | | | | | | | |
| 10 | Dry Grain | Custom | | | | | | | | | |
| | **Total for Field Operations** | | | 11.47 | 6.56 | 10.34 | 9.29 | 16.04 | 16.82 | 70.52 | |

| | Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|
| | Glyphosate w/Surf | Herbicide | 1 | 50% | 32 | ounce | 0.10 | 1.56 | |
| | 2,4-D Ester 4# | Herbicide | 1 | 50% | 1.0 | pint | 2.25 | 1.13 | |
| | 21-0-0-24S | Additive | 1 | 50% | 1.7 | pound | 0.35 | 0.30 | |
| | 32-0-0 | Fertilizer | 2 | 100% | 125 | lbs N | 0.42 | 52.50 | |
| | Corn Bt & ECB | Seed | 3 | 80% | 26.2 | k seed | 2.88 | 60.15 | |
| | Corn | Seed | 3 | 20% | 26.2 | k seed | 2.50 | 13.08 | |
| | 10-34-0 | Fertilizer | 3 | 100% | 6 | gallon | 2.40 | 14.40 | |
| | Acuron | Herbicide | 4 | 100% | 2.5 | quart | 19.25 | 48.13 | |
| | Crop Oil Concentrate | Additive | 4 | 100% | 1.6 | pint | 1.13 | 1.80 | |
| | 21-0-0-24S | Additive | 4 | 100% | 2.5 | pound | 0.35 | 0.88 | |
| | Laudis | Herbicide | 5 | 50% | 3 | ounce | 6.48 | 9.73 | |
| | Atrazine 90 DF | Herbicide | 5 | 50% | 0.5 | pound | 3.30 | 0.83 | |
| | Crop Oil Concentrate | Additive | 5 | 50% | 1 | pint | 1.13 | 0.56 | |
| | UAN | Additive | 5 | 50% | 3 | pint | 0.19 | 0.28 | |
| * | Spray | Custom | 6 | 30% | 1 | acre | 7.00 | 2.10 | |
| * | Brigade 2EC | Insecticide | 6 | 10% | 5.12 | ounce | 1.13 | 0.58 | |
| * | Mustang Max EC | Insecticide | 6 | 20% | 2 | ounce | 1.48 | 0.59 | |
| | Haul Grain Bushels | Custom | 9 | 100% | 170 | bushel | 0.11 | 18.70 | |
| | Dry 2 Points Removed | Custom | 10 | 30% | 170 | bushel | 0.08 | 4.08 | |
| | Scouting Dryland Corn | Scouting | | 100% | 1 | acre | 7.00 | 7.00 | |
| | | Crop Insurance | | | | | 24.00 | 0.00 | |
| | **Total Materials & Services** | | | | | | | 238.38 | |

*Insecticides for 1st & 2nd brood European Corn Borer (10% of refuge), Western Bean Cutworm, and Spider Mites, respectively.

| | | | | | |
|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 308.90 |
| Interest on Operations Capital | $ 276.04 | cash expense @ | 5.50% | for 6.0 mo. | 7.59 |
| **Total Operating and Use Related Ownership Costs** | | | | | 316.49 |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 |
| Real Estate Opportunity | Dryland (Eastern) | $ 6,360 | per acre @ | 4.00% | 254.40 |
| Real Estate Taxes | | $ 6,360 | per acre @ | 1.00% | 63.60 |
| **Total Cost per Acre Including Overhead** | | | | | 654.49 |
| **Cost per bu** | | | | | 3.85 |
| **Cash Cost per bu** | | | | | 2.04 |

**2017 Budget 23-Corn, Ecofallow, Follows Wheat, Two Crops in Three Years, RR2, Bt & ECB, 125 bu Yield Goal (115 bu Actual Yield)**
**Dryland**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spray (Prior Year Stubble) | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 2 | Spray (Prior Year Stubble) | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 3 | Spray Fertilizer and Herbicide | 1 | | 1.00 | 0.27 | 0.35 | 0.19 | 1.15 | 2.21 | 5.17 | |
| 4 | Plant No-Till | 1 | | 2.40 | 0.87 | 0.86 | 4.41 | 2.87 | 6.77 | 18.18 | |
| 5 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 6 | Spray | Custom | | | | | | | | | |
| 7 | Combine Dryland Corn | 1 | | 3.14 | 3.88 | 7.31 | 1.53 | 5.99 | 4.64 | 26.49 | |
| 8 | Cart | 115 | bu | 1.64 | 0.58 | 0.64 | 1.05 | 2.14 | 0.67 | 6.72 | |
| 9 | Truck | Custom | | | | | | | | | |
| 10 | Dry Grain | Custom | | | | | | | | | |
| | **Total for Field Operations** | | | 11.18 | 6.41 | 10.21 | 9.10 | 15.60 | 16.93 | 69.43 | |

| | Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|
| | Glyphosate w/Surf | Herbicide | 1 | 100% | 32 | ounce | 0.10 | 3.13 | |
| | 21-0-0-24S | Additive | 1 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| | Rugged | Herbicide | 1 | 100% | 1 | quart | 11.25 | 11.25 | |
| | AAtrex 4L | Herbicide | 2 | 100% | 1.5 | quart | 5.00 | 7.50 | |
| | Glyphosate w/Surf | Herbicide | 2 | 100% | 32 | ounce | 0.10 | 3.13 | |
| | 21-0-0-24S | Additive | 2 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| | 32-0-0 | Fertilizer | 3 | 100% | 115 | lbs N | 0.42 | 48.30 | |
| | AAtrex 4L | Herbicide | 3 | 100% | 0.5 | quart | 5.00 | 2.50 | |
| | Balance Flexx | Herbicide | 3 | 100% | 4 | ounce | 6.00 | 24.00 | |
| | 10-34-0 | Fertilizer | 4 | 100% | 6 | gallon | 2.40 | 14.40 | |
| | Corn ECB & RR2 | Seed | 4 | 80% | 17.7 | k seed | 3.25 | 46.00 | |
| | Corn RR2 | Seed | 4 | 20% | 17.7 | k seed | 3.00 | 10.62 | |
| | Glyphosate w/Surf | Herbicide | 5 | 100% | 32 | ounce | 0.10 | 3.13 | |
| | 21-0-0-24S | Additive | 5 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| | Status | Herbicide | 5 | 50% | 2.5 | ounce | 4.30 | 5.38 | |
| * | Spray | Custom | 6 | 30% | 1 | acre | 7.00 | 2.10 | |
| * | Brigade 2EC | Insecticide | 6 | 10% | 5.12 | ounce | 1.13 | 0.58 | |
| * | Mustang Max EC | Insecticide | 6 | 20% | 2 | ounce | 1.48 | 0.59 | |
| | Haul Grain Bushels | Custom | 9 | 100% | 115 | bushel | 0.11 | 12.65 | |
| | Dry 2 Points Removed | Custom | 10 | 30% | 115 | bushel | 0.08 | 2.76 | |
| | Scouting Dryland Corn | Scouting | | 100% | 1 | acre | 7.00 | 7.00 | |
| | | Crop Insurance | | | | | 17.00 | 0.00 | |
| | **Total Materials & Services** | | | | | | | 206.82 | |

*Insecticides for 1st & 2nd brood European Corn Borer (10% of refuge), Western Bean Cutworm, and Spider Mites, respectively.

| | | | | | |
|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 276.25 |
| Interest on Operations Capital | $ 243.72 | cash expense @ | 5.50% | for 6.0 mo. | 6.70 |
| **Total Operating and Use Related Ownership Costs** | | | | | 282.95 |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 |
| Real Estate Opportunity | Dryland (Southwest) $ 1,955 | per acre @ | 4.00% | | 78.20 |
| Real Estate Taxes | $ 1,955 | per acre @ | 1.00% | | 19.55 |
| **Total Cost per Acre Including Overhead** | | | | | 400.70 |
| **Cost per bu** | | | | | 3.48 |
| **Cash Cost per bu** | | | | | 2.35 |

**2017 Budget 24-Corn, Ridge Till, Bt, ECB & RW, Continuous, 230 bu Yield Goal (215 bu Actual Yield)**
**Gravity Irrigated, 1,000 GPM 10 PSI, 18 acre/inches**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spray Spring Burndown Herbicide | 0.5 | | 0.50 | 0.14 | 0.17 | 0.32 | 0.57 | 0.44 | 2.14 | |
| 2 | Anhydrous Apply | 1 | | 1.83 | 1.37 | 0.72 | 0.58 | 2.39 | 3.94 | 10.83 | |
| 3 | Ridge Plant and Band Herbicide | 1 | | 2.40 | 0.88 | 0.86 | 6.89 | 2.87 | 4.62 | 18.52 | |
| 4 | Ridge Cultivation | 1 | | 2.00 | 1.38 | 0.86 | 0.89 | 2.87 | 1.09 | 9.09 | |
| 5 | Ridge Cultivate/Ditch | 1 | | 1.83 | 1.15 | 0.72 | 0.37 | 2.39 | 1.64 | 8.10 | |
| 6 | Spray | Custom | | | | | | | | | |
| 7 | Spray | Custom | | | | | | | | | |
| 8 | Pipe D 125' Lift | 18 | ai | 33.33 | 62.72 | 4.94 | 3.42 | 8.40 | 6.08 | 118.89 | |
| 9 | Combine Irr Corn | 1 | | 3.14 | 3.88 | 7.31 | 1.53 | 5.99 | 4.64 | 26.49 | |
| 10 | Cart | 215 | bu | 3.07 | 1.08 | 1.21 | 1.97 | 4.00 | 1.26 | 12.59 | |
| 11 | Truck | Custom | | | | | | | | | |
| 12 | Dry Grain | Custom | | | | | | | | | |
| 13 | Chop Stalks | 1 | | 1.78 | 1.20 | 0.70 | 0.35 | 2.32 | 1.72 | 8.07 | |
| | **Total for Field Operations** | | | 49.88 | 73.80 | 17.49 | 16.32 | 31.80 | 25.43 | 214.72 | |

| | Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|
| | 2,4-D Ester 4# | Herbicide | 1 | 50% | 1 | pint | 2.25 | 1.13 | |
| | Glyphosate w/Surf | Herbicide | 1 | 50% | 32 | ounce | 0.10 | 1.56 | |
| | 21-0-0-24S | Additive | 1 | 50% | 1.7 | pound | 0.35 | 0.30 | |
| | 82-0-0 | Fertilizer | 2 | 100% | 215 | lbs N | 0.28 | 60.20 | |
| | Corn Bt, ECB & RW | Seed | 3 | 80% | 33.1 | k seed | 2.88 | 76.08 | |
| | Corn | Seed | 3 | 20% | 33.1 | k seed | 2.50 | 16.54 | |
| * | Capture LFR | Insecticide | 3 | 20% | 6.6 | ounce | 2.81 | 3.71 | |
| | 10-34-0 | Fertilizer | 3 | 100% | 6 | gallon | 2.40 | 14.40 | |
| | Bicep II Magnum | Herbicide | 3 | 40% | 1.8 | quart | 12.00 | 8.64 | |
| | Spray | Custom | 6 | 50% | 1 | acre | 7.00 | 3.50 | |
| | Laudis | Herbicide | 6 | 50% | 3 | ounce | 6.48 | 9.73 | |
| | Atrazine 90 DF | Herbicide | 6 | 50% | 0.5 | pound | 3.30 | 0.83 | |
| | Crop Oil Concentrate | Additive | 6 | 50% | 1 | pint | 1.13 | 0.56 | |
| | UAN | Additive | 6 | 50% | 3 | pint | 0.19 | 0.28 | |
| * | Spray | Custom | 6 | 30% | 1 | acre | 7.00 | 2.10 | |
| * | Brigade 2EC | Insecticide | 6 | 10% | 5.12 | ounce | 1.13 | 0.58 | |
| * | Mustang Max EC | Insecticide | 6 | 20% | 2 | ounce | 1.48 | 0.59 | |
| | Spray | Custom | 7 | 30% | 1 | acre | 7.00 | 2.10 | |
| | Headline AMP | Fungicide | 7 | 30% | 10 | ounce | 2.66 | 7.97 | |
| | Haul Grain Bushels | Custom | 11 | 100% | 215 | bushel | 0.11 | 23.65 | |
| | Dry 2 Points Removed | Custom | 12 | 100% | 215 | bushel | 0.08 | 17.20 | |
| | Scouting Irrigated Corn | Scouting | | 100% | 1 | acre | 9.00 | 9.00 | |
| | | Crop Insurance | | | | | 6.00 | 0.00 | |
| | **Total Materials & Services** | | | | | | | 260.65 | |

*Insecticides for rootworm (refuge), 1st brood European Corn Borer (10% of refuge), Western Bean Cutworm, and Spider Mites, respectively.

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 475.37 | |
| Interest on Operations Capital | $ 418.14 | cash expense @ | 5.50% | for 6.0 mo. | 11.50 | |
| **Total Operating and Use Related Ownership Costs** | | | | | 486.87 | |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 | |
| Real Estate Opportunity | Gravity (State) | $ 6,480 | per acre @ | 4.00% | 259.20 | |
| Real Estate Taxes | | $ 6,480 | per acre @ | 1.00% | 64.80 | |
| **Total Cost per Acre Including Overhead** | | | | | 830.87 | |
| **Cost per bu** | | | | | 3.86 | |
| **Cash Cost per bu** | | | | | 2.30 | |

**2017 Budget 25-Corn, Ridge Till, SmartStax RIB Complete, Continuous, 240 bu Yield Goal (225 bu Actual Yield)**
**Gravity Irrigated, 1,000 GPM 10 PSI, 18 acre/inches**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spray Spring Burndown Herbicide | 0.5 | | 0.50 | 0.14 | 0.17 | 0.32 | 0.57 | 0.44 | 2.14 | |
| 2 | Anhydrous Apply | 1 | | 1.83 | 1.37 | 0.72 | 0.58 | 2.39 | 3.94 | 10.83 | |
| 3 | Ridge Plant and Band Herbicide | 1 | | 2.40 | 0.88 | 0.86 | 6.89 | 2.87 | 4.62 | 18.52 | |
| 4 | Ridge Cultivation | 1 | | 2.00 | 1.38 | 0.86 | 0.89 | 2.87 | 1.09 | 9.09 | |
| 5 | Ridge Cultivate/Ditch | 1 | | 1.83 | 1.15 | 0.72 | 0.37 | 2.39 | 1.64 | 8.10 | |
| 6 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 7 | Spray | Custom | | | | | | | | | |
| 8 | Spray | Custom | | | | | | | | | |
| 9 | Pipe D 125' Lift | 18 | ai | 33.33 | 62.72 | 4.94 | 3.42 | 8.40 | 6.08 | 118.89 | |
| 10 | Combine Irr Corn | 1 | | 3.14 | 3.88 | 7.31 | 1.53 | 5.99 | 4.64 | 26.49 | |
| 11 | Cart | 225 | bu | 3.21 | 1.13 | 1.26 | 2.06 | 4.19 | 1.32 | 13.17 | |
| 12 | Truck | Custom | | | | | | | | | |
| 13 | Dry Grain | Custom | | | | | | | | | |
| 14 | Chop Stalks | 1 | | 1.78 | 1.20 | 0.70 | 0.35 | 2.32 | 1.72 | 8.07 | |
| | **Total for Field Operations** | | | 51.02 | 74.12 | 17.89 | 17.05 | 33.14 | 26.37 | 219.59 | |

| Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|
| 2,4-D Ester 4# | Herbicide | 1 | 50% | 1 | pint | 2.25 | 1.13 | |
| Glyphosate w/Surf | Herbicide | 1 | 50% | 32 | ounce | 0.10 | 1.56 | |
| 21-0-0-24S | Additive | 1 | 50% | 1.7 | pound | 0.35 | 0.30 | |
| 82-0-0 | Fertilizer | 2 | 100% | 225 | lbs N | 0.28 | 63.00 | |
| Corn SmartStax RIB Complete | Seed | 3 | 100% | 34.6 | k seed | 4.13 | 142.79 | |
| 10-34-0 | Fertilizer | 3 | 100% | 6 | gallon | 2.40 | 14.40 | |
| Bicep II Magnum | Herbicide | 3 | 40% | 1.8 | quart | 12.00 | 8.64 | |
| Glyphosate w/Surf | Herbicide | 6 | 100% | 32 | ounce | 0.10 | 3.13 | |
| 21-0-0-24S | Additive | 6 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| Status | Herbicide | 6 | 100% | 2.5 | ounce | 4.30 | 10.75 | |
| Spray | Custom | 7 | 10% | 1 | acre | 7.00 | 0.70 | |
| Brigade 2EC | Insecticide | 7 | 10% | 5.12 | ounce | 1.13 | 0.58 | |
| Spray | Custom | 8 | 30% | 1 | acre | 7.00 | 2.10 | |
| Headline AMP | Fungicide | 8 | 30% | 10 | ounce | 2.66 | 7.97 | |
| Haul Grain Bushels | Custom | 12 | 100% | 225 | bushel | 0.11 | 24.75 | |
| Dry 2 Points Removed | Custom | 13 | 100% | 225 | bushel | 0.08 | 18.00 | |
| Scouting Irrigated Corn | Scouting | | 100% | 1 | acre | 9.00 | 9.00 | |
| | Crop Insurance | | | | | 6.00 | 0.00 | |
| **Total Materials & Services** | | | | | | | 309.40 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 528.99 | |
| Interest on Operations Capital | $ 469.48 | cash expense @ | 5.50% | for 6.0 mo. | 12.91 | |
| **Total Operating and Use Related Ownership Costs** | | | | | 541.90 | |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 | |
| Real Estate Opportunity | Gravity (State) | $ 6,480 | per acre @ | 4.00% | 259.20 | |
| Real Estate Taxes | | $ 6,480 | per acre @ | 1.00% | 64.80 | |
| **Total Cost per Acre Including Overhead** | | | | | 885.90 | |
| **Cost per bu** | | | | | 3.94 | |
| **Cash Cost per bu** | | | | | 2.43 | |

**2017 Budget 26-Corn, Panhandle Continuous, SmartStax RIB Complete, 190 bu Yield Goal (180 bu Actual Yield)**
**Canal Irrigated, Gravity, 15 acre/inches**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Disk | 1 | | 2.02 | 1.97 | 0.30 | 1.27 | 4.32 | 1.23 | 11.11 | |
| 2 | Field Cultivation | 1 | | 1.47 | 1.41 | 0.58 | 1.33 | 1.91 | 1.64 | 8.34 | |
| 3 | Spray Fertilizer and Herbicide | 1 | | 1.00 | 0.27 | 0.35 | 0.19 | 1.15 | 2.21 | 5.17 | |
| 4 | Plant | 1 | | 2.40 | 0.71 | 0.86 | 2.54 | 2.87 | 3.89 | 13.27 | |
| 5 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 6 | Row Crop Cultivation | 1 | | 2.00 | 0.82 | 0.78 | 0.44 | 2.60 | 1.64 | 8.28 | |
| 7 | Ridge Cultivate/Ditch | 1 | | 1.83 | 1.15 | 0.72 | 0.37 | 2.39 | 1.64 | 8.10 | |
| 8 | Spray | Custom | | | | | | | | | |
| 9 | Spray | Custom | | | | | | | | | |
| 10 | Combine Irr Corn | 1 | | 3.14 | 3.88 | 7.31 | 1.53 | 5.99 | 4.64 | 26.49 | |
| 11 | Cart | 180 | bu | 2.57 | 0.91 | 1.01 | 1.65 | 3.35 | 1.05 | 10.54 | |
| 12 | Truck | Custom | | | | | | | | | |
| 13 | Dry Grain | Custom | | | | | | | | | |
| 14 | Chop Stalks | 1 | | 1.78 | 1.20 | 0.70 | 0.35 | 2.32 | 1.72 | 8.07 | |
| 15 | Ditch Irrigation | 15 | ai | 16.67 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 16.67 | |
| | **Total for Field Operations** | | | 35.88 | 12.59 | 12.96 | 10.31 | 28.05 | 20.54 | 120.33 | |

| Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|
| 32-0-0 | Fertilizer | 3 | 100% | 180 | lbs N | 0.42 | 75.60 | |
| Balance Flexx | Herbicide | 3 | 100% | 4 | ounce | 6.00 | 24.00 | |
| Bicep II Magnum | Herbicide | 3 | 100% | 2.1 | quart | 12.00 | 25.20 | |
| 10-34-0 | Fertilizer | 4 | 100% | 8 | gallon | 2.40 | 19.20 | |
| Corn SmartStax RIB Complete | Seed | 4 | 100% | 36.7 | k seed | 4.13 | 151.39 | |
| 32-0-0 | Fertilizer | 5 | 100% | 40 | lbs N | 0.42 | 16.80 | |
| Spray | Custom | 8 | 10% | 1 | acre | 7.00 | 0.70 | |
| Brigade 2EC | Insecticide | 8 | 10% | 5.12 | ounce | 1.13 | 0.58 | |
| Spray | Custom | 9 | 10% | 1 | acre | 7.00 | 0.70 | |
| Headline AMP | Fungicide | 9 | 10% | 10 | ounce | 2.66 | 2.66 | |
| Haul Grain Bushels | Custom | 12 | 100% | 180 | bushel | 0.11 | 19.80 | |
| Dry 2 Points Removed | Custom | 13 | 10% | 180 | bushel | 0.08 | 1.44 | |
| Irrigation District O&M Charge | Other | 15 | 100% | 1 | acre | 30.00 | 30.00 | |
| Scouting Irrigated Corn | Scouting | | 100% | 1 | acre | 9.00 | 9.00 | |
| | Crop Insurance | | | | | 6.00 | 0.00 | |
| **Total Materials & Services** | | | | | | | 377.07 | |

| | | | | | |
|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 497.40 |
| Interest on Operations Capital | $ 448.81 | cash expense @ | 5.50% | for 6.0 mo. | 12.34 |
| **Total Operating and Use Related Ownership Costs** | | | | | 509.74 |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 |
| Real Estate Opportunity | Gravity (Panhandle) | $ 2,970 | per acre @ | 4.00% | 118.80 |
| Real Estate Taxes | | $ 2,970 | per acre @ | 1.00% | 29.70 |
| **Total Cost per Acre Including Overhead** | | | | | 678.24 |
| **Cost per bu** | | | | | 3.77 |
| **Cash Cost per bu** | | | | | 2.56 |

**2017 Budget 27-Corn, No-Till, Bt, ECB & RW, Continuous, 240 bu Yield Goal (225 bu Actual Yield)**
**Pivot Irrigated, 800 GPM 35 PSI, 9 acre/inches**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spray Spring Burndown Herbicide | 0.5 | | 0.50 | 0.14 | 0.17 | 0.32 | 0.57 | 0.44 | 2.14 | |
| 2 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 3 | Plant No-Till | 1 | | 2.40 | 0.87 | 0.86 | 4.41 | 2.87 | 6.77 | 18.18 | |
| 4 | Pivot D 125' Lift w/fertigation | 9 | ai | 8.33 | 43.21 | 3.09 | 15.56 | 4.47 | 9.31 | 83.97 | |
| 5 | Spray | 0.5 | | 0.50 | 0.14 | 0.17 | 0.32 | 0.57 | 0.44 | 2.14 | |
| 6 | Spray | Custom | | | | | | | | | |
| 7 | Spray | Custom | | | | | | | | | |
| 8 | Combine Irr Corn | 1 | | 3.14 | 3.88 | 7.31 | 1.53 | 5.99 | 4.64 | 26.49 | |
| 9 | Cart | 225 | bu | 3.21 | 1.13 | 1.26 | 2.06 | 4.19 | 1.32 | 13.17 | |
| 10 | Truck | Custom | | | | | | | | | |
| 11 | Dry Grain | Custom | | | | | | | | | |
| | **Total for Field Operations** | | | 19.08 | 49.64 | 13.21 | 24.84 | 19.81 | 23.80 | 150.38 | |

| | Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|
| | 2,4-D Ester 4# | Herbicide | 1 | 50% | 1 | pint | 2.25 | 1.13 | |
| | Glyphosate w/Surf | Herbicide | 1 | 50% | 32 | ounce | 0.10 | 1.56 | |
| | 21-0-0-24S | Additive | 1 | 50% | 1.7 | pound | 0.35 | 0.30 | |
| | Lumax EZ | Herbicide | 2 | 100% | 2.7 | quart | 20.00 | 54.00 | |
| | Atrazine 4L | Herbicide | 3 | 100% | 1.0 | quart | 3.50 | 3.50 | |
| | Corn Bt, ECB & RW | Seed | 3 | 80% | 34.6 | k seed | 2.88 | 79.62 | |
| | Corn | Seed | 3 | 20% | 34.6 | k seed | 2.50 | 17.31 | |
| * | Capture LFR | Insecticide | 3 | 20% | 6.6 | ounce | 2.81 | 3.71 | |
| | 10-34-0 | Fertilizer | 3 | 100% | 6 | gallon | 2.40 | 14.40 | |
| | 32-0-0 (Applied by R2) | Fertilizer | 4 | 100% | 225 | lbs N | 0.42 | 94.50 | |
| | Laudis | Herbicide | 5 | 50% | 3 | ounce | 6.48 | 9.73 | |
| | Atrazine 90 DF | Herbicide | 5 | 50% | 0.5 | pound | 3.30 | 0.83 | |
| | Crop Oil Concentrate | Additive | 5 | 50% | 1 | pint | 1.13 | 0.56 | |
| | UAN | Additive | 5 | 50% | 3 | pint | 0.19 | 0.28 | |
| * | Spray | Custom | 6 | 30% | 1 | acre | 7.00 | 2.10 | |
| * | Brigade 2EC | Insecticide | 6 | 10% | 5.12 | ounce | 1.13 | 0.58 | |
| * | Mustang Max EC | Insecticide | 6 | 20% | 2 | ounce | 1.48 | 0.59 | |
| | Spray | Custom | 7 | 30% | 1 | acre | 7.00 | 2.10 | |
| | Headline AMP | Fungicide | 7 | 30% | 10 | ounce | 2.66 | 7.97 | |
| | Haul Grain Bushels | Custom | 10 | 100% | 225 | bushel | 0.11 | 24.75 | |
| | Dry 2 Points Removed | Custom | 11 | 100% | 225 | bushel | 0.08 | 18.00 | |
| | Scouting Irrigated Corn | Scouting | | 100% | 1 | acre | 9.00 | 9.00 | |
| | | Crop Insurance | | | | | 6.00 | 0.00 | |
| | **Total Materials & Services** | | | | | | | 346.52 | |

*Insecticides for rootworm (refuge), 1st brood European Corn Borer (10% of refuge), Western Bean Cutworm, and Spider Mites, respectively.

| | | | | | |
|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 496.90 |
| Interest on Operations Capital | $ 453.29 | cash expense @ | 5.50% | for 6.0 mo. | 12.47 |
| **Total Operating and Use Related Ownership Costs** | | | | | 509.37 |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 |
| Real Estate Opportunity | Pivot (State) | $ 6,940 | per acre @ | 4.00% | 277.60 |
| Real Estate Taxes | | $ 6,940 | per acre @ | 1.00% | 69.40 |
| **Total Cost per Acre Including Overhead** | | | | | 876.37 |
| **Cost per bu** | | | | | 3.89 |
| **Cash Cost per bu** | | | | | 2.38 |

**2017 Budget 28-Corn, No-Till, SmartStax RIB Complete, Continuous, 250 bu Yield Goal (235 bu Actual Yield)**
**Pivot Irrigated, 800 GPM 35 PSI, 9 acre/inches**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spray Spring Burndown Herbicide | 0.5 | | 0.50 | 0.14 | 0.17 | 0.32 | 0.57 | 0.44 | 2.14 | |
| 2 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 3 | Plant | 1 | | 2.40 | 0.71 | 0.86 | 2.54 | 2.87 | 3.89 | 13.27 | |
| 4 | Spray | 0.5 | | 0.50 | 0.14 | 0.17 | 0.32 | 0.57 | 0.44 | 2.14 | |
| 5 | Spray | Custom | | | | | | | | | |
| 6 | Spray | Custom | | | | | | | | | |
| 7 | Pivot D 125' Lift w/fertigation | 9 | ai | 8.33 | 43.21 | 3.09 | 15.56 | 4.47 | 9.31 | 83.97 | |
| 8 | Combine Irr Corn | 1 | | 3.14 | 3.88 | 7.31 | 1.53 | 5.99 | 4.64 | 26.49 | |
| 9 | Cart | 235 | | 3.36 | 1.18 | 1.32 | 2.15 | 4.37 | 1.38 | 13.76 | |
| 10 | Truck | Custom | bu | | | | | | | | |
| 11 | Dry Grain | Custom | | | | | | | | | |
| | **Total for Field Operations** | | | 19.23 | 49.53 | 13.27 | 23.06 | 19.99 | 20.98 | 146.06 | |

| Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|
| 2,4-D Ester 4# | Herbicide | 1 | 50% | 1 | pint | 2.25 | 1.13 | |
| Glyphosate w/Surf | Herbicide | 1 | 50% | 32 | ounce | 0.10 | 1.56 | |
| 21-0-0-24S | Additive | 1 | 50% | 1.7 | pound | 0.35 | 0.30 | |
| Lumax EZ | Herbicide | 2 | 100% | 2.7 | quart | 20.00 | 54.00 | |
| Corn SmartStax RIB Complete | Seed | 3 | 100% | 36.2 | k seed | 4.13 | 149.13 | |
| 10-34-0 | Fertilizer | 3 | 100% | 6 | gallon | 2.40 | 14.40 | |
| 32-0-0 (Applied by R2) | Fertilizer | 7 | 100% | 235 | lbs N | 0.42 | 98.70 | |
| Glyphosate w/Surf | Herbicide | 4 | 50% | 32 | ounce | 0.10 | 1.56 | |
| 21-0-0-24S | Additive | 4 | 50% | 1.7 | pound | 0.35 | 0.30 | |
| Status | Herbicide | 4 | 50% | 2.5 | ounce | 4.30 | 5.38 | |
| Spray | Custom | 5 | 10% | 1 | acre | 7.00 | 0.70 | |
| Brigade 2EC | Insecticide | 5 | 10% | 5.12 | ounce | 1.13 | 0.58 | |
| Spray | Custom | 6 | 30% | 1 | acre | 7.00 | 2.10 | |
| Headline AMP | Fungicide | 6 | 30% | 10 | ounce | 2.66 | 7.97 | |
| Haul Grain Bushels | Custom | 10 | 100% | 235 | bushel | 0.11 | 25.85 | |
| Dry 2 Points Removed | Custom | 11 | 100% | 235 | bushel | 0.08 | 18.80 | |
| Scouting Irrigated Corn | Scouting | | 100% | 1 | acre | 9.00 | 9.00 | |
| | Crop Insurance | | | | | 6.00 | 0.00 | |
| **Total Materials & Services** | | | | | | | 391.46 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 537.52 | |
| Interest on Operations Capital | $ 496.55 | cash expense @ | 5.50% | for 6.0 mo. | 13.66 | |
| **Total Operating and Use Related Ownership Costs** | | | | | 551.18 | |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 | |
| Real Estate Opportunity | Pivot (State) | $ 6,940 | per acre @ | 4.00% | 277.60 | |
| Real Estate Taxes | | $ 6,940 | per acre @ | 1.00% | 69.40 | |
| **Total Cost per Acre Including Overhead** | | | | | 918.18 | |
| **Cost per bu** | | | | | 3.91 | |
| **Cash Cost per bu** | | | | | 2.47 | |

# Table of Budgets (Continued)

**2017 Budget 29-Corn, Bt, ECB & RW, Continuous, 230 bu Yield Goal (215 bu Actual Yield)**
**Pivot Irrigated, 800 GPM 35 PSI, 13 acre/inches**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Disk | 1 | | 2.02 | 1.97 | 0.30 | 1.27 | 4.32 | 1.23 | 11.11 | |
| 2 | Field Cultivation | 1 | | 1.47 | 1.41 | 0.58 | 1.33 | 1.91 | 1.64 | 8.34 | |
| 3 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 4 | Plant | 1 | | 2.40 | 0.71 | 0.86 | 2.54 | 2.87 | 3.89 | 13.27 | |
| 5 | Row Crop Cultivation | 1 | | 2.00 | 0.82 | 0.78 | 0.44 | 2.60 | 1.64 | 8.28 | |
| 6 | Row Crop Cultivation | 0.25 | | 0.50 | 0.21 | 0.20 | 0.11 | 0.65 | 0.41 | 2.08 | |
| 7 | Spray | Custom | | | | | | | | | |
| 8 | Spray | Custom | | | | | | | | | |
| 9 | Pivot D 125' Lift w/fertigation | 13 | ai | 12.04 | 62.42 | 4.46 | 22.48 | 6.46 | 13.45 | 121.31 | |
| 10 | Combine Irr Corn | 1 | | 3.14 | 3.88 | 7.31 | 1.53 | 5.99 | 4.64 | 26.49 | |
| 11 | Cart | 215 | bu | 3.07 | 1.08 | 1.21 | 1.97 | 4.00 | 1.26 | 12.59 | |
| 12 | Truck | Custom | | | | | | | | | |
| 13 | Dry Grain | Custom | | | | | | | | | |
| 14 | Chop Stalks | 1 | | 1.78 | 1.20 | 0.70 | 0.35 | 2.32 | 1.72 | 8.07 | |
| | **Total for Field Operations** | | | 29.42 | 73.97 | 16.75 | 32.66 | 32.27 | 30.76 | 215.83 | |

| | Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|
| | Balance Flexx | Herbicide | 3 | 100% | 4 | ounce | 6.00 | 24.00 | |
| | Bicep II Magnum | Herbicide | 3 | 100% | 2.1 | quart | 12.00 | 25.20 | |
| | Corn Bt, ECB & RW | Seed | 4 | 80% | 33.1 | k seed | 2.88 | 76.08 | |
| | Corn | Seed | 4 | 20% | 33.1 | k seed | 2.50 | 16.54 | |
| | 10-34-0 | Fertilizer | 4 | 100% | 6 | gallon | 2.40 | 14.40 | |
| * | Capture LFR | Insecticide | 4 | 20% | 6.6 | ounce | 2.81 | 3.71 | |
| | 32-0-0 (Applied by R2) | Fertilizer | 9 | 100% | 215 | lbs N | 0.42 | 90.30 | |
| * | Spray | Custom | 7 | 30% | 1 | acre | 7.00 | 2.10 | |
| * | Brigade 2EC | Insecticide | 7 | 10% | 5.12 | ounce | 1.13 | 0.58 | |
| * | Mustang Max EC | Insecticide | 7 | 20% | 2 | ounce | 1.48 | 0.59 | |
| | Spray | Custom | 8 | 30% | 1 | acre | 7.00 | 2.10 | |
| | Headline AMP | Fungicide | 8 | 30% | 10 | ounce | 2.66 | 7.97 | |
| | Haul Grain Bushels | Custom | 12 | 100% | 215 | bushel | 0.11 | 23.65 | |
| | Dry 2 Points Removed | Custom | 13 | 100% | 215 | bushel | 0.08 | 17.20 | |
| | Scouting Irrigated Corn | Scouting | | 100% | 1 | acre | 9.00 | 9.00 | |
| | | Crop Insurance | | | | | 6.00 | 0.00 | |
| | **Total Materials & Services** | | | | | | | 313.42 | |

*Insecticides for rootworm (refuge), 1st brood European Corn Borer (10% of refuge), Western Bean Cutworm, and Spider Mites, respectively.

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | | 529.25 |
| Interest on Operations Capital | $ 466.22 | cash expense @ | 5.50% | for 6.0 mo. | | 12.82 |
| **Total Operating and Use Related Ownership Costs** | | | | | | 542.07 |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | | 20.00 |
| Real Estate Opportunity | Pivot (State) | $ 6,940 | per acre @ | 4.00% | | 277.60 |
| Real Estate Taxes | | $ 6,940 | per acre @ | 1.00% | | 69.40 |
| **Total Cost per Acre Including Overhead** | | | | | | 909.07 |
| **Cost per bu** | | | | | | 4.23 |
| **Cash Cost per bu** | | | | | | 2.55 |

**2017 Budget 30-Corn, Panhandle, SmartStax RIB Complete, 190 bu Yield Goal (180 bu Actual Yield)**
**Pivot Irrigated, 800 GPM 35 PSI, 13 acre/inches**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Disk | 1 | | 2.02 | 1.97 | 0.30 | 1.27 | 4.32 | 1.23 | 11.11 | |
| 2 | Field Cultivation | 1 | | 1.47 | 1.41 | 0.58 | 1.33 | 1.91 | 1.64 | 8.34 | |
| 3 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 4 | Plant | 1 | | 2.40 | 0.71 | 0.86 | 2.54 | 2.87 | 3.89 | 13.27 | |
| 5 | Row Crop Cultivation | 1 | | 2.00 | 0.82 | 0.78 | 0.44 | 2.60 | 1.64 | 8.28 | |
| 6 | Spray | Custom | | | | | | | | | |
| 7 | Aerial Spray | Custom | | | | | | | | | |
| 8 | Aerial Spray | Custom | | | | | | | | | |
| 9 | Pivot E 125' Lift w/fertigation | 13 | | 12.04 | 36.23 | 3.80 | 22.48 | 6.89 | 13.45 | 94.89 | |
| 10 | Combine Irr Corn | 1 | | 3.14 | 3.88 | 7.31 | 1.53 | 5.99 | 4.64 | 26.49 | |
| 11 | Cart | 180 | bu | 2.57 | 0.91 | 1.01 | 1.65 | 3.35 | 1.05 | 10.54 | |
| 12 | Truck | Custom | | | | | | | | | |
| 13 | Chop Stalks | 1 | | 1.78 | 1.20 | 0.70 | 0.35 | 2.32 | 1.72 | 8.07 | |
| | **Total for Field Operations** | | | 28.42 | 47.40 | 15.69 | 32.23 | 31.40 | 30.14 | 185.28 | |

| Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|
| 32-0-0 | Fertilizer | 3 | 100% | 180 | lbs N | 0.42 | 75.60 | |
| Balance Flexx | Herbicide | 3 | 100% | 4 | ounce | 6.00 | 24.00 | |
| Bicep II Magnum | Herbicide | 3 | 100% | 2.1 | quart | 12.00 | 25.20 | |
| 10-34-0 | Fertilizer | 4 | 100% | 8 | gallon | 2.40 | 19.20 | |
| Corn SmartStax RIB Complete | Seed | 4 | 100% | 36.8 | k seed | 4.13 | 151.80 | |
| 32-0-0 (Applied by R2) | Fertilizer | 8 | 100% | 40 | lbs N | 0.42 | 16.80 | |
| Spray | Custom | 6 | 100% | 1 | acre | 7.00 | 7.00 | |
| Glyphosate w/Surf | Herbicide | 6 | 100% | 32 | ounce | 0.10 | 3.13 | |
| Dicamba | Herbicide | 6 | 100% | 12 | ounce | 0.39 | 4.69 | |
| Aerial Spray | Custom | 7 | 10% | 1 | acre | 10.00 | 1.00 | |
| Brigade 2EC | Insecticide | 7 | 10% | 5.12 | ounce | 1.13 | 0.58 | |
| Aerial Spray | Custom | 7 | 10% | 1 | acre | 10.00 | 1.00 | |
| Headline AMP | Fungicide | 7 | 10% | 10 | ounce | 2.66 | 2.66 | |
| Electricity Fixed | Other | 8 | 100% | 1 | acre | 30.00 | 30.00 | |
| Haul Grain Bushels | Custom | 11 | 100% | 180 | bushel | 0.11 | 19.80 | |
| Dry 2 Points Removed | Custom | 11 | 10% | 180 | bushel | 0.08 | 1.44 | |
| Scouting Irrigated Corn | Scouting | | 100% | 1 | acre | 9.00 | 9.00 | |
| | Crop Insurance | | | | | 6.00 | 0.00 | |
| **Total Materials & Services** | | | | | | | 392.90 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | | 578.18 |
| Interest on Operations Capital | $ 516.64 | cash expense @ | 5.50% | for 6.0 mo. | | 14.21 |
| **Total Operating and Use Related Ownership Costs** | | | | | | 592.39 |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | | 20.00 |
| Real Estate Opportunity | Pivot (Panhandle) | $ 3,290 | per acre @ | 4.00% | | 131.60 |
| Real Estate Taxes | | $ 3,290 | per acre @ | 1.00% | | 32.90 |
| **Total Cost per Acre Including Overhead** | | | | | | 776.89 |
| **Cost per bu** | | | | | | 4.32 |
| **Cash Cost per bu** | | | | | | 2.95 |

**2017 Budget 31-Corn, SmartStax RIB Complete, Continuous 240 bu Yield Goal (225 bu Actual Yield)**
**Pivot Irrigated, 800 GPM 35 PSI, 13 acre/inches**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Disk | 1 | | 2.02 | 1.97 | 0.30 | 1.27 | 4.32 | 1.23 | 11.11 | |
| 2 | Field Cultivation | 1 | | 1.47 | 1.41 | 0.58 | 1.33 | 1.91 | 1.64 | 8.34 | |
| 3 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 4 | Plant | 1 | | 2.40 | 0.71 | 0.86 | 2.54 | 2.87 | 3.89 | 13.27 | |
| 5 | Row Crop Cultivation | 1 | | 2.00 | 0.82 | 0.78 | 0.44 | 2.60 | 1.64 | 8.28 | |
| 6 | Row Crop Cultivation | 0.25 | | 0.50 | 0.21 | 0.20 | 0.11 | 0.65 | 0.41 | 2.08 | |
| 7 | Spray | Custom | | | | | | | | | |
| 8 | Spray | Custom | | | | | | | | | |
| 9 | Pivot D 125' Lift w/fertigation | 13 | ai | 12.04 | 62.42 | 4.46 | 22.48 | 6.46 | 13.45 | 121.31 | |
| 10 | Combine Irr Corn | 1 | | 3.14 | 3.88 | 7.31 | 1.53 | 5.99 | 4.64 | 26.49 | |
| 11 | Cart | 225 | bu | 3.21 | 1.13 | 1.26 | 2.06 | 4.19 | 1.32 | 13.17 | |
| 12 | Truck | Custom | | | | | | | | | |
| 13 | Dry Grain | Custom | | | | | | | | | |
| 14 | Chop Stalks | 1 | | 1.78 | 1.20 | 0.70 | 0.35 | 2.32 | 1.72 | 8.07 | |
| | **Total for Field Operations** | | | 29.56 | 74.02 | 16.80 | 32.75 | 32.46 | 30.82 | 216.41 | |

| Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|
| Balance Flexx | Herbicide | 3 | 100% | 4 | ounce | 6.00 | 24.00 | |
| Bicep II Magnum | Herbicide | 3 | 100% | 2.1 | quart | 12.00 | 25.20 | |
| Corn SmartStax RIB Complete | Seed | 4 | 100% | 34.6 | k seed | 4.13 | 142.79 | |
| 10-34-0 | Fertilizer | 4 | 100% | 6 | gallon | 2.40 | 14.40 | |
| 32-0-0 (Applied by R2) | Fertilizer | 9 | 100% | 225 | lbs N | 0.42 | 94.50 | |
| Spray | Custom | 7 | 10% | 1 | acre | 7.00 | 0.70 | |
| Brigade 2EC | Insecticide | 7 | 10% | 5.12 | ounce | 1.13 | 0.58 | |
| Spray | Custom | 8 | 30% | 1 | acre | 7.00 | 2.10 | |
| Headline AMP | Fungicide | 8 | 30% | 10 | ounce | 2.66 | 7.97 | |
| Haul Grain Bushels | Custom | 12 | 100% | 225 | bushel | 0.11 | 24.75 | |
| Dry 2 Points Removed | Custom | 13 | 100% | 225 | bushel | 0.08 | 18.00 | |
| Scouting Irrigated Corn | Scouting | | 100% | 1 | acre | 9.00 | 9.00 | |
| | Crop Insurance | | | | | 6.21 | 0.00 | |
| **Total Materials & Services** | 31,200 | seeds per acre, 80,000 per bag, 5% Refuge | | | | | 363.99 | |

| | | | | | |
|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 580.40 |
| Interest on Operations Capital | $ 517.12 | cash expense @ | 5.50% | for 6.0 mo. | 14.22 |
| **Total Operating and Use Related Ownership Costs** | | | | | 594.62 |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 |
| Real Estate Opportunity | Pivot (State) | $ 6,940 | per acre @ | 4.00% | 277.60 |
| Real Estate Taxes | | $ 6,940 | per acre @ | 1.00% | 69.40 |
| **Total Cost per Acre Including Overhead** | | | | | 961.62 |
| **Cost per bu** | | | | | 4.27 |
| **Cash Cost per bu** | | | | | 2.67 |

**2017 Budget 32-Corn, No-Till, Bt & ECB, after Beans, 240 bu Yield Goal (225 bu Actual Yield)**
**Pivot Irrigated, 800 GPM 35 PSI, 9 acre/inches**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spray Spring Burndown Herbicide | 0.5 | | 0.50 | 0.14 | 0.17 | 0.32 | 0.57 | 0.44 | 2.14 | |
| 2 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 3 | Plant No-Till | 1 | | 2.40 | 0.87 | 0.86 | 4.41 | 2.87 | 6.77 | 18.18 | |
| 4 | Pivot D 125' Lift w/fertigation | 9 | ai | 8.33 | 43.21 | 3.09 | 15.56 | 4.47 | 9.31 | 83.97 | |
| 5 | Spray | 0.5 | | 0.50 | 0.14 | 0.17 | 0.32 | 0.57 | 0.44 | 2.14 | |
| 6 | Spray | Custom | | | | | | | | | |
| 7 | Spray | Custom | | | | | | | | | |
| 8 | Combine Irr Corn | 1 | | 3.14 | 3.88 | 7.31 | 1.53 | 5.99 | 4.64 | 26.49 | |
| 9 | Cart | 225 | bu | 3.21 | 1.13 | 1.26 | 2.06 | 4.19 | 1.32 | 13.17 | |
| 10 | Truck | Custom | | | | | | | | | |
| 11 | Dry Grain | Custom | | | | | | | | | |
| | **Total for Field Operations** | | | 19.08 | 49.64 | 13.21 | 24.84 | 19.81 | 23.80 | 150.38 | |

| | Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|
| | Glyphosate w/Surf | Herbicide | 1 | 50% | 32 | ounce | 0.10 | 1.56 | |
| | 2,4-D Ester 4# | Herbicide | 1 | 50% | 1 | pint | 2.25 | 1.13 | |
| | 21-0-0-24S | Additive | 1 | 50% | 1.7 | pound | 0.35 | 0.30 | |
| | Acuron | Herbicide | 2 | 100% | 2.5 | quart | 19.25 | 48.13 | |
| | Crop Oil Concentrate | Additive | 2 | 100% | 1.6 | pint | 1.13 | 1.80 | |
| | 21-0-0-24S | Additive | 2 | 100% | 2.5 | pound | 0.35 | 0.88 | |
| | Corn Bt & ECB | Seed | 3 | 80% | 34.6 | k seed | 2.88 | 79.62 | |
| | Corn | Seed | 3 | 20% | 34.6 | k seed | 2.50 | 17.31 | |
| | 10-34-0 | Fertilizer | 3 | 100% | 6.0 | gallon | 2.40 | 14.40 | |
| | 32-0-0 (Applied by R2) | Fertilizer | 4 | 100% | 180.0 | lbs N | 0.42 | 75.60 | |
| | Laudis | Herbicide | 5 | 50% | 3 | ounce | 6.48 | 9.73 | |
| | Atrazine 90 DF | Herbicide | 5 | 50% | 1 | pound | 3.30 | 0.83 | |
| | Crop Oil Concentrate | Additive | 5 | 50% | 0.5 | pint | 1.13 | 0.28 | |
| | UAN | Additive | 5 | 50% | 3 | pint | 0.19 | 0.28 | |
| * | Spray | Custom | 6 | 30% | 1 | acre | 7.00 | 2.10 | |
| * | Brigade 2EC | Insecticide | 6 | 10% | 5.12 | ounce | 1.13 | 0.58 | |
| * | Mustang Max EC | Insecticide | 6 | 20% | 2 | ounce | 1.48 | 0.59 | |
| | Spray | Custom | 7 | 20% | 1 | acre | 7.00 | 1.40 | |
| | Headline AMP | Fungicide | 7 | 20% | 10 | ounce | 2.66 | 5.31 | |
| | Haul Grain Bushels | Custom | 10 | 100% | 225 | bushel | 0.11 | 24.75 | |
| | Dry 2 Points Removed | Custom | 11 | 50% | 225 | bushel | 0.08 | 9.00 | |
| | Scouting Irrigated Corn | Scouting | | 100% | 1 | acre | 9.00 | 9.00 | |
| | | Crop Insurance | | | | | 6.21 | 0.00 | |
| | **Total Materials & Services** | | | | | | | 304.58 | |

*Insecticide for 1st brood European Corn Borer (10% of refuge), Western Bean Cutworm, and Spider Mites, respectively.

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | | 454.96 |
| Interest on Operations Capital | $ 411.35 | cash expense @ | 5.50% | for 6.0 mo. | | 11.31 |
| **Total Operating and Use Related Ownership Costs** | | | | | | 466.27 |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | | 20.00 |
| Real Estate Opportunity | Pivot (State) | $ 6,940 | per acre @ | 4.00% | | 277.60 |
| Real Estate Taxes | | $ 6,940 | per acre @ | 1.00% | | 69.40 |
| **Total Cost per Acre Including Overhead** | | | | | | 833.27 |
| **Cost per bu** | | | | | | 3.70 |
| **Cash Cost per bu** | | | | | | 2.19 |

**2017 Budget 33-Corn, Silage, No-Till following Corn (26 ton Actual Yield)**
**Pivot Irrigated, 800 GPM 35 PSI, 12 acre/inches**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 2 | Spread Manure | Custom | | | | | | | | | |
| 3 | Plant No-Till | 1 | | 2.40 | 0.87 | 0.86 | 4.41 | 2.87 | 6.77 | 18.18 | |
| 4 | Spray | Custom | | | | | | | | | |
| 5 | Pivot D 125' Lift | 12 | ai | 8.33 | 57.62 | 4.12 | 19.37 | 5.96 | 11.58 | 106.98 | |
| 6 | Aerial Spray | Custom | | | | | | | | | |
| 7 | Chop Silage | Custom | | | | | | | | | |
| | **Total for Field Operations** | | | 11.73 | 58.76 | 5.33 | 24.42 | 9.98 | 19.23 | 129.45 | |

| | Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|
| | 2,4-D Ester 4# | Herbicide | 1 | 100% | 1 | pint | 2.25 | 2.25 | |
| | Uncomposted manure | Fertilizer | 2 | 100% | 20 | ton | 1.00 | 20.00 | |
| | Haul & Apply Manure | Custom | 2 | 100% | 20 | ton | 6.00 | 120.00 | |
| | Bicep II Magnum | Herbicide | 3 | 100% | 1.4 | quart | 12.00 | 16.80 | |
| | Corn | Seed | 3 | 100% | 30.8 | k seed | 2.50 | 76.92 | |
| * | Capture LFR | Insecticide | 3 | 100% | 6.6 | ounce | 2.81 | 18.56 | |
| | Spray | Custom | 4 | 50% | 1 | acre | 7.00 | 3.50 | |
| | Status | Herbicide | 4 | 50% | 5 | ounce | 4.30 | 10.75 | |
| | NIS | Additive | 4 | 50% | 6 | ounce | 0.13 | 0.38 | |
| | UAN | Additive | 4 | 50% | 4 | pint | 0.19 | 0.38 | |
| * | Aerial Spray | Custom | 6 | 15% | 1 | acre | 10.00 | 1.50 | |
| * | Brigade 2EC | Insecticide | 6 | 10% | 2.5 | ounce | 1.13 | 0.28 | |
| * | Mustang Max EC | Insecticide | 6 | 5% | 2 | ounce | 1.48 | 0.15 | |
| | Chop, Haul, Pack | Custom | 7 | 100% | 25 | ton | 10.75 | 268.75 | |
| | Scouting Irrigated Corn | Scouting | | 100% | 1 | acre | 9.00 | 9.00 | |
| | | Crop Insurance | | | | | 6.00 | 0.00 | |
| | **Total Materials & Services** | | | | | | | 549.22 | |

*Insecticide for rootworm, 1st & 2nd brood European Corn Borer Western and Bean Cutworm, respectively.

| | | | | | |
|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 678.67 |
| Interest on Operations Capital | $ 649.46 | cash expense @ | 5.50% | for 6.0 mo. | 17.86 |
| **Total Operating and Use Related Ownership Costs** | | | | | 696.53 |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 |
| Real Estate Opportunity | Pivot (State) | $ 6,940 | per acre @ | 4.00% | 277.60 |
| Real Estate Taxes | | $ 6,940 | per acre @ | 1.00% | 69.40 |
| **Total Cost per Acre Including Overhead** | | | | | 1,063.53 |
| **Cost per ton** | | | | | 40.91 |
| **Cash Cost per ton** | | | | | 28.34 |

**2017 Budget 34-Dry Beans, Reduced Till with Wheat Cover Crop after Harvest (25 cwt Actual Yield)**
**Pivot Irrigated, 800 GPM 35 PSI, 8 acre/inches**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Disk | 1 | | 2.02 | 1.97 | 0.30 | 1.27 | 4.32 | 1.23 | 11.11 | |
| 2 | Field Cultivation | 1 | | 1.47 | 1.41 | 0.58 | 1.33 | 1.91 | 1.64 | 8.34 | |
| 3 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 4 | Plant | 1 | | 2.40 | 0.71 | 0.86 | 2.54 | 2.87 | 3.89 | 13.27 | |
| 5 | Pivot E 125' Lift | 8 | ai | 5.56 | 22.30 | 2.34 | 12.91 | 4.24 | 7.72 | 55.07 | |
| 6 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 7 | Aerial Spray | Custom | | | | | | | | | |
| 8 | Aerial Spray | Custom | | | | | | | | | |
| 9 | Pickett Windrowers | 1 | | 2.20 | 1.57 | 0.86 | 0.72 | 2.87 | 1.38 | 9.60 | |
| 10 | Combine Irr Dry Beans | 1 | | 4.40 | 5.43 | 10.23 | 2.03 | 8.39 | 2.84 | 33.32 | |
| 11 | Truck | Custom | | | | | | | | | |
| 12 | Drill | 1 | | 1.76 | 1.03 | 0.69 | 2.94 | 2.29 | 2.62 | 11.33 | |
| | **Total for Field Operations** | | | 21.81 | 34.96 | 16.56 | 25.02 | 29.19 | 23.08 | 150.62 | |

| | Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|
| | Outlook | Herbicide | 3 | 100% | 14 | ounce | 1.17 | 16.41 | |
| | Prowl H2O | Herbicide | 3 | 100% | 2 | pint | 6.50 | 13.00 | |
| | Edible Beans | Seed | 4 | 100% | 0.65 | cwt | 92.00 | 59.80 | |
| | 10-34-0-1Z | Fertilizer | 4 | 100% | 7 | gallon | 2.45 | 17.15 | |
| | 32-0-0 | Fertilizer | 4 | 100% | 7 | lbs N | 0.42 | 2.94 | |
| | Electricity Fixed | Other | 5 | 100% | 1 | acre | 30.00 | 30.00 | |
| | Basagran | Herbicide | 6 | 60% | 1 | pint | 10.00 | 6.00 | |
| | Raptor | Herbicide | 6 | 60% | 4 | ounce | 4.77 | 11.44 | |
| | NIS | Additive | 6 | 60% | 5 | ounce | 0.13 | 0.38 | |
| | UAN | Additive | 6 | 60% | 4 | pint | 0.19 | 0.45 | |
| * | Aerial Spray | Custom | 7 | 60% | 1 | acre | 10.00 | 6.00 | |
| * | Asana XL | Insecticide | 7 | 60% | 4.5 | ounce | 0.66 | 1.79 | |
| | Aerial Spray | Custom | 8 | 100% | 1 | acre | 10.00 | 10.00 | |
| | Copper | Fungicide | 8 | 100% | 2 | pint | 3.50 | 7.00 | |
| | Priaxor | Fungicide | 8 | 100% | 4 | ounce | 5.47 | 21.88 | |
| | Haul Grain (Dry Beans) | Custom | 11 | 100% | 25 | cwt | 0.28 | 7.00 | |
| | Wheat | Seed | 12 | 100% | 30 | pound | 0.10 | 3.00 | |
| | Scouting Dry Beans | Scouting | | 100% | 1 | acre | 10.00 | 10.00 | |
| | | Crop Insurance | | | | | 16.30 | 0.00 | |
| | **Total Materials & Services** | | Electricity connect fee 6 months @ $72/mo 133 acres | | | | | 224.24 | |

*Insecticide for Mexican bean beetle and Western Bean Cutworm (10%).

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 374.86 | |
| Interest on Operations Capital | $ 322.59 | cash expense @ | 5.50% | for 6.0 mo. | 8.87 | |
| **Total Operating and Use Related Ownership Costs** | | | | | 383.73 | |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 | |
| Real Estate Opportunity | Pivot (Panhandle) | $ 3,290 | per acre @ | 4.00% | 131.60 | |
| Real Estate Taxes | | $ 3,290 | per acre @ | 1.00% | 32.90 | |
| **Total Cost per Acre Including Overhead** | | | | | 568.23 | |
| **Cost per cwt** | | | | | 22.73 | |
| **Cash Cost per cwt** | | | | | 14.57 | |

**2017 Budget 35-Dry Beans, Conventional Tillage (25 cwt Actual Yield)**
**Canal Irrigated, Gravity, 10 acre/inches**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Chop Stalks | 1 | | 1.78 | 1.20 | 0.70 | 0.35 | 2.32 | 1.72 | 8.07 | |
| 2 | Disk | 2 | | 4.03 | 3.93 | 0.60 | 2.54 | 8.63 | 2.46 | 22.19 | |
| 3 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 4 | Plow | 1 | | 2.93 | 2.07 | 0.44 | 0.86 | 6.28 | 0.58 | 13.16 | |
| 5 | Roller Harrow | 1 | | 2.00 | 1.29 | 0.86 | 0.52 | 2.87 | 1.64 | 9.18 | |
| 6 | Field Cultivation | 1 | | 1.47 | 1.41 | 0.58 | 1.33 | 1.91 | 1.64 | 8.34 | |
| 7 | Plant | 1 | | 2.40 | 0.71 | 0.86 | 2.54 | 2.87 | 3.89 | 13.27 | |
| 8 | Spray | 0.6 | | 0.60 | 0.16 | 0.21 | 0.38 | 0.69 | 0.53 | 2.57 | |
| 9 | Row Crop Cultivation | 1 | | 2.00 | 0.82 | 0.78 | 0.44 | 2.60 | 1.64 | 8.28 | |
| 10 | Ridge Cultivate/Ditch | 1 | | 1.83 | 1.15 | 0.72 | 0.37 | 2.39 | 1.64 | 8.10 | |
| 11 | Ditch Irrigation | 10 | ai | 11.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 11.11 | |
| 12 | Aerial Spray | Custom | | | | | | | | | |
| 13 | Aerial Spray | Custom | | | | | | | | | |
| 14 | Pickett Windrowers | 1 | | 2.20 | 1.57 | 0.86 | 0.72 | 2.87 | 1.38 | 9.60 | |
| 15 | Combine Irr Dry Beans | 1 | | 4.40 | 5.43 | 10.23 | 2.03 | 8.39 | 2.84 | 33.32 | |
| 16 | Truck | Custom | | | | | | | | | |
| 17 | Chisel | 1 | | 1.98 | 1.93 | 0.78 | 2.11 | 2.58 | 1.64 | 11.02 | |
| | **Total for Field Operations** | | | 39.73 | 21.94 | 17.97 | 14.83 | 45.55 | 22.48 | 162.50 | |

| | Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|
| | Outlook | Herbicide | 3 | 100% | 14 | ounce | 1.17 | 16.41 | |
| | Prowl H2O | Herbicide | 3 | 100% | 2 | pint | 6.50 | 13.00 | |
| | Edible Beans | Seed | 7 | 100% | 0.65 | cwt | 92.00 | 59.80 | |
| | 10-34-0-1Z | Fertilizer | 7 | 100% | 7 | gallon | 2.45 | 17.15 | |
| | 32-0-0 | Fertilizer | 7 | 100% | 7 | lbs N | 0.42 | 2.94 | |
| | Basagran | Herbicide | 8 | 60% | 1 | pint | 10.00 | 6.00 | |
| | Raptor | Herbicide | 8 | 60% | 4 | ounce | 4.77 | 11.44 | |
| | NIS | Additive | 8 | 60% | 5 | ounce | 0.13 | 0.38 | |
| | UAN | Additive | 8 | 60% | 4 | pint | 0.19 | 0.45 | |
| * | Aerial Spray | Custom | 12 | 60% | 1 | acre | 10.00 | 6.00 | |
| * | Asana XL | Insecticide | 12 | 60% | 4.5 | ounce | 0.66 | 1.79 | |
| | Aerial Spray | Custom | 13 | 100% | 1 | acre | 10.00 | 10.00 | |
| | Copper | Fungicide | 13 | 100% | 2 | pint | 3.50 | 7.00 | |
| | Priaxor | Fungicide | 13 | 100% | 4 | ounce | 5.47 | 21.88 | |
| | Haul Grain (Dry Beans) | Custom | 16 | 100% | 25 | cwt | 0.28 | 7.00 | |
| | Irrigation District O&M Charge | Other | 11 | 100% | 1 | acre | 30.00 | 30.00 | |
| | Scouting Dry Beans | Scouting | | 100% | 1 | acre | 10.00 | 10.00 | |
| | | Crop Insurance | | | | | 16.30 | 0.00 | |
| | **Total Materials & Services** | | | | | | | 221.24 | |

* Mexican Bean Beetle and Western Bean Cutworm

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | | 383.74 |
| Interest on Operations Capital | $ 315.71 | cash expense @ | 5.50% | for 6.0 mo. | | 8.68 |
| **Total Operating and Use Related Ownership Costs** | | | | | | 392.42 |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | | 20.00 |
| Real Estate Opportunity | Gravity (Panhandle) | $ 2,970 | per acre @ | 4.00% | | 118.80 |
| Real Estate Taxes | | $ 2,970 | per acre @ | 1.00% | | 29.70 |
| **Total Cost per Acre Including Overhead** | | | | | | 560.92 |
| **Cost per cwt** | | | | | | 22.44 |
| **Cash Cost per cwt** | | | | | | 14.16 |

**2017 Budget 36-Dry Beans, Conventional Tillage Using Pumped Water (25 cwt Actual Yield)**
**Pivot Irrigated, 800 GPM 35 PSI, 9 acre/inches**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Disk | 2 | | 4.03 | 3.93 | 0.60 | 2.54 | 8.63 | 2.46 | 22.19 | |
| 2 | Chisel | 1 | | 1.98 | 1.93 | 0.78 | 2.11 | 2.58 | 1.64 | 11.02 | |
| 3 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 4 | Field Cultivation | 1 | | 1.47 | 1.41 | 0.58 | 1.33 | 1.91 | 1.64 | 8.34 | |
| 5 | Plant | 1 | | 2.40 | 0.71 | 0.86 | 2.54 | 2.87 | 3.89 | 13.27 | |
| 6 | Spray | 0.6 | | 0.60 | 0.16 | 0.21 | 0.38 | 0.69 | 0.53 | 2.57 | |
| 7 | Row Crop Cultivation | 1 | | 2.00 | 0.82 | 0.78 | 0.44 | 2.60 | 1.64 | 8.28 | |
| 8 | Pivot E 125' Lift | 9 | ai | 6.25 | 25.08 | 2.63 | 14.53 | 4.77 | 8.69 | 61.95 | |
| 9 | Aerial Spray | Custom | | | | | | | | | |
| 10 | Aerial Spray | Custom | | | | | | | | | |
| 11 | Pickett Windrowers | 1 | | 2.20 | 1.57 | 0.86 | 0.72 | 2.87 | 1.38 | 9.60 | |
| 12 | Combine Irr Dry Beans | 1 | | 4.40 | 5.43 | 10.23 | 2.03 | 8.39 | 2.84 | 33.32 | |
| 13 | Truck | Custom | | | | | | | | | |
| | **Total for Field Operations** | | | 26.33 | 41.31 | 17.88 | 27.26 | 36.46 | 25.59 | 174.83 | |

| | Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|
| | Outlook | Herbicide | 3 | 100% | 14 | ounce | 1.17 | 16.41 | |
| | Prowl H2O | Herbicide | 3 | 100% | 2 | pint | 6.50 | 13.00 | |
| | Edible Beans | Seed | 5 | 100% | 0.65 | cwt | 92.00 | 59.80 | |
| | 10-34-0-1Z | Fertilizer | 5 | 100% | 7 | gallon | 2.45 | 17.15 | |
| | 32-0-0 | Fertilizer | 5 | 100% | 7 | lbs N | 0.42 | 2.94 | |
| | Raptor | Herbicide | 6 | 60% | 4 | ounce | 4.77 | 11.44 | |
| | Basagran | Herbicide | 6 | 60% | 1 | pint | 10.00 | 6.00 | |
| | NIS | Additive | 6 | 60% | 5 | ounce | 0.13 | 0.38 | |
| | UAN | Additive | 6 | 60% | 4 | pint | 0.19 | 0.45 | |
| | Electricity Fixed | Other | 8 | 100% | 1 | acre | 30.00 | 30.00 | |
| * | Aerial Spray | Custom | 9 | 60% | 1 | acre | 10.00 | 6.00 | |
| * | Asana XL | Insecticide | 9 | 60% | 4.5 | ounce | 0.66 | 1.79 | |
| | Aerial Spray | Custom | 10 | 100% | 1 | acre | 10.00 | 10.00 | |
| | Copper | Fungicide | 10 | 100% | 2 | pint | 3.50 | 7.00 | |
| | Priaxor | Fungicide | 10 | 100% | 4 | ounce | 5.47 | 21.88 | |
| | Haul Grain (Dry Beans) | Custom | 13 | 100% | 25 | cwt | 0.28 | 7.00 | |
| | Scouting Dry Beans | Scouting | | 100% | 1 | acre | 10.00 | 10.00 | |
| | | Crop Insurance | | | | | 16.30 | 0.00 | |
| | **Total Materials & Services** | | | | | | | 221.24 | |

* Mexican Bean Beetle and Western Bean Cutworm

| | | | | | |
|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 396.07 |
| Interest on Operations Capital | $ 334.02 | cash expense @ | 5.50% | for 6.0 mo. | 9.19 |
| **Total Operating and Use Related Ownership Costs** | | | | | 405.26 |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 |
| Real Estate Opportunity | Pivot (Panhandle) | $ 3,290 | per acre @ | 4.00% | 131.60 |
| Real Estate Taxes | | $ 3,290 | per acre @ | 1.00% | 32.90 |
| **Total Cost per Acre Including Overhead** | | | | | 589.76 |
| **Cost per cwt** | | | | | 23.59 |
| **Cash Cost per cwt** | | | | | 15.04 |

**2017 Budget 37-Dry Beans, Direct Harvest, Conventional Tillage Using Pumped Water (25 cwt Actual Yield)**
**Pivot Irrigated, 800 GPM 35 PSI, 9 acre/inches**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Disk | 2 | | 4.03 | 3.93 | 0.60 | 2.54 | 8.63 | 2.46 | 22.19 | |
| 2 | Chisel | 1 | | 1.98 | 1.93 | 0.78 | 2.11 | 2.58 | 1.64 | 11.02 | |
| 3 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 4 | Field Cultivation | 1 | | 1.47 | 1.41 | 0.58 | 1.33 | 1.91 | 1.64 | 8.34 | |
| 5 | Plant | 1 | | 2.40 | 0.71 | 0.86 | 2.54 | 2.87 | 3.89 | 13.27 | |
| 6 | Spray | 0.6 | | 0.60 | 0.16 | 0.21 | 0.38 | 0.69 | 0.53 | 2.57 | |
| 7 | Pivot E 125' Lift | 9 | | 6.25 | 25.08 | 2.63 | 14.53 | 4.77 | 8.69 | 61.95 | |
| 8 | Aerial Spray | Custom | ai | | | | | | | | |
| 9 | Aerial Spray | Custom | | | | | | | | | |
| 10 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 11 | Combine Irrigated Dry Beans with Draper Flex Platform | 1 | | 4.40 | 5.43 | 10.23 | 2.03 | 8.39 | 2.84 | 33.32 | |
| 12 | Truck | Custom | | | | | | | | | |
| | **Total for Field Operations** | | | 23.13 | 39.19 | 16.59 | 26.74 | 32.14 | 23.45 | 161.24 | |

| | Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|
| | Outlook | Herbicide | 3 | 100% | 14 | ounce | 1.17 | 16.41 | |
| | Prowl H2O | Herbicide | 3 | 100% | 2 | pint | 6.50 | 13.00 | |
| | Edible Beans | Seed | 5 | 100% | 1 | cwt | 92.00 | 92.00 | |
| | 10-34-0-1Z | Fertilizer | 5 | 100% | 7 | gallon | 2.45 | 17.15 | |
| | 32-0-0 | Fertilizer | 5 | 100% | 7 | lbs N | 0.42 | 2.94 | |
| | Raptor | Herbicide | 6 | 60% | 4 | ounce | 4.77 | 11.44 | |
| | Basagran | Herbicide | 6 | 60% | 1 | pint | 10.00 | 6.00 | |
| | NIS | Additive | 6 | 60% | 5 | ounce | 0.13 | 0.38 | |
| | UAN | Additive | 6 | 60% | 4 | pint | 0.19 | 0.45 | |
| | Electricity Fixed | Other | 7 | 100% | 1 | acre | 30.00 | 30.00 | |
| * | Aerial Spray | Custom | 8 | 60% | 1 | acre | 10.00 | 6.00 | |
| * | Asana XL | Insecticide | 8 | 60% | 4.5 | ounce | 0.66 | 1.79 | |
| | Aerial Spray | Custom | 9 | 100% | 1 | acre | 10.00 | 10.00 | |
| | Copper | Fungicide | 9 | 100% | 2 | pint | 3.50 | 7.00 | |
| | Priaxor | Fungicide | 9 | 100% | 4 | ounce | 5.47 | 21.88 | |
| | Gramoxone SL | Herbicide | 10 | 100% | 2 | pint | 4.75 | 9.50 | |
| | Haul Grain (Dry Beans) | Custom | 12 | 100% | 25 | cwt | 0.28 | 7.00 | |
| | Scouting Dry Beans | Scouting | | 100% | 1 | acre | 10.00 | 10.00 | |
| | | Crop Insurance | | | | | 16.30 | 0.00 | |
| | **Total Materials & Services** | | | | | | | 262.94 | |

* Mexican Bean Beetle and Western Bean Cutworm

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | | 424.18 |
| Interest on Operations Capital | $ 368.59 | cash expense @ | 5.50% | for 6.0 mo. | | 10.14 |
| **Total Operating and Use Related Ownership Costs** | | | | | | 434.32 |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | | 20.00 |
| Real Estate Opportunity | Pivot (Panhandle) | $ 3,290 | per acre @ | 4.00% | | 131.60 |
| Real Estate Taxes | | $ 3,290 | per acre @ | 1.00% | | 32.90 |
| **Total Cost per Acre Including Overhead** | | | | | | 618.82 |
| **Cost per cwt** | | | | | | 24.75 |
| **Cash Cost per cwt** | | | | | | 16.47 |

A potential yield loss of 92-120 pounds per acre (but can be as high as 240-480 pounds per acre) with direct harvest is possible because of beans lost on the lower stem. A draper flex platform is usually the best choice for direct harvest. Direct harvest reduces field operations and weather related losses while beans are drying in the windrow. Undercutting and windrowing has even resulted in total crop loss. In these budgets we have not adjusted dry bean yields because of different harvesting methods.

**2017 Budget 38-Grain Sorghum, Conventional Tillage, 105 bu Yield Goal (95 bu Actual Yield)**
**Dryland**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Disk | 1 | | 2.02 | 1.97 | 0.30 | 1.27 | 4.32 | 1.23 | 11.11 | |
| 2 | Anhydrous Apply | 1 | | 1.83 | 1.37 | 0.72 | 0.58 | 2.39 | 3.94 | 10.83 | |
| 3 | Field Cultivation | 1 | | 1.47 | 1.41 | 0.58 | 1.33 | 1.91 | 1.64 | 8.34 | |
| 4 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 5 | Plant | 1 | | 2.40 | 0.71 | 0.86 | 2.54 | 2.87 | 3.89 | 13.27 | |
| 6 | Row Crop Cultivation | 1 | | 2.00 | 0.82 | 0.78 | 0.44 | 2.60 | 1.64 | 8.28 | |
| 7 | Row Crop Cultivation | 0.25 | | 0.50 | 0.21 | 0.20 | 0.11 | 0.65 | 0.41 | 2.08 | |
| 8 | Spray | 0.5 | | 0.50 | 0.14 | 0.17 | 0.32 | 0.57 | 0.44 | 2.14 | |
| 9 | Aerial Spray | Custom | | | | | | | | | |
| 10 | Combine Dryland SG | 1 | | 3.38 | 4.18 | 7.87 | 1.11 | 6.45 | 2.84 | 25.83 | |
| 11 | Cart | 95 | bu | 1.36 | 0.48 | 0.53 | 0.87 | 1.77 | 0.56 | 5.57 | |
| 12 | Truck | Custom | | | | | | | | | |
| | **Total for Field Operations** | | | 16.46 | 11.56 | 12.36 | 9.21 | 24.68 | 17.47 | 91.74 | |

| | Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|
| | 82-0-0 | Fertilizer | 2 | 100% | 100 | lbs N | 0.28 | 28.00 | |
| | 10-34-0 | Fertilizer | 4 | 100% | 6 | gallon | 2.40 | 14.40 | |
| | Lumax EZ | Herbicide | 4 | 100% | 2.7 | quart | 20.00 | 54.00 | |
| | AAtrex 4L | Herbicide | 4 | 100% | 0.5 | quart | 5.00 | 2.50 | |
| | Sorghum Safened/Insect | Seed | 5 | 100% | 4 | pound | 2.10 | 8.40 | |
| | Huskie | Herbicide | 8 | 50% | 11 | ounce | 0.94 | 5.16 | |
| | 21-0-0-24S | Additive | 8 | 50% | 1 | pound | 0.35 | 0.18 | |
| * | Aerial Spray | Custom | 9 | 15% | 1 | acre | 10.00 | 1.50 | |
| * | Lorsban Advanced | Insecticide | 9 | 15% | 1.5 | pint | 6.88 | 1.55 | |
| | Haul Grain Bushels | Custom | 12 | 100% | 95 | bushel | 0.11 | 10.45 | |
| | Scouting Grain Sorghum | Scouting | | 100% | 1 | acre | 7.00 | 7.00 | |
| | | Crop Insurance | | | | | 8.82 | 0.00 | |
| | **Total Materials & Services** | | | | | | | 133.14 | |

*Treating greenbugs one year in 10, chinchbugs one in 20.

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | | 224.88 |
| Interest on Operations Capital | $ 182.73 | cash expense @ | 5.50% | for 6.0 mo. | | 5.03 |
| **Total Operating and Use Related Ownership Costs** | | | | | | 229.91 |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | | 20.00 |
| ** Real Estate Opportunity | Dryland (Southwest) | $ 1,369 | per acre @ | 4.00% | | 54.74 |
| ** Real Estate Taxes | | $ 1,369 | per acre @ | 1.00% | | 13.69 |
| **Total Cost per Acre Including Overhead** | | | | | | 318.34 |
| **Cost per bu** | | | | | | 3.35 |
| **Cash Cost per bu** | | | | | | 2.12 |

** Since sorghum is generally planted on less productive land, real estate cost is reduced to 70% of average value.

# 2017 Crop Budgeting Procedures

This publication contains 73 crop production budgets for 15 crops, as well as tables for power, machinery, labor, and input costs used to develop these budgets. Each budget consists of five sections:

- Heading
- List of representative field operations
- List of materials and services used
- Operations and interest tabulations
- Overhead costs, including real estate taxes and opportunity charges

The budgets are presented in a worksheet format with a "Your Estimate" column for recording cost modifications.

## Budget Divisions

The **heading** consists of the crop name, system description, and method of water application.

The **list of representative field operations** is organized in a table with columns for the operation name, quantity or number of times used with units, labor, fuel and lube, power source, and implement costs for both repairs and ownership. "Times" or "Quantity" is typically presented in acres with a decimal denoting where an operation is done on less than all of the acres or where it represents the probability of an operation being done. For those operations that are done multiple times, the number of times are listed. Swathing multiple cuttings of hay is an example. If a unit is other than "acres," it is specified in the "Unit" column. Other units used are bushels (bu), hundredweight (cwt), tons, and acre-inches (ai).

Labor costs for each operation were calculated from machinery accomplishment rates and adjusted for additional time required for getting machinery ready, adjusting machinery, and handling fertilizer and other supplies. The estimated costs for completing these operations are multiplied by the number in the "Times" or "Quantity" column, the product of which is multiplied by the hourly wage ($20 per hour) and the labor factor.

Fuel costs also use machinery accomplishment rates as well as estimated fuel consumption rates to determine fuel use. The fuel cost is multiplied by a lube factor of 1.15 and the price of energy, which is $2.25 per gallon for diesel and $0.105 per kWh for electricity. Repairs and depreciation costs were estimated using functions and factors from the *Agricultural Engineer's Yearbook*, which is published by the American Society of Agricultural and Biological Engineers. It requires making assumptions about the size and age of the equipment, which we did. We further assumed that machinery was fully utilized.

Data used to calculate power unit costs are in *Table 1* and data used for machinery operation costs are in *Table 2*. All units are acres unless noted in footnotes.

Irrigation costs were calculated using engineering performance standards and typical water application rates, which will depend on the rainfall area. Repair and ownership costs for the power component of the irrigation system refer to the pump and power unit. Repair and ownership costs for the implement component refer to the delivery system (pipe or pivot).

**The list of materials and services** used is calculated by multiplying the application rate by the application price (*Table 3*) and then by the percent acres applied. A value less than 100 percent is used when a material or service is applied on only part of the acres or part of the time. For example, fields planted with Bt corn seed must have 20 percent of the acres planted to a refuge crop. There would be 20 percent in the column called "Percent Acres Applied" for the non-Bt seed and 80 percent for the Bt seed. Another example is when a practice is not always used. If an insecticide is used one year out of four, a "25 percent" would be entered in the column "Percent Acres Applied." The cost for each material/service is computed by multiplying the percentage of acres by the quantity per acre and then by the price per unit. Note: All prices for materials and services in the budgets were obtained in October 2016.

The value in the "Operation Index" column in the "Materials and Services" section indicates the corresponding operation in the "Field Operations" section. Data for calculating materials cost is in *Table 3*.

The **operations and interest** tabulations are

**2017 Budget 39-Grain Sorghum, No-Till, 125 bu Yield Goal (115 bu Actual Yield)**
**Dryland**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spray Spring Burndown Herbicide | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 2 | Spray Fertilizer and Herbicide | 1 | | 1.00 | 0.27 | 0.35 | 0.19 | 1.15 | 2.21 | 5.17 | |
| 3 | Plant No-Till | 1 | | 2.40 | 0.87 | 0.86 | 4.41 | 2.87 | 6.77 | 18.18 | |
| 4 | Spray | 0.5 | | 0.50 | 0.14 | 0.17 | 0.32 | 0.57 | 0.44 | 2.14 | |
| 5 | Aerial Spray | Custom | | | | | | | | | |
| 6 | Combine Dryland SG | 1 | | 3.38 | 4.18 | 7.87 | 1.11 | 6.45 | 2.84 | 25.83 | |
| 7 | Cart | 115 | bu | | | | | | | | |
| 8 | Truck | Custom | | | | | | | | | |
| | **Total for Field Operations** | | | 8.28 | 5.73 | 9.60 | 6.67 | 12.19 | 13.14 | 55.61 | |

| | Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|
| | Glyphosate w/Surf | Herbicide | 1 | 100% | 32 | ounce | 0.10 | 3.13 | |
| | 2,4-D Ester 4# | Herbicide | 1 | 100% | 1 | pint | 2.25 | 2.25 | |
| | 21-0-0-24S | Additive | 1 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| | 32-0-0 | Fertilizer | 2 | 100% | 120 | lbs N | 0.42 | 50.40 | |
| | Lumax EZ | Herbicide | 2 | 100% | 2.7 | quart | 20.00 | 54.00 | |
| | AAtrex 4L | Herbicide | 2 | 100% | 0.5 | quart | 5.00 | 2.50 | |
| | 10-34-0 | Fertilizer | 3 | 100% | 6 | gallon | 2.40 | 14.40 | |
| | Sorghum Safened/Insect | Seed | 3 | 100% | 4 | pound | 2.10 | 8.40 | |
| | Huskie | Herbicide | 4 | 50% | 11 | ounce | 0.94 | 5.16 | |
| | 21-0-0-24S | Additive | 4 | 50% | 1 | pound | 0.35 | 0.18 | |
| * | Aerial Spray | Custom | 5 | 15% | 1 | acre | 10.00 | 1.50 | |
| * | Lorsban Advanced | Insecticide | 5 | 15% | 1.5 | pint | 6.88 | 1.55 | |
| | Haul Grain Bushels | Custom | 8 | 100% | 115 | bushel | 0.11 | 12.65 | |
| | Scouting Grain Sorghum | Scouting | | 100% | 1 | acre | 7.00 | 7.00 | |
| | | Crop Insurance | | | | | 9.58 | 0.00 | |
| | **Total Materials & Services** | | | | | | | 163.72 | |

*Treating greenbugs one year in 10, chinchbugs one in 20.

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | | 219.33 |
| Interest on Operations Capital | $ 194.00 | cash expense @ | 5.50% | for 6.0 mo. | | 5.34 |
| **Total Operating and Use Related Ownership Costs** | | | | | | 224.67 |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | | 20.00 |
| ** Real Estate Opportunity | Dryland (State) | $ 2,429 | per acre @ | 4.00% | | 97.16 |
| ** Real Estate Taxes | | $ 2,429 | per acre @ | 1.00% | | 24.29 |
| **Total Cost per Acre Including Overhead** | | | | | | 366.12 |
| **Cost per bu** | | | | | | 3.18 |
| **Cash Cost per bu** | | | | | | 1.94 |

** Since sorghum is generally planted on less productive land, real estate cost is reduced to 70% of average value.

**2017 Budget 40-Grain Sorghum, Ecofallow, After Wheat, Two Crops in Three Years, 115 bu Yield Goal (105 bu Actual Yield) Dryland**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spray Spring Burndown Herbicide | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 2 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 3 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 4 | No-Till Drill | 1 | | 1.83 | 1.31 | 0.72 | 1.57 | 2.39 | 3.54 | 11.36 | |
| 5 | Spray | 0.5 | | 0.50 | 0.14 | 0.17 | 0.32 | 0.57 | 0.44 | 2.14 | |
| 6 | Aerial Spray | Custom | | | | | | | | | |
| 7 | Combine Dryland SG | 1 | | 3.38 | 4.18 | 7.87 | 1.11 | 6.45 | 2.84 | 25.83 | |
| 8 | Cart | 105 | bu | 1.50 | 0.53 | 0.59 | 0.96 | 1.95 | 0.61 | 6.14 | |
| 9 | Truck | Custom | | | | | | | | | |
| | **Total for Field Operations** | | | 10.21 | 6.97 | 10.40 | 5.88 | 14.81 | 10.07 | 58.34 | |

| | Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|
| | Glyphosate w/Surf | Herbicide | 1 | 100% | 32 | ounce | 0.10 | 3.13 | |
| | 2,4-D Ester 4# | Herbicide | 1 | 100% | 1 | pint | 2.25 | 2.25 | |
| | 21-0-0-24S | Additive | 1 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| | AAtrex 4L | Herbicide | 2 | 100% | 1 | quart | 5.00 | 5.00 | |
| | Gramoxone SL | Herbicide | 2 | 100% | 1.5 | pint | 4.75 | 7.13 | |
| | 32-0-0 | Fertilizer | 3 | 100% | 110 | lbs N | 0.42 | 46.20 | |
| | Lumax EZ | Herbicide | 3 | 100% | 2.7 | quart | 20.00 | 54.00 | |
| | 10-34-0 | Fertilizer | 4 | 100% | 6 | gallon | 2.40 | 14.40 | |
| | Sorghum Safened/Insect | Seed | 4 | 100% | 4 | pound | 2.10 | 8.40 | |
| | Huskie | Herbicide | 5 | 50% | 11 | ounce | 0.94 | 5.16 | |
| | 21-0-0-24S | Additive | 5 | 50% | 1 | pound | 0.35 | 0.18 | |
| * | Aerial Spray | Custom | 6 | 15% | 1 | acre | 10.00 | 1.50 | |
| * | Lorsban Advanced | Insecticide | 6 | 15% | 1.5 | pint | 6.88 | 1.55 | |
| | Haul Grain Bushels | Custom | 9 | 100% | 105 | bushel | 0.11 | 11.55 | |
| | Scouting Grain Sorghum | Scouting | | 100% | 1 | acre | 7.00 | 7.00 | |
| | | Crop Insurance | | | | | 9.22 | 0.00 | |
| | **Total Materials & Services** | | | | | | | 168.05 | |

*Treating greenbugs one year in 10, chinchbugs one in 20.

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | | 226.39 |
| Interest on Operations Capital | $ 201.51 | cash expense @ | 5.50% | for 6.0 mo. | | 5.54 |
| **Total Operating and Use Related Ownership Costs** | | | | | | 231.93 |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | | 20.00 |
| ** Real Estate Opportunity | Dryland (Southwest) | $ 1,369 | per acre @ | 4.00% | | 54.74 |
| ** Real Estate Taxes | | $ 1,369 | per acre @ | 1.00% | | 13.69 |
| **Total Cost per Acre Including Overhead** | | | | | | 320.36 |
| **Cost per bu** | | | | | | 3.05 |
| **Cash Cost per bu** | | | | | | 2.10 |

** Since sorghum is generally planted on less productive land, real estate cost is reduced to 70% of average value.

**2017 Budget 41-Grain Sorghum, No-Till, Limited Irrigation, 165 bu Yield Goal (150 bu Actual Yield)**
**Pivot Irrigated, 800 GPM 35 PSI, 6 acre/inches**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spray Spring Burndown Herbicide | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 2 | Anhydrous Apply | 1 | | 1.83 | 1.37 | 0.72 | 0.58 | 2.39 | 3.94 | 10.83 | |
| 3 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 4 | Plant No-Till | 1 | | 2.40 | 0.87 | 0.86 | 4.41 | 2.87 | 6.77 | 18.18 | |
| 5 | Spray | 0.5 | | 0.50 | 0.14 | 0.17 | 0.32 | 0.57 | 0.44 | 2.14 | |
| 6 | Aerial Spray | Custom | | | | | | | | | |
| 7 | Pivot D 125' Lift | 6 | ai | 4.17 | 28.81 | 2.06 | 9.68 | 2.98 | 5.79 | 53.49 | |
| 8 | Combine Irr SG | 1 | | 3.38 | 4.18 | 7.87 | 1.11 | 6.45 | 2.84 | 25.83 | |
| 9 | Cart | 150 | bu | 2.14 | 0.76 | 0.84 | 1.37 | 2.79 | 0.88 | 8.78 | |
| 10 | Truck | Custom | | | | | | | | | |
| | **Total for Field Operations** | | | 16.42 | 36.67 | 13.22 | 18.75 | 20.35 | 22.42 | 127.83 | |

| | Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|
| | Glyphosate w/Surf | Herbicide | 1 | 100% | 32 | ounce | 0.10 | 3.13 | |
| | 2,4-D Ester 4# | Herbicide | 1 | 100% | 1 | pint | 2.25 | 2.25 | |
| | 21-0-0-24S | Additive | 1 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| | 82-0-0 | Fertilizer | 2 | 100% | 150 | lbs N | 0.28 | 42.00 | |
| | Lumax EZ | Herbicide | 3 | 100% | 2.7 | quart | 20.00 | 54.00 | |
| | AAtrex 4L | Herbicide | 3 | 100% | 0.5 | quart | 5.00 | 2.50 | |
| | 10-34-0 | Fertilizer | 4 | 100% | 6 | gallon | 2.40 | 14.40 | |
| | Sorghum Safened/Insect | Seed | 4 | 100% | 6 | pound | 2.10 | 12.60 | |
| | Huskie | Herbicide | 5 | 50% | 11 | ounce | 0.94 | 5.16 | |
| | 21-0-0-24S | Additive | 5 | 50% | 1 | pound | 0.35 | 0.18 | |
| * | Aerial Spray | Custom | 6 | 15% | 1 | acre | 10.00 | 1.50 | |
| * | Lorsban Advanced | Insecticide | 6 | 15% | 1.5 | pint | 6.88 | 1.55 | |
| | Haul Grain Bushels | Custom | 10 | 100% | 150 | bushel | 0.11 | 16.50 | |
| | Scouting Grain Sorghum | Scouting | | 100% | 1 | acre | 7.00 | 7.00 | |
| | | Crop Insurance | | | | | 7.33 | 0.00 | |
| | **Total Materials & Services** | | | | | | | 163.37 | |

*Treating greenbugs one year in 10, chinchbugs one in 20.

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | | 291.20 |
| Interest on Operations Capital | $ 248.43 | cash expense @ | 5.50% | for 6.0 mo. | | 6.83 |
| **Total Operating and Use Related Ownership Costs** | | | | | | 298.03 |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | | 20.00 |
| ** Real Estate Opportunity | Pivot (Marginal Land) | $ 3,401 | per acre @ | 4.00% | | 136.02 |
| ** Real Estate Taxes | | $ 3,401 | per acre @ | 1.00% | | 34.01 |
| **Total Cost per Acre Including Overhead** | | | | | | 488.06 |
| **Cost per bu** | | | | | | 3.25 |
| **Cash Cost per bu** | | | | | | 1.93 |

** Since sorghum is generally planted on less productive land, real estate cost is reduced to 70% of average value.

**2017 Budget 42-Grass, Fall Establishment**
**Pivot Irrigated, 800 GPM 35 PSI, 2 acre/inches**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Disk | 1 | | 2.02 | 1.97 | 0.30 | 1.27 | 4.32 | 1.23 | 11.11 | |
| 2 | Field Cultivation | 1 | | 1.47 | 1.41 | 0.58 | 1.33 | 1.91 | 1.64 | 8.34 | |
| 3 | Roll | 1 | | 2.22 | 1.57 | 0.96 | 0.00 | 3.18 | 0.00 | 7.93 | |
| 4 | Grass Drill | 1 | | 2.44 | 1.23 | 0.96 | 6.46 | 3.18 | 2.88 | 17.15 | |
| 5 | Pivot D 125' Lift | 2 | ai | 1.39 | 9.60 | 0.69 | 3.23 | 0.99 | 1.93 | 17.83 | |
| 6 | Spread Fertilizer | 1 | | 1.57 | 0.79 | 0.68 | 0.00 | 2.26 | 0.00 | 5.30 | |
| | **Total for Field Operations** | | | 11.11 | 16.57 | 4.17 | 12.29 | 15.84 | 7.68 | 67.66 | |

| Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|
| Grass Seed | Seed | 4 | 100% | 1 | acre | 75.00 | 75.00 | |
| 11-52-0 | Fertilizer | 6 | 100% | 60 | pound | 0.24 | 14.40 | |
| **Total Materials & Services** | | | | | | | 89.40 | |
| **Total listed costs for Field Operations and Materials and Services** | | | | | | | 157.06 | |
| Interest on Operations Capital | $ 133.54 | cash expense @ | | 5.50% | for 6.0 mo. | | 3.67 | |
| **Total Operating and Use Related Ownership Costs** | | | | | | | 160.73 | |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | | | 20.00 | |
| Real Estate Opportunity | Fall Establishment | $ - | per acre @ | 4.00% | | | 0.00 | |
| Real Estate Taxes | | $ - | per acre @ | 1.00% | | | 0.00 | |
| **Total Cost per Acre Including Overhead** | | | | | | | 180.73 | |

**2017 Budget 43-Grass Hay, Large Round Bale (2.2 ton Actual Yield)**
**Dryland**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spread Fertilizer | 1 | | 1.57 | 0.79 | 0.68 | 0.00 | 2.26 | 0.00 | 5.30 | |
| 2 | Swath/Condition Hay | 1 | | 2.00 | 1.29 | 2.31 | 0.00 | 3.65 | 0.00 | 9.25 | |
| 3 | Large Round Bale | 2.2 | ton | 4.84 | 1.64 | 1.90 | 2.37 | 6.30 | 2.47 | 19.52 | |
| 4 | Move Large Round | 2.2 | ton | 2.42 | 1.14 | 0.95 | 0.00 | 3.15 | 0.13 | 7.79 | |
| | **Total for Field Operations** | | | 10.83 | 4.86 | 5.84 | 2.37 | 15.36 | 2.60 | 41.86 | |

| Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|
| 46-0-0 | Fertilizer | 1 | 100% | 40 | lbs N | 0.38 | 15.20 | |
| 11-52-0 | Fertilizer | 1 | 100% | 15 | pound | 0.24 | 3.60 | |
| Twine Large Round | Other | 3 | 100% | 2.2 | ton | 0.91 | 2.00 | |
| **Total Materials & Services** | | | | | | | 20.80 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 62.66 | |
| Interest on Operations Capital | $ 44.70 | cash expense @ | 5.50% | for 6.0 mo. | 1.23 | |
| **Total Operating and Use Related Ownership Costs** | | | | | 63.89 | |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 | |
| Real Estate Opportunity | Dryland (State) | $ 3,470 | per acre @ | 4.00% | 138.80 | |
| Real Estate Taxes | | $ 3,470 | per acre @ | 1.00% | 34.70 | |
| **Total Cost per Acre Including Overhead** | | | | | 257.39 | |
| **Cost per ton** | | | | | 117.00 | |
| **Cash Cost per ton** | | | | | 36.65 | |

**2017 Budget 44-Millet, Panhandle, Stubble Mulch Fallow, Followed by Wheat, Two Crops in Three Years (22 cwt Actual Yield)**
**Dryland**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 2 | Fallow Master | 1 | | 1.76 | 1.78 | 0.26 | 0.96 | 3.77 | 1.64 | 10.17 | |
| 3 | Rod Weeder | 1 | | 1.52 | 1.05 | 0.65 | 0.23 | 2.17 | 0.99 | 6.61 | |
| 4 | Spray Fertilizer | 1 | | 1.00 | 0.27 | 0.35 | 0.19 | 1.15 | 2.21 | 5.17 | |
| 5 | Drill | 1 | | 1.76 | 1.03 | 0.69 | 2.94 | 2.29 | 2.62 | 11.33 | |
| 6 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 7 | Windrow Grain | 1 | | 2.00 | 1.29 | 2.31 | 0.00 | 3.65 | 0.00 | 9.25 | |
| 8 | Combine Small Grain | 1 | | 3.14 | 3.87 | 7.31 | 0.94 | 5.99 | 2.84 | 24.09 | |
| 9 | Truck | Custom | | | | | | | | | |
| | **Total for Field Operations** | | | 13.18 | 9.83 | 12.27 | 6.54 | 21.32 | 12.06 | 75.20 | |

| Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|
| Glyphosate w/Surf | Herbicide | 1 | 100% | 32 | ounce | 0.10 | 3.13 | |
| 2,4-D Ester 4# | Herbicide | 1 | 100% | 1.5 | pint | 2.25 | 3.38 | |
| 21-0-0-24S | Additive | 1 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| 28-0-0 | Fertilizer | 4 | 100% | 45 | lbs N | 0.43 | 19.50 | |
| Millet | Seed | 5 | 100% | 12 | pound | 0.45 | 5.40 | |
| 2,4-D Amine | Herbicide | 6 | 100% | 0.75 | pint | 1.75 | 1.31 | |
| Dicamba | Herbicide | 6 | 100% | 0.5 | ounce | 0.39 | 0.20 | |
| Haul Grain (Millet) | Custom | 9 | 100% | 22 | cwt | 0.24 | 5.28 | |
| **Total Materials & Services** | | | | | | | 38.80 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 114.00 | |
| Interest on Operations Capital | $ 80.62 | cash expense @ | 5.50% | for 6.0 mo. | 2.22 | |
| **Total Operating and Use Related Ownership Costs** | | | | | 116.22 | |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 | |
| Real Estate Opportunity | Dryland (Panhandle) | $ 745 | per acre @ | 4.00% | 29.80 | |
| Real Estate Taxes | | $ 745 | per acre @ | 1.00% | 7.45 | |
| **Total Cost per Acre Including Overhead** | | | | | 173.47 | |
| **Cost per cwt** | | | | | 7.88 | |
| **Cash Cost per cwt** | | | | | 4.10 | |

**2017 Budget 45-Millet, No-Till (22 cwt Actual Yield)**
**Dryland**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 2 | Spray Fertilizer | 1 | | 1.00 | 0.27 | 0.35 | 0.19 | 1.15 | 2.21 | 5.17 | |
| 3 | No-Till Drill | 1 | | 1.83 | 1.31 | 0.72 | 1.57 | 2.39 | 3.54 | 11.36 | |
| 4 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 5 | Windrow Grain | 1 | | 2.00 | 1.29 | 2.31 | 0.00 | 3.65 | 0.00 | 9.25 | |
| 6 | Combine Small Grain | 1 | | 3.14 | 3.87 | 7.31 | 0.94 | 5.99 | 2.84 | 24.09 | |
| 7 | Truck | Custom | | | | | | | | | |
| | **Total for Field Operations** | | | 9.97 | 7.28 | 11.39 | 3.98 | 15.48 | 10.35 | 58.45 | |

| Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|
| Glyphosate w/Surf | Herbicide | 1 | 100% | 36 | ounce | 0.10 | 3.52 | |
| 21-0-0-24S | Additive | 1 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| 28-0-0 | Fertilizer | 2 | 100% | 45 | lbs N | 0.43 | 19.50 | |
| Glyphosate w/Surf | Herbicide | 2 | 100% | 20 | ounce | 0.10 | 1.95 | |
| Vida | Herbicide | 2 | 100% | 2 | ounce | 9.00 | 18.00 | |
| Millet | Seed | 3 | 100% | 12 | pound | 0.45 | 5.40 | |
| 2,4-D Amine | Herbicide | 4 | 100% | 0.75 | pint | 1.75 | 1.31 | |
| Dicamba | Herbicide | 4 | 100% | 0.5 | ounce | 0.39 | 0.20 | |
| Haul Grain (Millet) | Custom | 7 | 100% | 22 | cwt | 0.24 | 5.28 | |
| **Total Materials & Services** | | | | | | | 55.76 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 114.21 | |
| Interest on Operations Capital | $ 88.38 | cash expense @ | 5.50% | for 6.0 mo. | 2.43 | |
| **Total Operating and Use Related Ownership Costs** | | | | | 116.64 | |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 | |
| Real Estate Opportunity | Dryland (Panhandle) | $ 745 | per acre @ | 4.00% | 29.80 | |
| Real Estate Taxes | | $ 745 | per acre @ | 1.00% | 7.45 | |
| **Total Cost per Acre Including Overhead** | | | | | 173.89 | |
| **Cost per cwt** | | | | | 7.90 | |
| **Cash Cost per cwt** | | | | | 4.13 | |

**2017 Budget 46-Oats, No-Till, 90 bu Yield Goal (85 bu Actual Yield)**
**Dryland**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spray Fertilizer | 1 | | 1.00 | 0.27 | 0.35 | 0.19 | 1.15 | 2.21 | 5.17 | |
| 2 | No-Till Drill | 1 | | 1.83 | 1.31 | 0.72 | 1.57 | 2.39 | 3.54 | 11.36 | |
| 3 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 4 | Combine Small Grain | 1 | | 3.14 | 3.87 | 7.31 | 0.94 | 5.99 | 2.84 | 24.09 | |
| 5 | Truck | Custom | | | | | | | | | |
| | **Total for Field Operations** | | | 6.97 | 5.72 | 8.73 | 3.34 | 10.68 | 9.47 | 44.91 | |

| Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|
| 28-0-0 | Fertilizer | 1 | 100% | 100 | lbs N | 0.43 | 43.33 | |
| Oats | Seed | 2 | 100% | 2 | bushel | 9.00 | 18.00 | |
| 10-34-0 | Fertilizer | 2 | 100% | 6 | gallon | 2.40 | 14.40 | |
| Aim 2EC | Herbicide | 3 | 100% | 0.5 | ounce | 6.25 | 3.13 | |
| 2,4-D Ester 4# | Herbicide | 3 | 100% | 0.5 | pint | 2.25 | 1.13 | |
| NIS | Additive | 3 | 100% | 6 | ounce | 0.13 | 0.75 | |
| Haul Grain Bushels | Custom | 5 | 100% | 85 | bushel | 0.11 | 9.35 | |
| **Total Materials & Services** | | | | | | | 90.09 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 135.00 | |
| Interest on Operations Capital | $ 114.85 | cash expense @ | 5.50% | for 6.0 mo. | 3.16 | |
| **Total Operating and Use Related Ownership Costs** | | | | | 138.16 | |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 | |
| Real Estate Opportunity | Dryland (State) | $ 3,470 | per acre @ | 4.00% | 138.80 | |
| Real Estate Taxes | | $ 3,470 | per acre @ | 1.00% | 34.70 | |
| **Total Cost per Acre Including Overhead** | | | | | 331.66 | |
| **Cost per bu** | | | | | 3.90 | |
| **Cash Cost per bu** | | | | | 1.80 | |

**2017 Budget 47-Pasture, Grazing (11 AUM Actual Yield)**
**Pivot Irrigated, 800 GPM 35 PSI, 18 acre/inches**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Pivot D 125' Lift | 18 | ai | 12.50 | 86.42 | 6.17 | 29.05 | 8.94 | 17.38 | 160.46 | |
| | **Total for Field Operations** | | | 12.50 | 86.42 | 6.17 | 29.05 | 8.94 | 17.38 | 160.46 | |

| Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|
| 28-0-0 | Fertilizer | 1 | 100% | 220 | lbs N | 0.43 | 95.33 | |
| Fence/Water Repairs | Other | | 100% | 1 | acre | 2.00 | 2.00 | |
| Fence/Water Repairs | Other | | 100% | 1 | acre | 2.00 | 2.00 | |
| Move Cattle | Other | | 100% | 1 | hour | 20.00 | 20.00 | |
| **Total Materials & Services** | | | | | | | 119.33 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 279.79 | |
| Interest on Operations Capital | $ 253.47 | cash expense @ | 5.50% | for 6.0 mo. | 6.97 | |
| **Total Operating and Use Related Ownership Costs** | | | | | 286.76 | |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 | |
| Real Estate Opportunity | Pivot (Marginal Land) | $ 4,858 | per acre @ | 4.00% | 194.32 | |
| Real Estate Taxes | | $ 4,858 | per acre @ | 1.00% | 48.58 | |
| **Total Cost per Acre Including Overhead** | | | | | 549.66 | |
| **Cost per AUM** | | | | | 49.97 | |
| **Cash Cost per AUM** | | | | | 28.09 | |

**2017 Budget 48-Peas, No-Till (35 bu Actual Yield)**
**Dryland**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | No-Till Drill | 1 | | 1.83 | 1.31 | 0.72 | 1.57 | 2.39 | 3.54 | 11.36 | |
| 2 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 3 | Combine Small Grain | 1 | | 3.14 | 3.87 | 7.31 | 0.94 | 5.99 | 2.84 | 24.09 | |
| 4 | Truck | Custom | | | | | | | | | |
| | **Total for Field Operations** | | | 5.97 | 5.45 | 8.38 | 3.15 | 9.53 | 7.26 | 39.74 | |

| Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|
| Peas | Seed | 1 | 100% | 3 | bushel | 18.00 | 54.00 | |
| Pea Seed Innoculent | Fungicide | 1 | 100% | 1 | pound | 8.00 | 8.00 | |
| Sharpen | Herbicide | 2 | 100% | 2 | ounce | 7.03 | 14.06 | |
| Glyphosate w/Surf | Herbicide | 2 | 100% | 32 | ounce | 0.10 | 3.13 | |
| 21-0-0-24S | Additive | 2 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| Haul Grain Bushels | Custom | 4 | 100% | 35 | bushel | 0.11 | 3.85 | |
| **Total Materials & Services** | | | | | | | 83.64 | |
| **Total listed costs for Field Operations and Materials and Services** | | | | | | | 123.38 | |
| Interest on Operations Capital | $ 106.59 | cash expense @ | | 5.50% | for 6.0 mo. | | 2.93 | |
| **Total Operating and Use Related Ownership Costs** | | | | | | | 126.31 | |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | | | 20.00 | |
| Real Estate Opportunity | Dryland (Panhandle) | $ 745 | per acre @ | 4.00% | | | 29.80 | |
| Real Estate Taxes | | $ 745 | per acre @ | 1.00% | | | 7.45 | |
| **Total Cost per Acre Including Overhead** | | | | | | | 183.56 | |
| **Cost per bu** | | | | | | | 5.24 | |
| **Cash Cost per bu** | | | | | | | 3.13 | |

the sum of totals of the first two sections with interest calculated on the cash costs. Cash costs in interest calculations include labor, fuel, and repairs from the list of field operations and all costs from the materials and services.

Overhead costs include accounting, liability insurance, vehicle cost, and office expense. Real estate cost is calculated using values from the UNL publication *Nebraska Farm Real Estate Market Developments* published in June 2016 times an investment rate of 4 percent. Taxes on real estate are not included in interest calculations because in Nebraska they are due at the end of the year in which they accrue and are not delinquent until May and September of the following year.

A **production cost and cash cost** per unit of production is calculated. The cost per unit of production is the sum of all costs divided by the projected yield. The cash cost per unit of production does not include machinery power and implement ownership, overhead, and real estate opportunity costs.

It should be noted that these budgets are cost estimates only and have no estimates as to profitability.

### Benefits of Soybeans in Corn/Soybean Rotation

The budgets for continuous soybeans are different from the budgets for soybeans after corn. A direct comparison of these budgets does not tell the entire story as some of the benefits from soybeans in a corn/soybean rotation are realized in the following corn crop.

One benefit is decrease of the corn rootworm problem. When corn follows soybeans, the rootworm insecticide can be omitted and purchasing corn seed with the root worm trait is not necessary. This amounts to approximately a $15 per acre savings to the following corn crop.

A second benefit is corn following soybeans will typically yield more. This increase is between 4 to 10 bushels per acre for irrigated corn and 10 to 30 bushels for dryland corn. Using a 10 bushel increase in corn and a price of $3 per bushel results in a $30 per acre increase in income.

A final benefit is the value of nitrogen produced by the soybean crop. If the soybeans produce 45 pounds of nitrogen per acre, this amounts to a savings to the corn crop of $18 per acre when nitrogen costs forty cents a pound.

The above benefits amount to $63 per acre, which does not include the benefits of spreading labor and machinery use requirements out over a longer time frame.

However, additional phosphorus must be applied to replace that used by the soybeans in a corn crop following soybeans. This amounts to about 0.8 pound for every bushel of soybeans produced. The cost to replace 48 pounds of $P_2O_5$ needed for a 60 bushel per acre soybean crop would be approximately $18 per acre.

**Table 1. Power Unit Cost Data Used for 2017 Budgets**

| *Name* | *List Price* | *Age* | *Total Tach* | *Est. Hours per Year* |
|---|---|---|---|---|
| Large Tractor | 331,066 | 10 | 1,500 | 300 |
| Medium Tractor | 224,262 | 5 | 2,500 | 500 |
| Combine | 351,122 | 10 | 1,500 | 300 |
| Electric Pump | 10,500 | 5 | 2,400 | 800 |
| Diesel Pump for Pivot | 15,750 | 10 | 2,400 | 800 |
| Diesel Pump for Pipe | 15,750 | 10 | 2,400 | 800 |
| Windrower | 150,309 | 10 | 2,500 | 120 |

**2017 Budget 49-Sorghum-Sudan, Annually Planted, Large Round Bale (3.3 ton Actual Yield)**
**Dryland**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Disk | 1 | | 2.02 | 1.97 | 0.30 | 1.27 | 4.32 | 1.23 | 11.11 | |
| 2 | Spray Fertilizer | 1 | | 1.00 | 0.27 | 0.35 | 0.19 | 1.15 | 2.21 | 5.17 | |
| 3 | Field Cultivation | 1 | | 1.47 | 1.41 | 0.58 | 1.33 | 1.91 | 1.64 | 8.34 | |
| 4 | Drill | 1 | | 1.76 | 1.03 | 0.69 | 2.94 | 2.29 | 2.62 | 11.33 | |
| 5 | Swath/Condition Hay | 1 | | 2.00 | 1.29 | 2.31 | 0.00 | 3.65 | 0.00 | 9.25 | |
| 6 | Large Round Bale | 3.3 | ton | 7.26 | 2.46 | 2.85 | 3.55 | 9.46 | 3.70 | 29.28 | |
| 7 | Move Large Round | 3.3 | ton | 3.63 | 1.71 | 1.42 | 0.00 | 4.73 | 0.20 | 11.69 | |
| | **Total for Field Operations** | | | 19.14 | 10.14 | 8.50 | 9.28 | 27.51 | 11.60 | 86.17 | |

| Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|
| 28-0-0 | Fertilizer | 2 | 100% | 40 | lbs N | 0.43 | 17.33 | |
| Sorghum Sudan | Seed | 4 | 100% | 10 | pound | 0.60 | 6.00 | |
| Twine Large Round | Other | 6 | 100% | 3.3 | ton | 0.91 | 3.00 | |
| **Total Materials & Services** | | | | | | | 26.33 | |

| | | | | | |
|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 112.50 |
| Interest on Operations Capital | $ 73.39 | cash expense @ | 5.50% | for 6.0 mo. | 2.02 |
| **Total Operating and Use Related Ownership Costs** | | | | | 114.52 |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 |
| Real Estate Opportunity | Dryland (State) $ 3,470 | per acre @ | 4.00% | | 138.80 |
| Real Estate Taxes | $ 3,470 | per acre @ | 1.00% | | 34.70 |
| **Total Cost per Acre Including Overhead** | | | | | 308.02 |
| **Cost per ton** | | | | | 93.34 |
| **Cash Cost per ton** | | | | | 33.37 |

**2017 Budget 50-Soybeans, Tilled Seed Bed, Roundup Ready after Corn˜ (40 bu Actual Yield)**
**Dryland**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Disk | 1 | | 2.02 | 1.97 | 0.30 | 1.27 | 4.32 | 1.23 | 11.11 | |
| 2 | Field Cultivation | 1 | | 1.47 | 1.41 | 0.58 | 1.33 | 1.91 | 1.64 | 8.34 | |
| 3 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 4 | Plant | 1 | | 2.40 | 0.71 | 0.86 | 2.54 | 2.87 | 3.89 | 13.27 | |
| 5 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 6 | Aerial Spray | Custom | | | | | | | | | |
| 7 | Combine Dryland SB | 1 | | 3.38 | 4.18 | 7.87 | 1.11 | 6.45 | 2.84 | 25.83 | |
| 8 | Truck | Custom | | | | | | | | | |
| | **Total for Field Operations** | | | 11.27 | 8.81 | 10.31 | 7.53 | 17.85 | 11.36 | 67.13 | |

| | Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|
| | Valor XLT | Herbicide | 3 | 100% | 3 | ounce | 5.75 | 17.25 | |
| | RR Soybeans | Seed | 4 | 100% | 1 | bag | 50.00 | 50.00 | |
| | Glyphosate w/Surf | Herbicide | 5 | 100% | 32 | ounce | 0.10 | 3.13 | |
| | Select Max | Herbicide | 5 | 100% | 6 | ounce | 0.86 | 5.16 | |
| | 21-0-0-24S | Additive | 5 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| * | Aerial Spray | Custom | 6 | 20% | 1 | acre | 10.00 | 2.00 | |
| * | Warrior II/Zeon | Insecticide | 6 | 20% | 1.6 | ounce | 2.97 | 0.95 | |
| | Haul Grain Bushels | Custom | 8 | 100% | 40 | bushel | 0.11 | 4.40 | |
| | Scouting Dryland Soybeans | Scouting | | 100% | 1 | acre | 7.00 | 7.00 | |
| | | Crop Insurance | | | | | 12.68 | 0.00 | |
| | **Total Materials & Services** | | | | | | | 90.49 | |

* Insecticide for Aphids and Caterpillars

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | | 157.62 |
| Interest on Operations Capital | $ 128.41 | cash expense @ | 5.50% | for 6.0 mo. | | 3.53 |
| **Total Operating and Use Related Ownership Costs** | | | | | | 161.15 |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | | 20.00 |
| Real Estate Opportunity | Dryland (State) | $ 3,470 | per acre @ | 4.00% | | 138.80 |
| Real Estate Taxes | | $ 3,470 | per acre @ | 1.00% | | 34.70 |
| **Total Cost per Acre Including Overhead** | | | | | | 354.65 |
| **Cost per bu** | | | | | | 8.87 |
| **Cash Cost per bu** | | | | | | 4.17 |

˜See benefits of soybeans in a corn/soybean rotation

**2017 Budget 51-Soybeans, No-Till, Roundup Ready after Corn˜ (45 bu Actual Yield)**
**Dryland**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spray Spring Burndown Herbicide | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 2 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 3 | Plant No-Till | 1 | | 2.40 | 0.87 | 0.86 | 4.41 | 2.87 | 6.77 | 18.18 | |
| 4 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 5 | Aerial Spray | Custom | | | | | | | | | |
| 6 | Combine Dryland SB | 1 | | 3.38 | 4.18 | 7.87 | 1.11 | 6.45 | 2.84 | 25.83 | |
| 7 | Truck | Custom | | | | | | | | | |
| | **Total for Field Operations** | | | 8.78 | 5.86 | 9.78 | 7.44 | 12.77 | 12.25 | 56.88 | |

| | Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|
| | Glyphosate w/Surf | Herbicide | 1 | 100% | 32 | ounce | 0.10 | 3.13 | |
| | 2,4-D Ester 4# | Herbicide | 1 | 100% | 1 | pint | 2.25 | 2.25 | |
| | 21-0-0-24S | Additive | 1 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| | Valor XLT | Herbicide | 1 | 100% | 3 | ounce | 5.75 | 17.25 | |
| | 2,4-D Ester 4# | Herbicide | 1 | 100% | 1 | pint | 2.25 | 2.25 | |
| | Glyphosate w/Surf | Herbicide | 1 | 100% | 32 | ounce | 0.10 | 3.13 | |
| | 21-0-0-24S | Additive | 1 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| | RR Soybeans | Seed | 2 | 100% | 1 | bag | 50.00 | 50.00 | |
| * | Glyphosate w/Surf | Herbicide | 3 | 100% | 32 | ounce | 0.10 | 3.13 | |
| * | Select Max | Herbicide | 3 | 100% | 6 | ounce | 0.86 | 5.16 | |
| | 21-0-0-24S | Additive | 3 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| | Aerial Spray | Custom | 4 | 20% | 1 | acre | 10.00 | 2.00 | |
| | Warrior II/Zeon | Insecticide | 4 | 20% | 1.6 | ounce | 2.97 | 0.95 | |
| | Haul Grain Bushels | Custom | 6 | 100% | 45 | bushel | 0.11 | 0.00 | |
| | Scouting Dryland Soybeans | Scouting | | 100% | 1 | acre | 7.00 | 7.00 | |
| | | Crop Insurance | | | | | 12.68 | 0.00 | |
| | **Total Materials & Services** | | | | | | | 98.05 | |

* Insecticide for Aphids and Caterpillars

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials & Services** | | | | | | 154.93 |
| Interest on Operations Capital | $ 129.91 | cash expense @ | 5.50% | for 6.0 mo. | | 3.57 |
| **Total Operating and Use Related Ownership Costs** | | | | | | 158.50 |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | | 20.00 |
| Real Estate Opportunity | Dryland (State) | $ 3,470 | per acre @ | 4.00% | | 138.80 |
| Real Estate Taxes | | $ 3,470 | per acre @ | 1.00% | | 34.70 |
| **Total Cost per Acre Including Overhead** | | | | | | 352.00 |
| **Cost per bu** | | | | | | 7.82 |
| **Cash Cost per bu** | | | | | | 3.74 |

˜See benefits of soybeans in a corn/soybean rotation

**2017 Budget 52-Soybeans, No-Till, Roundup Ready, Continuous˜ (40 bu Actual Yield)**
**Dryland**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spray Spring Burndown Herbicide | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 2 | Plant No-Till | 1 | | 2.40 | 0.87 | 0.86 | 4.41 | 2.87 | 6.77 | 18.18 | |
| 3 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 4 | Aerial Spray | Custom | | | | | | | | | |
| 5 | Combine Dryland SB | 1 | | 3.38 | 4.18 | 7.87 | 1.11 | 6.45 | 2.84 | 25.83 | |
| 6 | Truck | Custom | | | | | | | | | |
| | **Total for Field Operations** | | | 7.78 | 5.59 | 9.43 | 6.80 | 11.62 | 11.37 | 52.59 | |

| | Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|
| | Valor XLT | Herbicide | 1 | 100% | 3 | ounce | 5.75 | 17.25 | |
| | 2,4-D Ester 4# | Herbicide | 1 | 100% | 1 | pint | 2.25 | 2.25 | |
| | Glyphosate w/Surf | Herbicide | 1 | 100% | 32 | ounce | 0.10 | 3.13 | |
| | 21-0-0-24S | Additive | 1 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| | RR Soybeans | Seed | 2 | 100% | 1 | bag | 50.00 | 50.00 | |
| | Glyphosate w/Surf | Herbicide | 3 | 100% | 32 | ounce | 0.10 | 3.13 | |
| | 21-0-0-24S | Additive | 3 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| * | Aerial Spray | Custom | 4 | 20% | 1 | acre | 10.00 | 2.00 | |
| * | Warrior II/Zeon | Insecticide | 4 | 20% | 1.6 | ounce | 2.97 | 0.95 | |
| | Haul Grain Bushels | Custom | 6 | 100% | 40 | bushel | 0.11 | 4.40 | |
| | Scouting Dryland Soybeans | Scouting | | 100% | 1 | acre | 7.00 | 7.00 | |
| | | Crop Insurance | | | | | 12.68 | 0.00 | |
| | **Total Materials & Services** | | | | | | | 91.31 | |

* Insecticide for Aphids and Caterpillars

| | | | | | |
|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 143.90 |
| Interest on Operations Capital | $ 120.91 | cash expense @ | 5.50% | for 6.0 mo. | 3.33 |
| **Total Operating and Use Related Ownership Costs** | | | | | 147.23 |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 |
| Real Estate Opportunity | Dryland (State) | $ 3,470 | per acre @ | 4.00% | 138.80 |
| Real Estate Taxes | | $ 3,470 | per acre @ | 1.00% | 34.70 |
| **Total Cost per Acre Including Overhead** | | | | | 340.73 |
| **Cost per bu** | | | | | 8.52 |
| **Cash Cost per bu** | | | | | 3.97 |

˜Cost to replace $P_2O_5$ - 0.8 lb/bushel of yield produced

**2017 Budget 53-Soybeans, Tilled Seedbed, Roundup Ready after Corn˜ (62 bu Actual Yield)**
**Pivot Irrigated, 800 GPM 35 PSI, 9 acre/inches**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Disk | 1 | | 2.02 | 1.97 | 0.30 | 1.27 | 4.32 | 1.23 | 11.11 | |
| 2 | Field Cultivation | 1 | | 1.47 | 1.41 | 0.58 | 1.33 | 1.91 | 1.64 | 8.34 | |
| 3 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 4 | Plant | 1 | | 2.40 | 0.71 | 0.86 | 2.54 | 2.87 | 3.89 | 13.27 | |
| 5 | Pivot D 125' Lift | 9 | ai | 6.25 | 43.21 | 3.09 | 14.53 | 4.47 | 8.69 | 80.24 | |
| 6 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 7 | Aerial Spray | Custom | | | | | | | | | |
| 8 | Aerial Spray | Custom | | | | | | | | | |
| 9 | Combine Irr SB | 1 | | 3.67 | 4.53 | 8.53 | 1.33 | 6.99 | 2.84 | 27.89 | |
| 10 | Truck | Custom | | | | | | | | | |
| | **Total for Field Operations** | | | 17.81 | 52.37 | 14.06 | 22.28 | 22.86 | 20.05 | 149.43 | |

| | Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|
| | Valor XLT | Herbicide | 3 | 100% | 3 | ounce | 5.75 | 17.25 | |
| | RR Soybeans | Seed | 4 | 100% | 1 | bag | 50.00 | 50.00 | |
| | Glyphosate w/Surf | Herbicide | 6 | 100% | 32 | ounce | 0.10 | 3.13 | |
| | Select Max | Herbicide | 6 | 100% | 6 | ounce | 0.86 | 5.16 | |
| | 21-0-0-24S | Additive | 6 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| * | Aerial Spray | Custom | 7 | 20% | 1 | acre | 10.00 | 2.00 | |
| * | Warrior II/Zeon | Insecticide | 7 | 20% | 1.6 | ounce | 2.97 | 0.95 | |
| | Aerial Spray | Custom | 8 | 50% | 1 | acre | 10.00 | 5.00 | |
| | Priaxor | Fungicide | 8 | 50% | 4 | ounce | 5.47 | 10.94 | |
| | Haul Grain Bushels | Custom | 10 | 100% | 62 | bushel | 0.11 | 6.82 | |
| | Scouting Irrigated Soybeans | Scouting | | 100% | 1 | acre | 9.00 | 9.00 | |
| | | Crop Insurance | | | | | 4.60 | 0.00 | |
| | **Total Materials & Services** | | | | | | | 110.85 | |

* Insecticide for Aphids and Caterpillars

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | | 260.28 |
| Interest on Operations Capital | $ 217.37 | cash expense @ | 5.50% | for 6.0 mo. | | 5.98 |
| **Total Operating and Use Related Ownership Costs** | | | | | | 266.26 |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | | 20.00 |
| Real Estate Opportunity | Pivot (State) | $ 6,940 | per acre @ | 4.00% | | 277.60 |
| Real Estate Taxes | | $ 6,940 | per acre @ | 1.00% | | 69.40 |
| **Total Cost per Acre Including Overhead** | | | | | | 633.26 |
| **Cost per bu** | | | | | | 10.21 |
| **Cash Cost per bu** | | | | | | 4.72 |

˜See benefits of soybeans in a corn/soybean rotation

**2017 Budget 54-Soybeans, Ridge Till, Roundup Ready after Corn˜ (62 bu Actual Yield)**
**Gravity Irrigated, 1,000 GPM 10 PSI, 12 acre/inches**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spray Spring Burndown Herbicide | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 2 | Ridge Plant and Band Herbicide | 1 | | 2.40 | 0.88 | 0.86 | 6.89 | 2.87 | 4.62 | 18.52 | |
| 3 | Ridge Cultivation | 1 | | 2.00 | 1.38 | 0.86 | 0.89 | 2.87 | 1.09 | 9.09 | |
| 4 | Ridge Cultivate/Ditch | 1 | | 1.83 | 1.15 | 0.72 | 0.37 | 2.39 | 1.64 | 8.10 | |
| 5 | Pipe D 125' Lift | 12 | ai | 22.22 | 41.81 | 3.29 | 2.28 | 5.60 | 4.05 | 79.25 | |
| 6 | Spray | 0.5 | | 0.50 | 0.14 | 0.17 | 0.32 | 0.57 | 0.44 | 2.14 | |
| 7 | Aerial Spray | Custom | | | | | | | | | |
| 8 | Aerial Spray | Custom | | | | | | | | | |
| 9 | Combine Irr SB | 1 | | 3.67 | 4.53 | 8.53 | 1.33 | 6.99 | 2.84 | 27.89 | |
| 10 | Truck | Custom | | | | | | | | | |
| | **Total for Field Operations** | | | 33.62 | 50.16 | 14.78 | 12.72 | 22.44 | 15.56 | 149.28 | |

| | Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|
| | Glyphosate w/Surf | Herbicide | 1 | 100% | 32 | ounce | 0.10 | 3.13 | |
| | 2,4-D Ester 4# | Herbicide | 1 | 100% | 1 | pint | 2.25 | 2.25 | |
| | 21-0-0-24S | Additive | 2 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| | Valor XLT | Herbicide | 2 | 33% | 3 | ounce | 5.75 | 5.69 | |
| | RR Soybeans | Seed | 2 | 100% | 1 | bag | 50.00 | 50.00 | |
| | Glyphosate w/Surf | Herbicide | 6 | 50% | 32 | ounce | 0.10 | 1.56 | |
| | 21-0-0-24S | Additive | 6 | 50% | 1.7 | pound | 0.35 | 0.30 | |
| * | Select Max | Herbicide | 6 | 40% | 6 | ounce | 0.86 | 2.06 | |
| * | Crop Oil Concentrate | Additive | 6 | 40% | 2 | pint | 1.13 | 0.90 | |
| | Aerial Spray | Custom | 7 | 20% | 1 | acre | 10.00 | 2.00 | |
| | Warrior II/Zeon | Insecticide | 7 | 20% | 1.6 | ounce | 2.97 | 0.95 | |
| | Aerial Spray | Custom | 8 | 50% | 1 | acre | 10.00 | 5.00 | |
| | Stratego YLD | Fungicide | 8 | 50% | 4 | ounce | 4.69 | 9.38 | |
| | Haul Grain Bushels | Custom | 10 | 100% | 62 | bushel | 0.11 | 6.82 | |
| | Scouting Irrigated Soybeans | Scouting | | 100% | 1 | acre | 9.00 | 9.00 | |
| | | Crop Insurance | | | | | 4.60 | 0.00 | |
| | **Total Materials & Services** | | | | | | | 99.64 | |

* Insecticide for Aphids and Caterpillars

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 248.92 | |
| Interest on Operations Capital | $ 210.92 | cash expense @ | 5.50% | for 6.0 mo. | 5.80 | |
| **Total Operating and Use Related Ownership Costs** | | | | | 254.72 | |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 | |
| Real Estate Opportunity | Gravity (State) | $ 6,480 | per acre @ | 4.00% | 259.20 | |
| Real Estate Taxes | | $ 6,480 | per acre @ | 1.00% | 64.80 | |
| **Total Cost per Acre Including Overhead** | | | | | 598.72 | |
| **Cost per bu** | | | | | 9.66 | |
| **Cash Cost per bu** | | | | | 4.54 | |

˜See benefits of soybeans in a corn/soybean rotation

**2017 Budget 55-Soybeans, No-Till 15-inch Row, Roundup Ready after Corn˜ (65 bu Actual Yield)**
**Pivot Irrigated, 800 GPM 35 PSI, 6 acre/inches**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spray Spring Burndown Herbicide | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 2 | Plant Narrow Row | 1 | | 2.40 | 0.67 | 0.86 | 2.54 | 2.87 | 3.89 | 13.23 | |
| 3 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 4 | Aerial Spray | Custom | | | | | | | | | |
| 5 | Aerial Spray | Custom | | | | | | | | | |
| 6 | Pivot D 125' Lift | 6 | ai | 4.17 | 28.81 | 2.06 | 9.68 | 2.98 | 5.79 | 53.49 | |
| 7 | Combine Irr SB | 1 | | 3.67 | 4.53 | 8.53 | 1.33 | 6.99 | 2.84 | 27.89 | |
| 8 | Truck | Custom | | | | | | | | | |
| | **Total for Field Operations** | | | 12.24 | 34.55 | 12.15 | 14.83 | 15.14 | 14.28 | 103.19 | |

| | Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|
| | Glyphosate w/Surf | Herbicide | 1 | 100% | 32 | ounce | 0.10 | 3.13 | |
| | 2,4-D Ester 4# | Herbicide | 1 | 100% | 1 | pint | 2.25 | 2.25 | |
| | 21-0-0-24S | Additive | 1 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| | Valor XLT | Herbicide | 1 | 100% | 3 | ounce | 5.75 | 17.25 | |
| | RR Soybeans | Seed | 2 | 100% | 1 | bag | 50.00 | 50.00 | |
| | Glyphosate w/Surf | Herbicide | 3 | 100% | 32 | ounce | 0.10 | 3.13 | |
| | Select Max | Herbicide | 3 | 100% | 6 | ounce | 0.86 | 5.16 | |
| | 21-0-0-24S | Additive | 3 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| * | Aerial Spray | Custom | 4 | 20% | 1 | acre | 10.00 | 2.00 | |
| * | Warrior II/Zeon | Insecticide | 4 | 20% | 1.6 | ounce | 2.97 | 0.95 | |
| | Aerial Spray | Custom | 5 | 50% | 1 | acre | 10.00 | 5.00 | |
| | Quilt Xcel | Fungicide | 5 | 50% | 10.5 | ounce | 1.72 | 9.02 | |
| | Haul Grain Bushels | Custom | 8 | 100% | 65 | bushel | 0.11 | 7.15 | |
| | Scouting Irrigated Soybeans | Scouting | | 100% | 1 | acre | 9.00 | 9.00 | |
| | | Crop Insurance | | | | | 4.68 | 0.00 | |
| | **Total Materials & Services** | | | | | | | 115.24 | |

* Insecticide for Aphids and Caterpillars

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | | 218.43 |
| Interest on Operations Capital | $ 189.01 | cash expense @ | 5.50% | for 6.0 mo. | | 5.20 |
| **Total Operating and Use Related Ownership Costs** | | | | | | 223.63 |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | | 20.00 |
| Real Estate Opportunity | Pivot (State) | $ 6,940 | per acre @ | 4.00% | | 277.60 |
| Real Estate Taxes | | $ 6,940 | per acre @ | 1.00% | | 69.40 |
| **Total Cost per Acre Including Overhead** | | | | | | 590.63 |
| **Cost per bu** | | | | | | 9.09 |
| **Cash Cost per bu** | | | | | | 4.06 |

˜See benefits of soybeans in a corn/soybean rotation

**2017 Budget 56-Soybeans, Roundup Ready, No-Till Narrow Row, Continuous˜ (59 bu Actual Yield)**
**Pivot Irrigated, 800 GPM 35 PSI, 6 acre/inches**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spray Spring Burndown Herbicide | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 2 | Plant Narrow Row | 1 | | 2.40 | 0.67 | 0.86 | 2.54 | 2.87 | 3.89 | 13.23 | |
| 3 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 4 | Aerial Spray | Custom | | | | | | | | | |
| 5 | Aerial Spray | Custom | | | | | | | | | |
| 6 | Pivot D 125' Lift | 6 | ai | 4.17 | 28.81 | 2.06 | 9.68 | 2.98 | 5.79 | 53.49 | |
| 7 | Combine Irr SB | 1 | | 3.67 | 4.53 | 8.53 | 1.33 | 6.99 | 2.84 | 27.89 | |
| 8 | Truck | Custom | | | | | | | | | |
| | **Total for Field Operations** | | | 12.24 | 34.55 | 12.15 | 14.83 | 15.14 | 14.28 | 103.19 | |

| | Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|
| | Glyphosate w/Surf | Herbicide | 1 | 100% | 32 | ounce | 0.10 | 3.13 | |
| | 2,4-D Ester 4# | Herbicide | 1 | 100% | 1 | pint | 2.25 | 2.25 | |
| | 21-0-0-24S | Additive | 1 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| | Valor XLT | Herbicide | 1 | 100% | 3 | ounce | 5.75 | 17.25 | |
| | RR2 Soybeans Treated | Seed | 2 | 100% | 1 | bag | 65.00 | 65.00 | |
| | Glyphosate w/Surf | Herbicide | 3 | 50% | 32 | ounce | 0.10 | 1.56 | |
| | 21-0-0-24S | Additive | 3 | 50% | 1.7 | pound | 0.35 | 0.30 | |
| * | Aerial Spray | Custom | 4 | 20% | 1 | acre | 10.00 | 2.00 | |
| * | Warrior II/Zeon | Insecticide | 4 | 20% | 1.6 | ounce | 2.97 | 0.95 | |
| | Aerial Spray | Custom | 5 | 50% | 1 | acre | 10.00 | 5.00 | |
| | Priaxor | Fungicide | 5 | 50% | 4 | ounce | 5.47 | 10.94 | |
| | Haul Grain Bushels | Custom | 8 | 100% | 59 | bushel | 0.11 | 6.49 | |
| | Scouting Irrigated Soybeans | Scouting | | 100% | 1 | acre | 9.00 | 9.00 | |
| | | Crop Insurance | | | | | 4.53 | 0.00 | |
| | **Total Materials & Services** | | | | | | | 124.47 | |

* Insecticide for Aphids and Caterpillars

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 227.66 | |
| Interest on Operations Capital | $ 198.24 | cash expense @ | 5.50% | for 6.0 mo. | 5.45 | |
| **Total Operating and Use Related Ownership Costs** | | | | | 233.11 | |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 | |
| Real Estate Opportunity | Pivot (State) | $ 6,940 | per acre @ | 4.00% | 277.60 | |
| Real Estate Taxes | | $ 6,940 | per acre @ | 1.00% | 69.40 | |
| **Total Cost per Acre Including Overhead** | | | | | 600.11 | |
| **Cost per bu** | | | | | 10.17 | |
| **Cash Cost per bu** | | | | | 4.63 | |

˜Cost to replace $P_2O_5$ - 0.8 lb/bushel of yield produced

**2017 Budget 57-Soybeans, No-Till Drilled 7.5-inch Rows, Roundup Ready after Corn˜ (65 bu Actual Yield)**
**Pivot Irrigated, 800 GPM 35 PSI, 6 acre/inches**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spray Spring Burndown Herbicide | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 2 | No-Till Drill | 1 | | 1.83 | 1.31 | 0.72 | 1.57 | 2.39 | 3.54 | 11.36 | |
| 3 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 4 | Aerial Spray | Custom | | | | | | | | | |
| 5 | Aerial Spray | Custom | | | | | | | | | |
| 6 | Pivot D 125' Lift | 6 | ai | 4.17 | 28.81 | 2.06 | 9.68 | 2.98 | 5.79 | 53.49 | |
| 7 | Combine Irr SB | 1 | | 3.67 | 4.53 | 8.53 | 1.33 | 6.99 | 2.84 | 27.89 | |
| 8 | Truck | Custom | | | | | | | | | |
| | **Total for Field Operations** | | | 11.67 | 35.19 | 12.01 | 13.86 | 14.66 | 13.93 | 101.32 | |

| | Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|
| | Glyphosate w/Surf | Herbicide | 1 | 100% | 32 | ounce | 0.10 | 3.13 | |
| | 2,4-D Ester 4# | Herbicide | 1 | 100% | 1 | pint | 2.25 | 2.25 | |
| | 21-0-0-24S | Additive | 1 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| | Valor XLT | Herbicide | 1 | 100% | 3 | ounce | 5.75 | 17.25 | |
| | RR Soybeans | Seed | 2 | 100% | 1 | bag | 50.00 | 50.00 | |
| | Glyphosate w/Surf | Herbicide | 3 | 100% | 32 | ounce | 0.10 | 3.13 | |
| | Select Max | Herbicide | 3 | 100% | 6 | ounce | 0.86 | 5.16 | |
| | 21-0-0-24S | Additive | 3 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| * | Aerial Spray | Custom | 4 | 20% | 1 | acre | 10.00 | 2.00 | |
| * | Warrior II/Zeon | Insecticide | 4 | 20% | 1.6 | ounce | 2.97 | 0.95 | |
| | Aerial Spray | Custom | 5 | 50% | 1 | acre | 10.00 | 5.00 | |
| | Stratego YLD | Fungicide | 5 | 50% | 4 | ounce | 4.69 | 9.38 | |
| | Haul Grain Bushels | Custom | 8 | 100% | 65 | bushel | 0.11 | 7.15 | |
| | Scouting Irrigated Soybeans | Scouting | | 100% | 1 | acre | 9.00 | 9.00 | |
| | | Crop Insurance | | | | | 4.68 | 0.00 | |
| | **Total Materials & Services** | | | | | | | 115.60 | |

* Insecticide for Aphids and Caterpillars

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | | 216.92 |
| Interest on Operations Capital | $ 188.33 | cash expense @ | 5.50% | for 6.0 mo. | | 5.18 |
| **Total Operating and Use Related Ownership Costs** | | | | | | 222.10 |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | | 20.00 |
| Real Estate Opportunity | Pivot (State) | $ 6,940 | per acre @ | 4.00% | | 277.60 |
| Real Estate Taxes | | $ 6,940 | per acre @ | 1.00% | | 69.40 |
| **Total Cost per Acre Including Overhead** | | | | | | 589.10 |
| **Cost per bu** | | | | | | 9.06 |
| **Cash Cost per bu** | | | | | | 4.04 |

˜See benefits of soybeans in a corn/soybean rotation

**2017 Budget 58-Sugarbeet, Panhandle, Roundup Ready, One Pass Zone-Tillage (26 ton Actual Yield)**
**Canal Irrigated, 20 acre/inches**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Disk | 1 | | 2.02 | 1.97 | 0.30 | 1.27 | 4.32 | 1.23 | 11.11 | |
| 2 | Spray Fertilizer | 1 | | 1.00 | 0.27 | 0.35 | 0.19 | 1.15 | 2.21 | 5.17 | |
| 3 | Spray | Custom | | | | | | | | | |
| 4 | Till Plant Beets | 1 | | 3.67 | 3.56 | 0.55 | 4.89 | 7.85 | 2.57 | 23.09 | |
| 5 | Rotary Hoe | 1 | | 1.50 | 0.65 | 0.59 | 0.37 | 1.95 | 1.37 | 6.43 | |
| 6 | Row Crop Cultivation | 1 | | 2.00 | 0.82 | 0.78 | 0.44 | 2.60 | 1.64 | 8.28 | |
| 7 | Ridge Cultivate/Ditch | 1 | | 1.83 | 1.15 | 0.72 | 0.37 | 2.39 | 1.64 | 8.10 | |
| 8 | Spray | Custom | | | | | | | | | |
| 9 | Ditch Irrigation | 20 | ai | 22.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 22.22 | |
| 10 | Spray | Custom | | | | | | | | | |
| 11 | Aerial Spray | Custom | | | | | | | | | |
| 12 | Top Beets | 1 | | 3.45 | 1.56 | 1.49 | 3.32 | 4.95 | 2.16 | 16.93 | |
| 13 | Lift Beets | 1 | | 3.67 | 2.67 | 0.55 | 13.70 | 7.85 | 5.51 | 33.95 | |
| 14 | Truck | Custom | | | | | | | | | |
| 15 | Subsoil | 1 | | 2.22 | 2.37 | 0.36 | 1.62 | 5.23 | 6.54 | 18.34 | |
| | **Total for Field Operations** | | | 43.58 | 15.02 | 5.69 | 26.17 | 38.29 | 24.87 | 153.62 | |

| Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|
| 10-34-0 | Fertilizer | 2 | 100% | 13.4 | gallon | 2.40 | 32.16 | |
| 28-0-0 | Fertilizer | 2 | 100% | 115 | lbs N | 0.43 | 49.83 | |
| Spray | Custom | 3,8, 10 | 300% | 1 | acre | 7.00 | 21.00 | |
| Glyphosate w/Surf | Herbicide | 3 | 100% | 36 | ounce | 0.10 | 3.52 | |
| 21-0-0-24S | Additive | 3 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| Sugar Beets RR Poncho | Seed | 4 | 100% | 1 | acre | 180.00 | 180.00 | |
| Spray | Custom | 8 | 100% | 1 | acre | 7.00 | 7.00 | |
| Glyphosate w/Surf | Herbicide | 8 | 100% | 36 | ounce | 0.10 | 3.52 | |
| 21-0-0-24S | Additive | 8 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| Irrigation District O&M Charge | Other | 9 | 100% | 1 | acre | 30.00 | 30.00 | |
| Spray | Custom | 10 | 100% | 1 | acre | 7.00 | 7.00 | |
| Glyphosate w/Surf | Herbicide | 10 | 100% | 36 | ounce | 0.10 | 3.52 | |
| 21-0-0-24S | Additive | 10 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| Aerial Spray | Custom | 11 | 100% | 1 | acre | 10.00 | 10.00 | |
| Quadris | Fungicide | 11 | 100% | 7 | ounce | 2.34 | 16.41 | |
| Haul Beets | Custom | 14 | 100% | 26 | ton | 5.00 | 130.00 | |
| Scouting Sugar Beets | Scouting | | 100% | 1 | acre | 16.00 | 16.00 | |
| | Crop Insurance | | | | | 19.09 | 0.00 | |
| **Total Materials & Services** | | | | | | | 511.76 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 665.38 | |
| Interest on Operations Capital | $ 602.22 | cash expense @ | 5.50% | for 6.0 mo. | 16.56 | |
| **Total Operating and Use Related Ownership Costs** | | | | | 681.94 | |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 | |
| Real Estate Opportunity | Gravity (Panhandle) | $ 2,970 | per acre @ | 4.00% | 118.80 | |
| Real Estate Taxes | | $ 2,970 | per acre @ | 1.00% | 29.70 | |
| **Total Cost per Acre Including Overhead** | | | | | 850.44 | |
| **Cost per ton** | | | | | 32.71 | |
| **Cash Cost per ton** | | | | | 23.80 | |

## Table 2. Machinery Cost Data Used for 2017 Budgets

| *Operation Name* | *List Price* | *Age* | *Annual Use* | *Units* | *Units per Hour* | *Diesel Use per Hour* |
|---|---|---|---|---|---|---|
| Anhydrous Apply | N/A | 5 | 500 | acre | 12 | 6.36 |
| Bale Large Round | 22,417 | 5 | 1,000 | ton | 10 | 2.88 |
| Bale Large Square | 120,658 | 5 | 1,000 | ton | 16 | 6.19 |
| Bale Small Square | 24,555 | 5 | 1,250 | ton | 4 | 3.50 |
| Cart | 42,000 | 5 | 440,000 | bushel | 1,540 | 3.00 |
| Chisel | 59,791 | 5 | 2,000 | acre | 11 | 8.26 |
| Chop Stalks | 19,971 | 5 | 500 | acre | 12 | 5.74 |
| Combine Dryland Corn | 53,013 | 5 | 1,000 | acre | 7 | 10.50 |
| Combine Dryland SB | 32,435 | 5 | 1,000 | acre | 7 | 10.50 |
| Combine Dryland SG | 32,435 | 5 | 1,000 | acre | 7 | 10.50 |
| Combine Irrigated Corn | 53,013 | 5 | 1,000 | acre | 7 | 10.50 |
| Combine Irrigated Dry Beans | 32,435 | 5 | 1,000 | acre | 5 | 10.50 |
| Combine Irrigated SB | 32,435 | 5 | 1,000 | acre | 6 | 10.50 |
| Combine Irrigated SG | 32,435 | 5 | 1,000 | acre | 7 | 10.50 |
| Combine Irrigated Dry Beans with Draper Flex Platform | 32,435 | 5 | 1,000 | acre | 5 | 10.50 |
| Combine Small Grain | 32,435 | 5 | 1,000 | acre | 7 | 10.47 |
| Combine Sunflowers | 53,013 | 5 | 1,000 | acre | 7 | 10.50 |
| Corrugate | 30,000 | 5 | 300 | acre | 7 | 4.39 |
| Disk | 44,962 | 5 | 2,000 | acre | 11 | 8.29 |
| Double Windrows | 7,403 | 20 | 300 | acre | 20 | 2.11 |
| Drill | 66,251 | 10 | 1,000 | acre | 13 | 4.99 |
| Drill Grass | 73,000 | 10 | 1,000 | acre | 9 | 4.29 |
| Drill No-Till | 66,251 | 5 | 1,000 | acre | 12 | 6.07 |
| Drill w/ Fertilizer | 66,251 | 10 | 1,000 | acre | 11 | 5.00 |
| Fallow Master | 59,791 | 5 | 2,000 | acre | 13 | 8.62 |
| Field Cultivation | 59,791 | 5 | 2,000 | acre | 15 | 8.20 |
| Harrow | | 5 | 1,000 | acre | 19 | 2.05 |
| Irrigation Ditch | N/A | 5 | 1,000 | acre-inch | 2 | - |
| Irrigation Pipe D 125' Lift | N/A | 10 | 2,600 | acre-inch | 2 | 3.03 |
| Irrigation Pivot D 125' Lift | 70,000 | 10 | 2,600 | acre-inch | 2 | 3.34 |
| Irrigation Pivot D 125' Lift w/fertigation | 75,000 | 10 | 2,600 | acre-inch | 2 | 3.34 |
| Irrigation Pivot E 125' Lift | 70,000 | 10 | 2,600 | acre-inch | 2 | |
| Irrigation Pivot E 125' Lift w/fertigation | 75,000 | 10 | 2,600 | acre-inch | 2 | |
| Lift Beets | 110,000 | 5 | 1,000 | acre | 6 | 6.19 |
| Load Large Square | 4,213 | 5 | 3,000 | ton | 20 | 4.00 |
| Move Large Round | 4,213 | 5 | 3,000 | ton | 20 | 4.00 |
| Pickett Windrower | 32,000 | 5 | 1,000 | acre | 10 | 6.07 |
| Plant | 72,828 | 5 | 1,000 | acre | 10 | 2.73 |
| Plant Narrow Row | 72,828 | 5 | 1,000 | acre | 10 | 2.58 |
| Plant No-Till | 126,703 | 5 | 1,000 | acre | 10 | 3.38 |
| Plow | 15,874 | 5 | 1,000 | acre | 8 | 6.00 |
| Ridge Cultivate/Ditch | 30,000 | 5 | 1,000 | acre | 12 | 5.33 |
| Ridge Cultivation | 30,000 | 5 | 1,500 | acre | 10 | 5.33 |
| Ridge Plant and Band Herbicide | 126,703 | 5 | 1,500 | acre | 10 | 3.41 |
| Rod Weeder | | 5 | 1,000 | acre | 13 | 5.35 |
| Rod Weeder & Fertilizer | | 5 | 1,000 | acre | 13 | 5.35 |
| Roll | | 5 | 300 | acre | 9 | 5.46 |
| Roller Harrow | 30,000 | 5 | 1,000 | acre | 10 | 5.00 |
| Rotary Hoe | 25,000 | 5 | 1,000 | acre | 15 | 3.67 |
| Row Crop Cultivation | 30,000 | 5 | 1,000 | acre | 11 | 3.50 |
| Seeder/Packer | 62,545 | 5 | 1,000 | acre | 8 | 4.29 |

**2017 Budget 59-Sugarbeet, Panhandle, Roundup Ready, Conventional Tillage (26 ton Actual Yield)**
**Gravity Irrigated, Canal, 20 acre/inches**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Disk | 1 | | 2.02 | 1.97 | 0.30 | 1.27 | 4.32 | 1.23 | 11.11 | |
| 2 | Spray Fertilizer | 1 | | 1.00 | 0.27 | 0.35 | 0.19 | 1.15 | 2.21 | 5.17 | |
| 3 | Spray | Custom | | | | | | | | | |
| 4 | Plow | 1 | | 2.93 | 2.07 | 0.44 | 0.86 | 6.28 | 0.58 | 13.16 | |
| 5 | Roller Harrow | 1 | | 2.00 | 1.29 | 0.86 | 0.52 | 2.87 | 1.64 | 9.18 | |
| 6 | Plant | 1 | | 2.40 | 0.71 | 0.86 | 2.54 | 2.87 | 3.89 | 13.27 | |
| 7 | Field Cultivation | 2 | | 2.93 | 2.83 | 1.15 | 2.66 | 3.82 | 3.27 | 16.66 | |
| 8 | Ridge Cultivate/Ditch | 1 | | 1.83 | 1.15 | 0.72 | 0.37 | 2.39 | 1.64 | 8.10 | |
| 9 | Spray | Custom | | | | | | | | | |
| 10 | Ditch Irrigation | 20 | ai | 22.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 22.22 | |
| 11 | Spray | Custom | | | | | | | | | |
| 12 | Aerial Spray | Custom | | | | | | | | | |
| 13 | Top Beets | 1 | | 3.45 | 1.56 | 1.49 | 3.32 | 4.95 | 2.16 | 16.93 | |
| 14 | Lift Beets | 1 | | 3.67 | 2.67 | 0.55 | 13.70 | 7.85 | 5.51 | 33.95 | |
| 15 | Truck | Custom | | | | | | | | | |
| 16 | Subsoil | 1 | | 2.22 | 2.37 | 0.36 | 1.62 | 5.23 | 6.54 | 18.34 | |
| | **Total for Field Operations** | | | 46.67 | 16.89 | 7.08 | 27.05 | 41.73 | 28.67 | 168.09 | |

| Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|
| 10-34-0 | Fertilizer | 2 | 100% | 13.4 | gallon | 2.40 | 32.16 | |
| 28-0-0 | Fertilizer | 2 | 100% | 115 | lbs N | 0.43 | 49.83 | |
| Spray | Custom | 3, 9, & 11 | 300% | 1 | acre | 7.00 | 21.00 | |
| Glyphosate w/Surf | Herbicide | 3 | 100% | 36 | ounce | 0.10 | 3.52 | |
| 21-0-0-24S | Additive | 3 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| Sugar Beets RR Poncho | Seed | 6 | 100% | 1 | acre | 180.00 | 180.00 | |
| Glyphosate w/Surf | Herbicide | 9 | 100% | 36 | ounce | 0.10 | 3.52 | |
| 21-0-0-24S | Additive | 9 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| Irrigation District O&M Charge | Other | 10 | 100% | 1 | acre | 30.00 | 30.00 | |
| Spray | Custom | 11 | 100% | 1 | acre | 7.00 | 7.00 | |
| Glyphosate w/Surf | Herbicide | 11 | 100% | 36 | ounce | 0.10 | 3.52 | |
| 21-0-0-24S | Additive | 11 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| Aerial Spray | Custom | 12 | 100% | 1 | acre | 10.00 | 10.00 | |
| Quadris | Fungicide | 12 | 100% | 7 | ounce | 2.34 | 16.41 | |
| Haul Beets | Custom | 15 | 100% | 26 | ton | 5.00 | 130.00 | |
| Scouting Sugar Beets | Scouting | | 100% | 1 | acre | 16.00 | 16.00 | |
| | Crop Insurance | | | | | 19.09 | 0.00 | |
| **Total Materials & Services** | | | | | | | 504.76 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 672.85 | |
| Interest on Operations Capital | $ 602.45 | cash expense @ | 5.50% | for 6.0 mo. | 16.57 | |
| **Total Operating and Use Related Ownership Costs** | | | | | 689.42 | |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 | |
| Real Estate Opportunity | Gravity (Panhandle) | $ 2,970 | per acre @ | 4.00% | 118.80 | |
| Real Estate Taxes | | $ 2,970 | per acre @ | 1.00% | 29.70 | |
| **Total Cost per Acre Including Overhead** | | | | | 857.92 | |
| **Cost per ton** | | | | | 33.00 | |
| **Cash Cost per ton** | | | | | 23.81 | |

**2017 Budget 60-Sugarbeet, Panhandle, Roundup Ready, One Pass Zone-Tillage (26 ton Actual Yield)**
**Pivot Irrigated, 800 GPM 35 PSI, 16 acre/inches**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Disk | 1 | | 2.02 | 1.97 | 0.30 | 1.27 | 4.32 | 1.23 | 11.11 | |
| 2 | Spray Fertilizer | 1 | | 1.00 | 0.27 | 0.35 | 0.19 | 1.15 | 2.21 | 5.17 | |
| 3 | Spray | Custom | | | | | | | | | |
| 4 | Till Plant Beets | 1 | | 3.67 | 3.56 | 0.55 | 4.89 | 7.85 | 2.57 | 23.09 | |
| 5 | Row Crop Cultivation | 1 | | 2.00 | 0.82 | 0.78 | 0.44 | 2.60 | 1.64 | 8.28 | |
| 6 | Spray | Custom | | | | | | | | | |
| 7 | Pivot D 125' Lift | 16 | ai | 11.11 | 76.82 | 5.49 | 25.82 | 7.95 | 15.45 | 142.64 | |
| 8 | Spray | Custom | | | | | | | | | |
| 9 | Aerial Spray | Custom | | | | | | | | | |
| 10 | Top Beets | 1 | | 3.45 | 1.56 | 1.49 | 3.32 | 4.95 | 2.16 | 16.93 | |
| 11 | Lift Beets | 1 | | 3.67 | 2.67 | 0.55 | 13.70 | 7.85 | 5.51 | 33.95 | |
| 12 | Truck | Custom | | | | | | | | | |
| 13 | Subsoil | 1 | | 2.22 | 2.37 | 0.36 | 1.62 | 5.23 | 6.54 | 18.34 | |
| | **Total for Field Operations** | | | 29.14 | 90.04 | 9.87 | 51.25 | 41.90 | 37.31 | 259.51 | |

| Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|
| 10-34-0 | Fertilizer | 2 | 100% | 13.4 | gallon | 2.40 | 32.16 | |
| 28-0-0 | Fertilizer | 2 | 100% | 115 | lbs N | 0.43 | 49.83 | |
| Spray | Custom | 3, 6, and 8 | 300% | 1 | acre | 7.00 | 21.00 | |
| Glyphosate w/Surf | Herbicide | 3 | 100% | 36 | ounce | 0.10 | 3.52 | |
| 21-0-0-24S | Additive | 3 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| Sugar Beets RR Poncho | Seed | 4 | 100% | 1 | acre | 180.00 | 180.00 | |
| Glyphosate w/Surf | Herbicide | 6 | 100% | 36 | ounce | 0.10 | 3.52 | |
| 21-0-0-24S | Additive | 6 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| Glyphosate w/Surf | Herbicide | 8 | 100% | 36 | ounce | 0.10 | 3.52 | |
| 21-0-0-24S | Additive | 8 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| Aerial Spray | Custom | 9 | 100% | 1 | acre | 10.00 | 10.00 | |
| Quadris | Fungicide | 9 | 100% | 7 | ounce | 2.34 | 16.41 | |
| Haul Beets | Custom | 12 | 100% | 26 | ton | 5.00 | 130.00 | |
| Scouting Sugar Beets | Scouting | | 100% | 1 | acre | 16.00 | 16.00 | |
| | Crop Insurance | | | | | 19.09 | 0.00 | |
| **Total Materials & Services** | | | | | | | 467.76 | |

| | | | | | |
|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 727.27 |
| Interest on Operations Capital | $ 648.06 | cash expense @ | 5.50% | for 6.0 mo. | 17.82 |
| **Total Operating and Use Related Ownership Costs** | | | | | 745.09 |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 |
| Real Estate Opportunity | Pivot (Panhandle) | $ 3,290 | per acre @ | 4.00% | 131.60 |
| Real Estate Taxes | | $ 3,290 | per acre @ | 1.00% | 32.90 |
| **Total Cost per Acre Including Overhead** | | | | | 929.59 |
| **Cost per ton** | | | | | 35.75 |
| **Cash Cost per ton** | | | | | 25.61 |

**2017 Budget 61-Sugarbeet, Panhandle, Roundup Ready, Conventional Tillage (26 ton Actual Yield)**
**Pivot Irrigated, 800 GPM 35 PSI, 16 acre/inches**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Disk | 1 | | 2.02 | 1.97 | 0.30 | 1.27 | 4.32 | 1.23 | 11.11 | |
| 2 | Spray Fertilizer | 1 | | 1.00 | 0.27 | 0.35 | 0.19 | 1.15 | 2.21 | 5.17 | |
| 3 | Plow | 1 | | 2.93 | 2.07 | 0.44 | 0.86 | 6.28 | 0.58 | 13.16 | |
| 4 | Roller Harrow | 1 | | 2.00 | 1.29 | 0.86 | 0.52 | 2.87 | 1.64 | 9.18 | |
| 5 | Plant | 1 | | 2.40 | 0.71 | 0.86 | 2.54 | 2.87 | 3.89 | 13.27 | |
| 6 | Spray | Custom | | | | | | | | | |
| 7 | Field Cultivation | 1 | | 1.47 | 1.41 | 0.58 | 1.33 | 1.91 | 1.64 | 8.34 | |
| 8 | Pivot D 125' Lift | 16 | ai | 11.11 | 76.82 | 5.49 | 25.82 | 7.95 | 15.45 | 142.64 | |
| 9 | Spray | Custom | | | | | | | | | |
| 10 | Aerial Spray | Custom | | | | | | | | | |
| 11 | Top Beets | 1 | | 3.45 | 1.56 | 1.49 | 3.32 | 4.95 | 2.16 | 16.93 | |
| 12 | Lift Beets | 1 | | 3.67 | 2.67 | 0.55 | 13.70 | 7.85 | 5.51 | 33.95 | |
| 13 | Truck | Custom | | | | | | | | | |
| 14 | Subsoil | 1 | | 2.22 | 2.37 | 0.36 | 1.62 | 5.23 | 6.54 | 18.34 | |
| | **Total for Field Operations** | | | 32.27 | 91.14 | 11.28 | 51.17 | 45.38 | 40.85 | 272.09 | |

| Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|
| 10-34-0 | Fertilizer | 2 | 100% | 13.4 | gallon | 2.40 | 32.16 | |
| 28-0-0 | Fertilizer | 2 | 100% | 115 | lbs N | 0.43 | 49.83 | |
| Spray | Custom | 6 & 9 | 200% | 1 | acre | 7.00 | 14.00 | |
| Glyphosate w/Surf | Herbicide | 6 | 100% | 36 | ounce | 0.10 | 3.52 | |
| 21-0-0-24S | Additive | 6 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| Sugar Beets RR Poncho | Seed | 5 | 100% | 1 | acre | 180.00 | 180.00 | |
| Glyphosate w/Surf | Herbicide | 9 | 100% | 36 | ounce | 0.10 | 3.52 | |
| 21-0-0-24S | Additive | 9 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| Aerial Spray | Custom | 10 | 100% | 1 | acre | 10.00 | 10.00 | |
| Quadris | Fungicide | 10 | 100% | 7 | ounce | 2.34 | 16.41 | |
| Haul Beets | Custom | 13 | 100% | 26 | ton | 5.00 | 130.00 | |
| Scouting Sugar Beets | Scouting | | 100% | 1 | acre | 16.00 | 16.00 | |
| | Crop Insurance | | | | | 19.09 | 0.00 | |
| **Total Materials & Services** | | | | | | | 456.64 | |

| | | | | | |
|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 728.73 |
| Interest on Operations Capital | $ 642.50 | cash expense @ | 5.50% | for 6.0 mo. | 17.67 |
| **Total Operating and Use Related Ownership Costs** | | | | | 746.40 |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 |
| Real Estate Opportunity | Pivot (Panhandle) | $ 3,290 | per acre @ | 4.00% | 131.60 |
| Real Estate Taxes | | $ 3,290 | per acre @ | 1.00% | 32.90 |
| **Total Cost per Acre Including Overhead** | | | | | 930.90 |
| **Cost per ton** | | | | | 35.80 |
| **Cash Cost per ton** | | | | | 25.39 |

**2017 Budget 62-Sunflower Clearfield, Panhandle, No-Till, Following Corn or Grain Sorghum (13 cwt Actual Yield) Dryland**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 2 | Spray | 0.5 | | 0.50 | 0.14 | 0.17 | 0.32 | 0.57 | 0.44 | 2.14 | |
| 3 | Plant No-Till | 1 | | 2.40 | 0.87 | 0.86 | 4.41 | 2.87 | 6.77 | 18.18 | |
| 4 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 5 | Aerial Spray | Custom | | | | | | | | | |
| 6 | Combine Sunflowers | 1 | | 3.14 | 3.88 | 7.31 | 1.53 | 5.99 | 4.64 | 26.49 | |
| 7 | Truck | Custom | | | | | | | | | |
| | **Total for Field Operations** | | | 8.04 | 5.43 | 9.04 | 7.54 | 11.73 | 13.61 | 55.39 | |

| | Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|
| | Glyphosate w/Surf | Herbicide | 1 | 100% | 32 | ounce | 0.10 | 3.13 | |
| | 21-0-0-24S | Additive | 1 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| | Prowl $H_2O$ | Herbicide | 1 | 100% | 2 | pint | 6.50 | 13.00 | |
| | 28-0-0 | Fertilizer | 1 | 100% | 50 | lbs N | 0.43 | 21.67 | |
| | Spartan 4F | Herbicide | 1 | 100% | 5 | ounce | 4.69 | 23.44 | |
| | Glyphosate w/Surf | Herbicide | 2 | 50% | 32 | ounce | 0.10 | 1.56 | |
| | 21-0-0-24S | Additive | 2 | 50% | 1.7 | pound | 0.35 | 0.30 | |
| | Prowl $H_2O$ | Herbicide | 2 | 50% | 1 | pint | 6.50 | 3.25 | |
| | Sunflower Clearfield | Seed | 3 | 100% | 20 | thousand | 1.28 | 25.60 | |
| | Beyond | Herbicide | 4 | 50% | 4 | ounce | 4.88 | 9.77 | |
| | NIS | Additive | 4 | 50% | 5 | ounce | 0.13 | 0.31 | |
| | UAN | Additive | 4 | 50% | 3 | pint | 0.19 | 0.28 | |
| * | Aerial Spray | Custom | 5 | 50% | 1 | acre | 10.00 | 5.00 | |
| * | Warrior II/Zeon | Insecticide | 5 | 50% | 1.92 | ounce | 2.97 | 2.85 | |
| | Haul Grain (Sunflower) | Custom | 7 | 100% | 13 | cwt | 0.30 | 3.90 | |
| | | Crop Insurance | | | | | 12.82 | 0.00 | |
| | **Total Materials & Services** | | | | | | | 114.66 | |

*Insecticide for seed weevil and sunflower moth

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 170.05 | |
| Interest on Operations Capital | $ 144.71 | cash expense @ | 5.50% | for 6.0 mo. | 3.98 | |
| **Total Operating and Use Related Ownership Costs** | | | | | 174.03 | |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 | |
| Real Estate Opportunity | Dryland (Panhandle) | $ 745 | per acre @ | 4.00% | 29.80 | |
| Real Estate Taxes | | $ 745 | per acre @ | 1.00% | 7.45 | |
| **Total Cost per Acre Including Overhead** | | | | | 231.28 | |
| **Cost per cwt** | | | | | 17.79 | |
| **Cash Cost per cwt** | | | | | 12.01 | |

**2017 Budget 63-Sunflower Clearfield, Panhandle, Ecofallow, after Wheat, Two Crops in Three Years (16 cwt Actual Yield) Dryland**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spray (Prior Year Stubble) | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 2 | Spray (Prior Year Stubble) | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 3 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 4 | Spray | 0.5 | | 0.50 | 0.14 | 0.17 | 0.32 | 0.57 | 0.44 | 2.14 | |
| 5 | Plant No-Till | 1 | | 2.40 | 0.87 | 0.86 | 4.41 | 2.87 | 6.77 | 18.18 | |
| 6 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 7 | Aerial Spray | Custom | | | | | | | | | |
| 8 | Combine Sunflowers | 1 | | 3.14 | 3.88 | 7.31 | 1.53 | 5.99 | 4.64 | 26.49 | |
| 9 | Truck | Custom | | | | | | | | | |
| | **Total for Field Operations** | | | 10.04 | 5.97 | 9.74 | 8.82 | 14.03 | 15.37 | 63.97 | |

| | Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|
| | Landmaster BW | Herbicide | 1 | 100% | 54 | ounce | 0.15 | 8.02 | |
| | 21-0-0-24S | Additive | 1 | 100% | 2 | pound | 0.35 | 0.70 | |
| | Glyphosate w/Surf | Herbicide | 2 | 100% | 32 | ounce | 0.10 | 3.13 | |
| | 21-0-0-24S | Additive | 2 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| | Glyphosate w/Surf | Herbicide | 3 | 100% | 32 | ounce | 0.10 | 3.13 | |
| | 21-0-0-24S | Additive | 3 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| | Prowl H2O | Herbicide | 3 | 100% | 2 | pint | 6.50 | 13.00 | |
| | 28-0-0 | Fertilizer | 3 | 100% | 60 | lbs N | 0.43 | 26.00 | |
| | Spartan 4F | Herbicide | 3 | 100% | 5 | ounce | 4.69 | 23.44 | |
| | Glyphosate w/Surf | Herbicide | 4 | 50% | 32 | ounce | 0.10 | 1.56 | |
| | 21-0-0-24S | Additive | 4 | 50% | 1.7 | pound | 0.35 | 0.30 | |
| | Prowl $H_2O$ | Herbicide | 4 | 50% | 1 | pint | 6.50 | 3.25 | |
| | Sunflower Clearfield | Seed | 5 | 100% | 5 | thousand | 1.28 | 6.40 | |
| | Beyond | Herbicide | 6 | 50% | 4 | ounce | 4.88 | 9.77 | |
| | NIS | Additive | 6 | 50% | 5 | ounce | 0.13 | 0.31 | |
| | UAN | Additive | 6 | 50% | 3 | pint | 0.19 | 0.28 | |
| * | Aerial Spray | Custom | 7 | 50% | 1 | acre | 10.00 | 5.00 | |
| * | Warrior II/Zeon | Insecticide | 7 | 50% | 1.92 | ounce | 2.97 | 2.85 | |
| | Haul Grain (Sunflower) | Custom | 9 | 100% | 16 | cwt | 0.30 | 4.80 | |
| | | Crop Insurance | | | | | 14.00 | 0.00 | |
| | **Total Materials & Services** | | | | | | | 113.14 | |

*Insecticide for seed weevil and sunflower moth

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | | 177.11 |
| Interest on Operations Capital | $ 147.71 | cash expense @ | 5.50% | for 6.0 mo. | | 4.06 |
| **Total Operating and Use Related Ownership Costs** | | | | | | 181.17 |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | | 20.00 |
| Real Estate Opportunity | Dryland (Panhandle) | $ 745 | per acre @ | 4.00% | | 29.80 |
| Real Estate Taxes | | $ 745 | per acre @ | 1.00% | | 7.45 |
| **Total Cost per Acre Including Overhead** | | | | | | 238.42 |
| **Cost per cwt** | | | | | | 14.90 |
| **Cash Cost per cwt** | | | | | | 9.95 |

**2017 Budget 64-Sunflower Clearfield, Panhandle, No-Till (30 cwt Actual Yield)**
**Pivot Irrigated, 800 GPM 35 PSI, 8 acre/inches**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 2 | Spray Fertilizer and Herbicide | 1 | | 1.00 | 0.27 | 0.35 | 0.19 | 1.15 | 2.21 | 5.17 | |
| 3 | Plant No-Till | 1 | | 2.40 | 0.87 | 0.86 | 4.41 | 2.87 | 6.77 | 18.18 | |
| 4 | Spray | Custom | | | | | | | | | |
| 5 | Aerial Spray | Custom | | | | | | | | | |
| 6 | Pivot E 125' Lift w/fertigation | 8 | ai | 7.41 | 22.30 | 2.34 | 13.83 | 4.24 | 8.27 | 58.39 | |
| 7 | Combine Sunflowers | 1 | | 3.14 | 3.88 | 7.31 | 1.53 | 5.99 | 4.64 | 26.49 | |
| 8 | Truck | Custom | | | | | | | | | |
| | **Total for Field Operations** | | | 14.95 | 27.59 | 11.21 | 20.60 | 15.40 | 22.77 | 112.52 | |

| | Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|
| | Glyphosate w/Surf | Herbicide | 1 | 100% | 32 | ounce | 0.10 | 3.13 | |
| | 21-0-0-24S | Additive | 1 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| | Prowl H2O | Herbicide | 2 | 100% | 2.3 | pint | 6.50 | 14.95 | |
| | Spartan 4F | Herbicide | 2 | 100% | 4 | ounce | 4.69 | 18.75 | |
| | 28-0-0 | Fertilizer | 2 | 100% | 100 | lbs N | 0.43 | 43.33 | |
| | Sunflower Clearfield | Seed | 3 | 100% | 3.5 | thousand | 1.28 | 4.48 | |
| | 10-34-0 | Fertilizer | 3 | 100% | 4 | gallon | 2.40 | 9.60 | |
| | Beyond | Herbicide | 4 | 50% | 4 | ounce | 4.88 | 9.77 | |
| | NIS | Additive | 4 | 50% | 5 | ounce | 0.13 | 0.31 | |
| | UAN | Additive | 4 | 50% | 3 | pint | 0.19 | 0.28 | |
| * | Aerial Spray | Custom | 5 | 50% | 1 | acre | 10.00 | 5.00 | |
| * | Warrior II/Zeon | Insecticide | 5 | 50% | 3.84 | ounce | 2.97 | 5.70 | |
| | Electricity Fixed | Other | 6 | 100% | 1 | acre | 30.00 | 30.00 | |
| | Haul Grain (Sunflower) | Custom | 8 | 100% | 30 | cwt | 0.30 | 9.00 | |
| | | Crop Insurance | | | | | 18.60 | 0.00 | |
| | **Total Materials & Services** | | | | | | | 154.90 | |

*Insecticide for seed weevil and sunflower moth

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | | 267.42 |
| Interest on Operations Capital | $ 229.25 | cash expense @ | 5.50% | for 6.0 mo. | | 6.30 |
| **Total Operating and Use Related Ownership Costs** | | | | | | 273.72 |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | | 20.00 |
| Real Estate Opportunity | Pivot (Panhandle) | $ 3,290 | per acre @ | 4.00% | | 131.60 |
| Real Estate Taxes | | $ 3,290 | per acre @ | 1.00% | | 32.90 |
| **Total Cost per Acre Including Overhead** | | | | | | 458.22 |
| **Cost per cwt** | | | | | | 15.27 |
| **Cash Cost per cwt** | | | | | | 7.85 |

**2017 Budget 65-Wheat, No-Till, Wheat after Row Crop, 50 bu Yield Goal (45 bu Actual Yield)**
**Dryland**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | No-Till Drill | 1 | | 1.83 | 1.31 | 0.72 | 1.57 | 2.39 | 3.54 | 11.36 | |
| 2 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 3 | Aerial Spray | Custom | | | | | | | | | |
| 4 | Aerial Spray | Custom | | | | | | | | | |
| 5 | Combine Small Grain | 1 | | 3.14 | 3.87 | 7.31 | 0.94 | 5.99 | 2.84 | 24.09 | |
| 6 | Truck | Custom | | | | | | | | | |
| | **Total for Field Operations** | | | 5.97 | 5.45 | 8.38 | 3.15 | 9.53 | 7.26 | 39.74 | |

| | Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|
| | 10-34-0 | Fertilizer | 1 | 100% | 8 | gallon | 2.40 | 19.20 | |
| | Wheat (Certified and Treated) | Seed | 1 | 100% | 90 | pound | 0.20 | 18.00 | |
| | 28-0-0 | Fertilizer | 2 | 100% | 75 | lbs N | 0.43 | 32.50 | |
| | Ally Extra SGW/TOTSOL | Herbicide | 2 | 100% | 0.3 | ounce | 9.00 | 2.70 | |
| | 2,4-D Ester 4# | Herbicide | 2 | 100% | 0.5 | pint | 2.25 | 1.13 | |
| | NIS | Additive | 2 | 100% | 6 | ounce | 0.13 | 0.75 | |
| * | Aerial Spray | Custom | 3 | 20% | 1 | acre | 10.00 | 2.00 | |
| * | Tilt | Fungicide | 3 | 20% | 4 | ounce | 0.82 | 0.66 | |
| ** | Aerial Spray | Custom | 4 | 15% | 1 | acre | 10.00 | 1.50 | |
| ** | Lorsban Advanced | Insecticide | 4 | 10% | 1 | pint | 6.88 | 0.69 | |
| ** | Warrior II/Zeon | Insecticide | 4 | 5% | 1.92 | ounce | 2.97 | 0.29 | |
| | Haul Grain Bushels | Custom | 5 | 100% | 45 | bushel | 0.11 | 4.95 | |
| | Scouting Dryland Wheat | Scouting | | 100% | 1 | acre | 7.00 | 7.00 | |
| | | Crop Insurance | | | | | 10.30 | 0.00 | |
| | **Total Materials & Services** | | | | | | | 91.37 | |

*Fungicide for rust
**Insecticide for aphids and army cutworm

| | | | | | |
|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 131.11 |
| Interest on Operations Capital | $ 114.32 | cash expense @ | 5.50% | for 6.0 mo. | 3.14 |
| **Total Operating and Use Related Ownership Costs** | | | | | 134.25 |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 |
| Real Estate Opportunity | Dryland (Southwest) | $ 1,955 | per acre @ | 4.00% | 78.20 |
| Real Estate Taxes | | $ 1,955 | per acre @ | 1.00% | 19.55 |
| **Total Cost per Acre Including Overhead** | | | | | 252.00 |
| **Cost per bu** | | | | | 5.60 |
| **Cash Cost per bu** | | | | | 3.04 |

**2017 Budget 66-Wheat, No-Till Fallow, One Crop in Two Years, 60 bu Yield Goal (55 bu Actual Yield)**
**Dryland**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spray (Prior Year Stubble) | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 2 | Spray (Prior Year Stubble) | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 3 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 4 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 5 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 6 | No-Till Drill | 1 | | 1.83 | 1.31 | 0.72 | 1.57 | 2.39 | 3.54 | 11.36 | |
| 7 | Spread Fertilizer | 1 | | 1.57 | 0.79 | 0.68 | 0.00 | 2.26 | 0.00 | 5.30 | |
| 8 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 9 | Aerial Spray | Custom | | | | | | | | | |
| 10 | Aerial Spray | Custom | | | | | | | | | |
| 11 | Combine Small Grain | 1 | | 3.14 | 3.87 | 7.31 | 0.94 | 5.99 | 2.84 | 24.09 | |
| 12 | Truck | Custom | | | | | | | | | |
| | **Total for Field Operations** | | | 12.54 | 7.59 | 10.81 | 6.35 | 17.54 | 11.66 | 66.49 | |

| | Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|
| | Glyphosate w/Surf | Herbicide | 1 | 100% | 32 | ounce | 0.10 | 3.13 | |
| | 21-0-0-24S | Additive | 1 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| | Glyphosate w/Surf | Herbicide | 2 | 100% | 32 | ounce | 0.10 | 3.13 | |
| | 21-0-0-24S | Additive | 2 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| | AAtrex 4L | Herbicide | 2 | 100% | 1 | quart | 5.00 | 5.00 | |
| | Glyphosate w/Surf | Herbicide | 3 | 100% | 32 | ounce | 0.10 | 3.13 | |
| | 21-0-0-24S | Additive | 3 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| | Glyphosate w/Surf | Herbicide | 4 | 100% | 32 | ounce | 0.10 | 3.13 | |
| | 21-0-0-24S | Additive | 4 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| | Glyphosate w/Surf | Herbicide | 5 | 100% | 32 | ounce | 0.10 | 3.13 | |
| | 21-0-0-24S | Additive | 5 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| | 10-34-0 | Fertilizer | 6 | 100% | 8 | gallon | 2.40 | 19.20 | |
| | Wheat (Certified and Treated) | Seed | 6 | 100% | 60 | pound | 0.20 | 12.00 | |
| | 46-0-0 | Fertilizer | 7 | 100% | 70 | lbs N | 0.38 | 26.60 | |
| | Ally Extra SGW/TOTSOL | Herbicide | 8 | 100% | 0.3 | ounce | 9.00 | 2.70 | |
| | 2,4-D Ester 4# | Herbicide | 8 | 100% | 0.5 | pint | 2.25 | 1.13 | |
| | NIS | Additive | 8 | 100% | 6 | ounce | 0.13 | 0.75 | |
| * | Aerial Spray | Custom | 9 | 20% | 1 | acre | 10.00 | 2.00 | |
| * | Tilt | Fungicide | 9 | 20% | 4 | ounce | 0.82 | 0.66 | |
| ** | Aerial Spray | Custom | 10 | 15% | 1 | acre | 10.00 | 1.50 | |
| ** | Lorsban Advanced | Insecticide | 10 | 10% | 1 | pint | 6.88 | 0.69 | |
| ** | Warrior II/Zeon | Insecticide | 10 | 5% | 1.92 | ounce | 2.97 | 0.29 | |
| | Haul Grain Bushels | Custom | 12 | 100% | 55 | bushel | 0.11 | 6.05 | |
| | Scouting Dryland Wheat | Scouting | | 100% | 1 | acre | 7.00 | 7.00 | |
| | | Crop Insurance | | | | | 6.92 | 0.00 | |
| | **Total Materials & Services** | | | | | | | 104.22 | |

*Fungicide for rust
**Insecticide for aphids and army cutworm

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | | 170.71 |
| Interest on Operations Capital | $ 141.51 | cash expense @ | 5.50% | for 6.0 mo. | | 3.89 |
| **Total Operating and Use Related Ownership Costs** | | | | | | 174.60 |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | | 20.00 |
| Real Estate Opportunity | Dryland (Panhandle) | $ 1,490 | per acre @ | 4.00% | | 119.20 |
| Real Estate Taxes | | $ 1,490 | per acre @ | 1.00% | | 29.80 |
| **Total Cost per Acre Including Overhead** | | | | | | 343.60 |
| **Cost per bu** | | | | | | 6.25 |
| **Cash Cost per bu** | | | | | | 3.19 |

**2017 Budget 67-Wheat, Stubble Mulch Fallow, One Crop in Two Years, 55 bu Yield Goal (50 bu Actual Yield) Dryland**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Fallow Master | 1 | | 1.76 | 1.78 | 0.26 | 0.96 | 3.77 | 1.64 | 10.17 | |
| 2 | Fallow Master | 1 | | 1.76 | 1.78 | 0.26 | 0.96 | 3.77 | 1.64 | 10.17 | |
| 3 | Fallow Master | 1 | | 1.76 | 1.78 | 0.26 | 0.96 | 3.77 | 1.64 | 10.17 | |
| 4 | Rod Weeder | 1 | | 1.52 | 1.05 | 0.65 | 0.23 | 2.17 | 0.99 | 6.61 | |
| 5 | Rod Weeder | 1 | | 1.52 | 1.05 | 0.65 | 0.23 | 2.17 | 0.99 | 6.61 | |
| 6 | Drill | 1 | | 1.76 | 1.03 | 0.69 | 2.94 | 2.29 | 2.62 | 11.33 | |
| 7 | Spray Fertilizer | 1 | | 1.00 | 0.27 | 0.35 | 0.19 | 1.15 | 2.21 | 5.17 | |
| 8 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 9 | Aerial Spray | Custom | | | | | | | | | |
| 10 | Aerial Spray | Custom | | | | | | | | | |
| 11 | Combine Small Grain | 1 | | 3.14 | 3.87 | 7.31 | 0.94 | 5.99 | 2.84 | 24.09 | |
| 12 | Truck | Custom | | | | | | | | | |
| | **Total for Field Operations** | | | 15.22 | 12.88 | 10.78 | 8.05 | 26.23 | 15.45 | 88.61 | |

| | Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|
| | 10-34-0 | Fertilizer | 6 | 100% | 8 | gallon | 2.40 | 19.20 | |
| | Wheat (Certified and Treated) | Seed | 6 | 100% | 55 | pound | 0.20 | 11.00 | |
| | 28-0-0 | Fertilizer | 7 | 100% | 65 | lbs N | 0.43 | 28.17 | |
| | 2,4-D Ester 4# | Herbicide | 8 | 100% | 0.5 | pint | 2.25 | 1.13 | |
| | Ally Extra SGW/TOTSOL | Herbicide | 8 | 100% | 0.3 | ounce | 9.00 | 2.70 | |
| | NIS | Additive | 8 | 100% | 6 | ounce | 0.13 | 0.75 | |
| * | Aerial Spray | Custom | 9 | 20% | 1 | acre | 10.00 | 2.00 | |
| * | Tilt | Fungicide | 9 | 20% | 4 | ounce | 0.82 | 0.66 | |
| ** | Aerial Spray | Custom | 10 | 15% | 1 | acre | 10.00 | 1.50 | |
| ** | Lorsban Advanced | Insecticide | 10 | 10% | 1 | pint | 6.88 | 0.69 | |
| ** | Warrior II/Zeon | Insecticide | 10 | 5% | 1.92 | ounce | 2.97 | 0.29 | |
| | Haul Grain Bushels | Custom | 12 | 100% | 50 | bushel | 0.11 | 5.50 | |
| | Scouting Dryland Wheat | Scouting | | 100% | 1 | acre | 7.00 | 7.00 | |
| | | Crop Insurance | | | | | 6.71 | 0.00 | |
| | **Total Materials & Services** | | | | | | | 80.59 | |

*Fungicide for rust
**Insecticide for aphids and army cutworm

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | | 169.20 |
| Interest on Operations Capital | $ 127.52 | cash expense @ | 5.50% | for 6.0 mo. | | 3.51 |
| **Total Operating and Use Related Ownership Costs** | | | | | | 172.71 |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | | 20.00 |
| Real Estate Opportunity | Dryland (Panhandle) | $ 1,490 | per acre @ | 4.00% | | 119.20 |
| Real Estate Taxes | | $ 1,490 | per acre @ | 1.00% | | 29.80 |
| **Total Cost per Acre Including Overhead** | | | | | | 341.71 |
| **Cost per bu** | | | | | | 6.83 |
| **Cash Cost per bu** | | | | | | 3.22 |

**2017 Budget 68-Wheat, Clean Till Fallow, One Crop in Two Years, 50 bu Yield Goal (45 bu Actual Yield)**
**Dryland**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Disk | 1 | | 2.02 | 1.97 | 0.30 | 1.27 | 4.32 | 1.23 | 11.11 | |
| 2 | Field Cultivation | 1 | | 1.47 | 1.41 | 0.58 | 1.33 | 1.91 | 1.64 | 8.34 | |
| 3 | Field Cultivation | 1 | | 1.47 | 1.41 | 0.58 | 1.33 | 1.91 | 1.64 | 8.34 | |
| 4 | Field Cultivation | 1 | | 1.47 | 1.41 | 0.58 | 1.33 | 1.91 | 1.64 | 8.34 | |
| 5 | Rod Weeder | 1 | | 1.52 | 1.05 | 0.65 | 0.23 | 2.17 | 0.99 | 6.61 | |
| 6 | Rod Weeder & Fertilizer | 1 | | 1.82 | 1.05 | 0.65 | 0.23 | 2.17 | 0.99 | 6.91 | |
| 7 | Drill | 1 | | 1.76 | 1.03 | 0.69 | 2.94 | 2.29 | 2.62 | 11.33 | |
| 8 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 9 | Aerial Spray | Custom | | | | | | | | | |
| 10 | Aerial Spray | Custom | | | | | | | | | |
| 11 | Combine Small Grain | 1 | | 3.14 | 3.87 | 7.31 | 0.94 | 5.99 | 2.84 | 24.09 | |
| 12 | Truck | Custom | | | | | | | | | |
| | **Total for Field Operations** | | | 15.67 | 13.47 | 11.69 | 10.24 | 23.82 | 14.47 | 89.36 | |

| | Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|
| | 32-0-0 | Fertilizer | 6 | 100% | 50 | lbs N | 0.42 | 21.00 | |
| | 10-34-0 | Fertilizer | 7 | 100% | 8 | gallon | 2.40 | 19.20 | |
| | Wheat (Certified and Treated) | Seed | 7 | 100% | 50 | pound | 0.20 | 10.00 | |
| | 2,4-D Ester 4# | Herbicide | 8 | 100% | 0.5 | pint | 2.25 | 1.13 | |
| | Ally Extra SGW/TOTSOL | Herbicide | 8 | 100% | 0.3 | ounce | 9.00 | 2.70 | |
| | NIS | Additive | 8 | 100% | 6 | ounce | 0.13 | 0.75 | |
| * | Aerial Spray | Custom | 9 | 20% | 1 | acre | 10.00 | 2.00 | |
| * | Tilt | Fungicide | 9 | 20% | 4 | ounce | 0.82 | 0.66 | |
| ** | Aerial Spray | Custom | 10 | 15% | 1 | acre | 10.00 | 1.50 | |
| ** | Lorsban Advanced | Insecticide | 10 | 10% | 1 | pint | 6.88 | 0.69 | |
| ** | Warrior II/Zeon | Insecticide | 10 | 5% | 1.92 | ounce | 2.97 | 0.29 | |
| | Haul Grain Bushels | Custom | 12 | 100% | 45 | bushel | 0.11 | 4.95 | |
| | Scouting Dryland Wheat | Scouting | | 100% | 1 | acre | 7.00 | 7.00 | |
| | | Crop Insurance | | | | | 6.46 | 0.00 | |
| | **Total Materials & Services** | | | | | | | 71.87 | |

*Fungicide for rust
**Insecticide for aphids and army cutworm

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | | 161.23 |
| Interest on Operations Capital | $ 122.94 | cash expense @ | 5.50% | for 6.0 mo. | | 3.38 |
| **Total Operating and Use Related Ownership Costs** | | | | | | 164.61 |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | | 20.00 |
| Real Estate Opportunity | Dryland (Panhandle) | $ 1,490 | per acre @ | 4.00% | | 119.20 |
| Real Estate Taxes | | $ 1,490 | per acre @ | 1.00% | | 29.80 |
| **Total Cost per Acre Including Overhead** | | | | | | 333.61 |
| **Cost per bu** | | | | | | 7.41 |
| **Cash Cost per bu** | | | | | | 3.47 |

## Table 2. Machinery Cost Data Used for2017 Budgets (Continued)

| *Operation Name* | *List Price* | *Age* | *Annual Use* | *Units* | *Units per Hour* | *Diesel Use per Hour* |
|---|---|---|---|---|---|---|
| Spray | 36,000 | 5 | 2,500 | acre | 25 | 2.64 |
| Spray (Prior Year Stubble) | 36,000 | 5 | 2,500 | acre | 25 | 2.64 |
| Spray Fertilizer | 36,000 | 5 | 1,000 | acre | 25 | 2.64 |
| Spray Fertilizer and Herbicide | 36,000 | 5 | 1,000 | acre | 25 | 2.64 |
| Spray Spring Burndown Herbicide | 36,000 | 5 | 2,500 | acre | 25 | 2.64 |
| Spread Fertilizer | N/A | 5 | 1,000 | acre | 13 | 3.86 |
| Stack Small Square | 13,000 | 5 | 1,250 | ton | 10 | 2.00 |
| Subsoil | 59,791 | 5 | 500 | acre | 9 | 8.25 |
| Swath/Condition Hay | - | 5 | 2,000 | acre | 10 | 5.00 |
| Till Plant Beets | 48,000 | 5 | 1,000 | acre | 6 | 8.25 |
| Top Beets | 50,000 | 5 | 1,000 | acre | 6 | 3.50 |
| Turn Windrows | 7,403 | 5 | 1,000 | acre | 12 | 2.10 |
| Windrow Grain | - | 5 | 3,000 | acre | 10 | 5.00 |

## Table 3. Material Prices Used for 2017 Budgets

| *Item* | *Price per Unit* |
|---|---|
| **Additive** | |
| 21-0-0-24S | $0.35/pound |
| Crop Oil Concentrate | $9.00/gallon |
| NIS | $16.00/gallon |
| UAN | $1.50/gallon |

| **Custom** | |
|---|---|
| Aerial Spray | $10.00/acre |
| Bale Lg Sq 1360 lb | $15.00/bale |
| Chop, Haul, Pack | $10.75/ton |
| Dry 2 Points Removed | $0.08/bushel |
| Haul & Apply Manure | $6.00/ton |
| Haul Beets | $5.00/ton |
| Haul Grain (Dry Beans) | $0.28/cwt |
| Haul Grain (Millet) | $0.24/cwt |
| Haul Grain (Sunflower) | $0.30/cwt |
| Haul Grain Bushels | $0.11/bushel |
| Load Large Square Bales | $2.00/bale |
| Spray | $7.00/acre |

| *Item* | *Price per Unit* |
|---|---|
| **Fertilizer** | |
| 10-34-0 | $2.40/gallon |
| 10-34-0-1Z | $2.45/gallon |
| 11-52-0 | $0.24/pound |
| 28-0-0 | $1.30/gallon |
| 32-0-0 | $0.42/lb N |
| 32-0-0 (Applied by Pivot) | $0.42/lb N |
| 32-0-0 (Applied by R2) | $0.42/lb N |
| 46-0-0 | $0.38/lb N |
| 82-0-0 | $0.28/lb N |
| Uncomposted manure | $1.00/ton |

| **Fungicide** | |
|---|---|
| Copper | $3.50/pint |
| Headline AMP | $340.00/gallon |
| Pea Seed Innoculent | $8.00/pound |
| Priaxor | $700.00/gallon |
| Quadris | $300.00/gallon |
| Quilt Xcel | $220.00/gallon |
| Stratego YLD | $600.00/gallon |
| Tilt | $105.00/gallon |

**2017 Budget 69-Wheat, No-Till Wheat before Corn, Two Crops in Three Years, 65 bu Yield Goal (60 bu Actual Yield) Dryland**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 2 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 3 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 4 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 5 | No-Till Drill | 1 | | 1.83 | 1.31 | 0.72 | 1.57 | 2.39 | 3.54 | 11.36 | |
| 6 | Spread Fertilizer | 1 | | 1.57 | 0.79 | 0.68 | 0.00 | 2.26 | 0.00 | 5.30 | |
| 7 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 8 | Aerial Spray | Custom | | | | | | | | | |
| 9 | Aerial Spray | Custom | | | | | | | | | |
| 10 | Combine Small Grain | 1 | | 3.14 | 3.87 | 7.31 | 0.94 | 5.99 | 2.84 | 24.09 | |
| 11 | Truck | Custom | | | | | | | | | |
| | **Total for Field Operations** | | | 11.54 | 7.32 | 10.46 | 5.71 | 16.39 | 10.78 | 62.20 | |

| | Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|
| | Glyphosate w/Surf | Herbicide | 1 | 100% | 32 | ounce | 0.10 | 3.13 | |
| | 21-0-0-24S | Additive | 1 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| | 2,4-D Ester 4# | Herbicide | 1 | 100% | 1 | pint | 2.25 | 2.25 | |
| | Glyphosate w/Surf | Herbicide | 2 | 100% | 32 | ounce | 0.10 | 3.13 | |
| | 21-0-0-24S | Additive | 2 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| | 2,4-D Ester 4# | Herbicide | 2 | 100% | 1 | pint | 2.25 | 2.25 | |
| | Glyphosate w/Surf | Herbicide | 3 | 100% | 32 | ounce | 0.10 | 3.13 | |
| | 21-0-0-24S | Additive | 3 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| | 2,4-D Ester 4# | Herbicide | 3 | 100% | 1 | pint | 2.25 | 2.25 | |
| | Glyphosate w/Surf | Herbicide | 4 | 100% | 32 | ounce | 0.10 | 3.13 | |
| | 21-0-0-24S | Additive | 4 | 100% | 1.7 | pound | 0.35 | 0.60 | |
| | 10-34-0 | Fertilizer | 5 | 100% | 8 | gallon | 2.40 | 19.20 | |
| | Wheat (Certified and Treated) | Seed | 5 | 100% | 60 | pound | 0.20 | 12.00 | |
| | 46-0-0 | Fertilizer | 6 | 100% | 80 | lbs N | 0.38 | 30.40 | |
| | Ally Extra SGW/TOTSOL | Herbicide | 7 | 100% | 0.3 | ounce | 9.00 | 2.70 | |
| | NIS | Additive | 7 | 100% | 6 | ounce | 0.13 | 0.75 | |
| | 2,4-D Ester 4# | Herbicide | 7 | 100% | 0.5 | pint | 2.25 | 1.13 | |
| * | Aerial Spray | Custom | 8 | 20% | 1 | acre | 10.00 | 2.00 | |
| * | Tilt | Fungicide | 8 | 20% | 4 | ounce | 0.82 | 0.66 | |
| ** | Aerial Spray | Custom | 9 | 15% | 1 | acre | 10.00 | 1.50 | |
| ** | Lorsban Advanced | Insecticide | 9 | 10% | 1 | pint | 6.88 | 0.69 | |
| ** | Warrior II/Zeon | Insecticide | 9 | 5% | 1.92 | ounce | 2.97 | 0.29 | |
| | Haul Grain Bushels | Custom | 11 | 100% | 60 | bushel | 0.11 | 6.60 | |
| | Scouting Dryland Wheat | Scouting | | 100% | 1 | acre | 7.00 | 7.00 | |
| | | Crop Insurance | | | | | 7.12 | 0.00 | |
| | **Total Materials & Services** | | | | | | | 106.59 | |

*Fungicide for rust
**Insecticide for aphids and army cutworm

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | | 168.79 |
| Interest on Operations Capital | $ 141.62 | cash expense @ | 5.50% | for 6.0 mo. | | 3.89 |
| **Total Operating and Use Related Ownership Costs** | | | | | | 172.68 |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | | 20.00 |
| Real Estate Opportunity | Dryland (Southwest) | $ 1,955 | per acre @ | 4.00% | | 117.30 |
| Real Estate Taxes | | $ 1,955 | per acre @ | 1.00% | | 29.33 |
| **Total Cost per Acre Including Overhead** | | | | | | 339.31 |
| **Cost per bu** | | | | | | 5.66 |
| **Cash Cost per bu** | | | | | | 2.91 |

**2017 Budget 70-Wheat, No-Till after Beans, 100 bu Yield Goal (90 bu Actual Yield)**
**Pivot Irrigated, 800 GPM 35 PSI, 6 acre/inches**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | No-Till Drill | 1 | | 1.83 | 1.31 | 0.72 | 1.57 | 2.39 | 3.54 | 11.36 | |
| 2 | Pivot D 125' Lift | 6 | ai | 4.17 | 28.81 | 2.06 | 9.68 | 2.98 | 5.79 | 53.49 | |
| 3 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 4 | Aerial Spray | Custom | | | | | | | | | |
| 5 | Aerial Spray | Custom | | | | | | | | | |
| 6 | Combine Small Grain | 1 | | 3.14 | 3.87 | 7.31 | 0.94 | 5.99 | 2.84 | 24.09 | |
| 7 | Truck | Custom | | | | | | | | | |
| | **Total for Field Operations** | | | 10.14 | 34.26 | 10.44 | 12.83 | 12.51 | 13.05 | 93.23 | |

| | Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|
| | 10-34-0 | Fertilizer | 1 | 100% | 8 | gallon | 2.40 | 19.20 | |
| | Wheat (Certified and Treated) | Seed | 1 | 100% | 120 | pound | 0.20 | 24.00 | |
| | 28-0-0 | Fertilizer | 2 | 100% | 120 | lbs N | 0.43 | 52.00 | |
| | 2,4-D Ester 4# | Herbicide | 3 | 100% | 0.5 | pint | 2.25 | 1.13 | |
| | Ally Extra SGW/TOTSOL | Herbicide | 3 | 100% | 0.3 | ounce | 9.00 | 2.70 | |
| | NIS | Additive | 3 | 100% | 6 | ounce | 0.13 | 0.75 | |
| * | Aerial Spray | Custom | 4 | 100% | 1 | acre | 10.00 | 10.00 | |
| * | Tilt | Fungicide | 4 | 100% | 4 | ounce | 0.82 | 3.28 | |
| ** | Aerial Spray | Custom | 5 | 15% | 1 | acre | 10.00 | 1.50 | |
| ** | Lorsban Advanced | Insecticide | 5 | 10% | 1 | pint | 6.88 | 0.69 | |
| ** | Warrior II/Zeon | Insecticide | 5 | 5% | 1.92 | ounce | 2.97 | 0.29 | |
| | Haul Grain Bushels | Custom | 7 | 100% | 90 | bushel | 0.11 | 9.90 | |
| | Scouting Irrigated Wheat | Scouting | | 100% | 1 | acre | 4.50 | 4.50 | |
| | | Crop Insurance | | | | | 10.78 | 0.00 | |
| | **Total Materials & Services** | | | | | | | 129.94 | |

*Fungicide for rust
**Insecticide for aphids and army cutworm

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | | 223.17 |
| Interest on Operations Capital | $ 197.61 | cash expense @ | 5.50% | for 6.0 mo. | | 5.43 |
| **Total Operating and Use Related Ownership Costs** | | | | | | 228.60 |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | | 20.00 |
| Real Estate Opportunity | Pivot (Panhandle) | $ 3,290 | per acre @ | 4.00% | | 131.60 |
| Real Estate Taxes | | $ 3,290 | per acre @ | 1.00% | | 32.90 |
| **Total Cost per Acre Including Overhead** | | | | | | 413.10 |
| **Cost per bu** | | | | | | 4.59 |
| **Cash Cost per bu** | | | | | | 2.62 |

**2017 Budget 71-Wheat, No-Till, in Rotation (85 Bu Actual Yield)**
**Pivot Irrigated, 800 GPM 35 PSI, 6 acre/inches**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 2 | No-Till Drill | 1 | | 1.83 | 1.31 | 0.72 | 1.57 | 2.39 | 3.54 | 11.36 | |
| 3 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| 4 | Pivot E 125' Lift w/fertigation | 6 | ai | 5.56 | 16.72 | 1.76 | 10.38 | 3.18 | 6.21 | 43.81 | |
| 5 | Aerial Spray | Custom | | | | | | | | | |
| 6 | Aerial Spray | Custom | | | | | | | | | |
| 7 | Combine Small Grain | 1 | | 3.14 | 3.87 | 7.31 | 0.94 | 5.99 | 2.84 | 24.09 | |
| 8 | Truck | Custom | | | | | | | | | |
| | **Total for Field Operations** | | | 12.53 | 22.44 | 10.49 | 14.17 | 13.86 | 14.35 | 87.84 | |

| | Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Application Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|
| | Glyphosate w/Surf | Herbicide | 1 | 100% | 32 | ounce | 0.10 | 3.13 | |
| | Valor XLT | Herbicide | 1 | 100% | 1.5 | ounce | 5.75 | 8.63 | |
| | Wheat (Certified and Treated) | Seed | 2 | 100% | 120 | pound | 0.20 | 24.00 | |
| | 11-52-0 | Fertilizer | 2 | 100% | 40 | pound | 0.24 | 9.60 | |
| | 2,4-D Ester 4# | Herbicide | 3 | 100% | 0.5 | pint | 2.25 | 1.13 | |
| | Ally Extra SGW/TOTSOL | Herbicide | 3 | 100% | 0.3 | ounce | 9.00 | 2.70 | |
| | NIS | Additive | 3 | 100% | 6 | ounce | 0.13 | 0.75 | |
| | 32-0-0 (Applied by Pivot) | Fertilizer | 4 | 100% | 115 | lbs N | 0.42 | 48.30 | |
| | Electricity Fixed | Other | 4 | 100% | 1 | acre | 30.00 | 30.00 | |
| * | Aerial Spray | Custom | 5 | 100% | 1 | acre | 10.00 | 10.00 | |
| * | Tilt | Fungicide | 5 | 100% | 4 | ounce | 0.82 | 3.28 | |
| ** | Aerial Spray | Custom | 6 | 15% | 1 | acre | 10.00 | 1.50 | |
| ** | Lorsban Advanced | Insecticide | 6 | 10% | 1 | pint | 6.88 | 0.69 | |
| ** | Warrior II/Zeon | Insecticide | 6 | 5% | 1.92 | ounce | 2.97 | 0.29 | |
| | Scouting Irrigated Wheat | Scouting | | 100% | 1 | acre | 4.50 | 4.50 | |
| | Haul Grain Bushels | Custom | 8 | 100% | 85 | bushel | 0.11 | 9.35 | |
| | | Crop Insurance | | | | | 10.56 | 0.00 | |
| | **Total Materials & Services** | | | | | | | 157.85 | |

*Fungicide for rust
**Insecticide for aphids and army cutworm

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 245.69 | |
| Interest on Operations Capital | $ 217.48 | cash expense @ | 5.50% | for 6.0 mo. | 5.98 | |
| **Total Operating and Use Related Ownership Costs** | | | | | 251.67 | |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 20.00 | |
| Real Estate Opportunity | Pivot (Panhandle) | $ 3,290 | per acre @ | 4.00% | 131.60 | |
| Real Estate Taxes | | $ 3,290 | per acre @ | 1.00% | 32.90 | |
| **Total Cost per Acre Including Overhead** | | | | | 436.17 | |
| **Cost per Bu** | | | | | 5.13 | |
| **Cash Cost per Bu** | | | | | 2.63 | |

**2017 Budget 72-Cover Crop, Conventional Tillage**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Disk | 1 | | 2.02 | 1.97 | 0.30 | 1.27 | 4.32 | 1.23 | 11.11 | |
| 2 | Drill | 1 | | 1.76 | 1.03 | 0.69 | 2.94 | 2.29 | 2.62 | 11.33 | |
| 3 | Disk | 1 | | 2.02 | 1.97 | 0.30 | 1.27 | 4.32 | 1.23 | 11.11 | |
| | **Total for Field Operations** | | | 5.80 | 4.97 | 1.29 | 5.48 | 10.93 | 5.08 | 33.55 | |

| Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|
| Cover Crop | Seed | 2 | 100% | 1 | acre | 15.00 | 15.00 | |
| **Total Materials & Services** | | | | | | | 15.00 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | 48.55 | |
| Interest on Operations Capital | $ 32.54 | cash expense @ | 5.50% | for 6.0 mo. | 0.89 | |
| **Total Operating and Use Related Ownership Costs** | | | | | 49.44 | |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | 0.00 | |
| Real Estate Opportunity | $ - | per acre @ | 4.00% | | 0.00 | |
| Real Estate Taxes | $ - | per acre @ | 1.00% | | 0.00 | |
| **Total Cost per Acre Including Overhead** | | | | | 49.44 | |

**2017 Budget 73-Cover Crop, No-Till**

| | Field Operations | Times or Qty | Unit | Labor @ $20.00 /Hr | Fuel @ $2.25 and Lube | Repairs Power | Repairs Imp. | Ownership Power | Ownership Imp. | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | No-Till Drill | 1 | | 1.83 | 1.31 | 0.72 | 1.57 | 2.39 | 3.54 | 11.36 | |
| 2 | Spray | 1 | | 1.00 | 0.27 | 0.35 | 0.64 | 1.15 | 0.88 | 4.29 | |
| | **Total for Field Operations** | | | 2.83 | 1.58 | 1.07 | 2.21 | 3.54 | 4.42 | 15.65 | |

| | Materials & Services | | Operation Index | Percent Acres Applied | Application Rate | Unit | Applied Price | Total | Your Estimate |
|---|---|---|---|---|---|---|---|---|---|
| | Cover Crop | Seed | 1 | 100% | 1 | acre | 15.00 | 15.00 | |
| * | 2,4-D Ester 4# | Herbicide | 2 | 100% | 1 | pint | 2.25 | 2.25 | |
| | Glyphosate w/Surf | Herbicide | 2 | 100% | 32 | ounce | 0.10 | 3.13 | |
| | **Total Materials & Services** | | | | | | | 20.38 | |

* Cannot use with some cover crops.

| | | | | | | |
|---|---|---|---|---|---|---|
| **Total listed costs for Field Operations and Materials and Services** | | | | | | 36.03 |
| Interest on Operations Capital | $ 28.07 | cash expense @ | 5.50% | for 6.0 mo. | | 0.77 |
| **Total Operating and Use Related Ownership Costs** | | | | | | 36.80 |
| **Overhead** (accounting, liability insurance, vehicle cost, office expense) | | | | | | 0.00 |
| Real Estate Opportunity | $ - | per acre @ | 4.00% | | | 0.00 |
| Real Estate Taxes | $ - | per acre @ | 1.00% | | | 0.00 |
| **Total Cost per Acre Including Overhead** | | | | | | 36.80 |

## Table 3. Material Prices Used for 2017 Budgets (Continued)

| *Item* | *Price per Unit* |
|---|---|
| **Herbicide** | |
| 2,4-D Amine | $14.00/gallon |
| 2,4-D Ester 4# | $18.00/gallon |
| AAtrex 4L | $20.00/gallon |
| Acuron | $77.00/gallon |
| Aim 2EC | $200.00/quart |
| Ally Extra SGW/TOTSOL | $9.00/ounce |
| Atrazine 4L | $14.00/gallon |
| Atrazine 90 DF | $3.30/pound |
| Authority First DF | $95.00/pound |
| Balance Flexx | $6.00/ounce |
| Basagran | $80.00/gallon |
| Beyond | $625.00/gallon |
| Bicep II Magnum | $48.00/gallon |
| Brox 2EC | $34.00/gallon |
| Dicamba | $50.00/gallon |
| Distinct | $40.00/gallon |
| Expert | $37.00/gallon |
| Glyphosate w/Surf | $12.50/gallon |
| Gramoxone SL | $38.00/gallon |
| Huskie | $120.00/gallon |
| Landmaster BW | $19.00/gallon |
| Laudis | $830.00/gallon |
| Lumax EZ | $80.00/gallon |
| Outlook | $150.00/gallon |
| Peak | $18.00/ounce |
| Prowl H2O | $52.00/gallon |
| Pursuit | $490.00/gallon |
| Raptor | $610.00/gallon |
| Roundup WeatherMax | $32.00/gallon |
| Rugged | $45.00/gallon |
| Select Max | $110.00/gallon |
| Sharpen | $900.00/gallon |
| Spartan 4F | $600.00/gallon |
| Spirit | $12.00/ounce |
| Status | $4.30/ounce |
| Valor XLT | $92.00/pound |
| Velpar 75DF | $37.00/pound |
| Vida | $9.00/ounce |

| *Item* | *Price per Unit* |
|---|---|
| **Insecticide** | |
| Asana XL | $85.00/gallon |
| Brigade 2EC | $145.00/gallon |
| Capture LFR | $360.00/gallon |
| Lorsban 15 G | $2.65/pound |
| Lorsban 4 E | $55.00/gallon |
| Lorsban Advanced | $55.00/gallon |
| Mustang Max EC | $190.00/gallon |
| Regent 4 SC | $9.90/ounce |
| Warrior II/Zeon | $380.00/gallon |

| **Other** | |
|---|---|
| Electricity Fixed | $30.00/acre |
| Electricity Usage | $0.11/kw |
| Fence/Water Repairs | $260.00/circle |
| Irrigation District O&M Charge | $30.00/acre |
| Move Cattle | $20.00/hour |
| Twine Large Round | $0.70/bale |
| Twine Large Square | $1.23/bale |
| Twine Small Square | $0.07/bale |

| **Rental** | |
|---|---|
| Grass Drill | $15.00/acre |
| Seeder/Packer | $13.00/acre |

| **Scouting** | |
|---|---|
| Scouting Dry Beans | $10.00/acre |
| Scouting Dryland Corn | $7.00/acre |
| Scouting Dryland Soybeans | $7.00/acre |
| Scouting Dryland Wheat | $7.00/acre |
| Scouting Grain Sorghum | $7.00/acre |
| Scouting Irrigated Corn | $9.00/acre |
| Scouting Irrigated Soybeans | $9.00/acre |
| Scouting Irrigated Wheat | $9.00/acre |
| Scouting Sugar Beets | $16.00/acre |

EC823
(Revised May 2016)

# 2016 Nebraska Farm Custom Rates — Part I

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Every two years a survey of custom operators is conducted to determine the current rates charged for specific machinery operations. The survey is divided into two parts. Part I includes the spring and summer operations such as planting and harvesting of small grains, and Part II includes information about fall and miscellaneous operations.

The responses are grouped by Nebraska Agricultural Statistics Districts as shown on the map below (Figure 1). Custom rates reported include charges for use of necessary equipment, fuel, labor, and supplies such as baling wire or twine provided by the custom operator. Seed, fertilizer, and chemical costs are not included.

This report is based on a survey of custom operators identified by University of Nebraska–Lincoln Extension personnel. Questionnaires were sent to all individuals on this custom operators mailing list. The results reflect the views of those who responded to the specific questions. Actual rates paid for custom services may vary from those reported due to differences in those responding and those providing the service.


Figure 1. USDA Agricultural Statistics Services reporting districts for Nebraska.

The **Number Reporting** is the number of usable responses received for a specific operation. The results from operations with more responses are considered to be more reliable than those with fewer responses. Results are not reported if fewer than three (3) usable responses were reported for an operation.

The **Average Rate** for a specific operation provides an estimate of the prevailing charge with its reliability improving as the number of responses increases.

The **Most Common Rate (Mode)** is the rate reported more often than any other for that practice. The Average Rate and the Most Common Rate are usually similar. An operation does not have a Most Common Rate entered when any value fails to be reported more than once.

The **Range** shows the minimum and the maximum amounts reported. These values may be indicative of different conditions under which the work was performed. The range also may reflect the fact that some rates include travel to and from the field while others do not.

The rates do not necessarily measure the full economic cost of performing the work specified. Some custom operators may only charge for fuel and labor. Other operators may charge for all costs, including depreciation on equipment, a charge for risk, and a return to management. Field conditions such as size, terrain, and location vary, which will account for some of the range in the rates charged.

The information presented in this publication should be used only as a guide. Rates change from year to year due to cost changes and the availability of custom operators. For example, the rates reported in this publication were the prevailing rates in the spring of 2016. In determining the rates for 2017, custom operators and farm owners should consider changes in the cost of machinery, labor, and fuel.

The following is an example showing how custom rates may be adjusted as fuel prices change. In this example, if the farm price for diesel increases fifty cents, from $1.50 to $2.00 per gallon, and the consumption rate is 0.80 gallons per acre, estimated cost increases due to the higher fuel prices would be $0.50 X 0.80 = $0.40. This price then can be added to the custom rate quoted here.

**This publication has been peer reviewed.**

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## 2016 FARM CUSTOM RATES - PART I

| CUSTOM PRACTICE | NEBRASKA AGRICULTURAL STATISTICS DISTRICTS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | NW | N | NE | C | E | SW | S | SE | STATE |
| | All Units in Dollars Unless Specified | | | | | | | | |
| **LAND TILLAGE OPERATIONS** | | | | | | | | | |
| MOLDBOARD PLOWING WITHOUT PLOW PACKER, PER ACRE | | | | | | | | | |
| Number Reporting | 3 | # | # | # | 5 | # | # | 3 | 14 |
| Average Rate | 20.00 | - | - | - | 20.80 | - | - | 16.67 | 18.64 |
| Range | 17.00-25.00 | - | - | - | 10.00-35.00 | - | - | 15.00-20.00 | 10.00-35.00 |
| Most Common | - | - | - | - | - | - | - | 15.00 | 15.00 |
| MOLDBOARD PLOWING WITH PLOW PACKER, PER ACRE | | | | | | | | | |
| Number Reporting | # | # | # | # | # | # | # | # | 4 |
| Average Rate | - | - | - | - | - | - | - | - | 21.25 |
| Range | - | - | - | - | - | - | - | - | 10.00-30.00 |
| Most Common | - | - | - | - | - | - | - | - | - |
| DISK HARROWING, TANDEM OR OFFSET, PRIMARY (HEAVY, DEEP, LEAVING ROUGH SURFACE), PER ACRE | | | | | | | | | |
| Number Reporting | 7 | 4 | 16 | 15 | 21 | 4 | # | 17 | 79 |
| Average Rate | 12.46 | 12.00 | 14.00 | 15.73 | 16.19 | 17.25 | - | 14.74 | 14.77 |
| Range | 9.00-20.00 | 8.00-14.00 | 9.00-20.00 | 12.00-20.00 | 7.00-25.00 | 14.00-22.00 | - | 10.00-25.00 | 7.00-25.00 |
| Most Common | 12.00 | 13.00 | 15.00 | 15.00 | 15.00 | - | - | 15.00 | 15.00 |
| DISK HARROWING, TANDEM OR OFFSET, FINISHING (SECONDARY, LIGHT, SEEDBED PREPARATION), PER ACRE | | | | | | | | | |
| Number Reporting | 5 | 3 | 12 | 10 | 19 | 5 | # | 14 | 62 |
| Average Rate | 11.45 | 10.00 | 12.71 | 14.60 | 15.24 | 14.80 | - | 13.59 | 13.81 |
| Range | 9.00-15.00 | 8.00-12.00 | 8.00-20.00 | 12.00-18.00 | 9.00-26.00 | 12.00-20.00 | - | 10.00-18.00 | 8.00-26.00 |
| Most Common | 12.00 | - | 10.00 | 15.00 | 15.00 | 12.00 | - | 12.00 | 12.00 |
| HARROWING, SPIKE TOOTH, PER ACRE | | | | | | | | | |
| Number Reporting | # | # | 5 | # | 6 | # | # | # | 9 |
| Average Rate | - | - | 8.60 | - | 9.33 | - | - | - | 9.89 |
| Range | - | - | 6.00-12.00 | - | 2.00-12.00 | - | - | - | 6.00-12.00 |
| Most Common | - | - | - | - | 12.00 | - | - | - | 12.00 |
| HARROWING, SPRING TOOTH, PER ACRE | | | | | | | | | |
| Number Reporting | # | # | # | # | # | # | # | # | 4 |
| Average Rate | - | - | - | - | - | - | - | - | 9.50 |
| Range | - | - | - | - | - | - | - | - | 8.00-12.00 |
| Most Common | - | - | - | - | - | - | - | - | 8.00 |
| CHISEL PLOW (3 TO 8 INCHES) FOR PRIMARY TILLAGE, PER ACRE | | | | | | | | | |
| Number Reporting | 3 | # | 7 | # | 7 | # | # | 6 | 24 |
| Average Rate | 9.00 | - | 16.86 | - | 16.14 | - | - | 17.92 | 15.40 |
| Range | 8.00-10.00 | - | 12.00-20.00 | - | 12.00-20.00 | - | - | 12.00-26.00 | 8.00-26.00 |
| Most Common | - | - | 15.00 | - | 18.00 | - | - | - | 20.00 |
| DEEP CHISEL (DEEPER THAN USUAL PLOW DEPTH), PER ACRE | | | | | | | | | |
| Number Reporting | 3 | # | 7 | 4 | 8 | # | # | 3 | 24 |
| Average Rate | 14.00 | - | 18.57 | 16.63 | 19.25 | - | - | 19.67 | 17.81 |
| Range | 10.00-20.00 | - | 12.00-25.00 | 12.00-20.00 | 16.00-20.00 | - | - | 17.00-22.00 | 10.00-25.00 |
| Most Common | - | - | 20.00 | - | 20.00 | - | - | - | 20.00 |
| SUBSOIL OR RIP, PER ACRE | | | | | | | | | |
| Number Reporting | 3 | 5 | 9 | 9 | 16 | 3 | # | 4 | 46 |
| Average Rate | 19.00 | 16.80 | 19.44 | 18.00 | 22.94 | 12.67 | - | 20.50 | 19.54 |
| Range | 12.00-30.00 | 12.00-20.00 | 12.00-25.00 | 12.00-25.00 | 15.00-35.00 | 10.00-18.00 | - | 17.00-25.00 | 10.00-35.00 |
| Most Common | - | - | 20.00 | 15.00 | 25.00 | 10.00 | - | 20.00 | 25.00 |
| FIELD CULTIVATOR (3 TO 8 INCHES WITH SHANKS OR SWEEPS), PER ACRE | | | | | | | | | |
| Number Reporting | 5 | 4 | 12 | 5 | 21 | # | # | 17 | 60 |
| Average Rate | 10.90 | 11.00 | 11.67 | 14.00 | 14.29 | - | - | 13.70 | 13.16 |
| Range | 7.50-15.00 | 9.00-13.00 | 7.00-25.00 | 10.00-15.00 | 7.00-20.00 | - | - | 10.00-21.00 | 7.00-25.00 |
| Most Common | 12.00 | - | 10.00 | 15.00 | 15.00 | - | - | 12.00 | 15.00 |

**# Too few responses to publish**

## 2016 FARM CUSTOM RATES - PART I (Continued)

| CUSTOM PRACTICE | NEBRASKA AGRICULTURAL STATISTICS DISTRICTS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | NW | N | NE | C | E | SW | S | SE | STATE |
| | All Units in Dollars Unless Specified | | | | | | | | |
| **PLANTING AND POST PLANTING OPERATIONS** | | | | | | | | | |
| DRILLING SMALL GRAINS, CONVENTIONAL DRILL WITH DISK OR HOE OPENING DEVICE, PER ACRE | | | | | | | | | |
| Number Reporting | 5 | # | 11 | # | 7 | # | # | 3 | 29 |
| Average Rate | 12.20 | - | 14.36 | - | 14.14 | - | - | 18.17 | 14.60 |
| Range | 9.00-15.00 | - | 10.00-21.00 | - | 10.00-20.00 | - | - | 14.50-22.00 | 9.00-22.00 |
| Most Common | 12.00 | - | 10.00 | - | 10.00 | - | - | - | 18.00 |
| DRILLING SMALL GRAINS, NO-TILL DRILL, PER ACRE | | | | | | | | | |
| Number Reporting | 7 | # | 7 | 5 | 15 | 7 | 3 | 17 | 58 |
| Average Rate | 16.07 | - | 17.14 | 16.20 | 17.27 | 16.29 | 18.00 | 17.88 | 17.16 |
| Range | 12.50-21.00 | - | 12.00-22.00 | 12.00-22.00 | 12.00-22.00 | 12.00-18.00 | 15.00-23.00 | 12.00-24.00 | 12.00-24.00 |
| Most Common | 15.00 | - | 22.00 | 12.00 | 20.00 | 18.00 | - | 20.00 | 15.00 |
| DRILLING SOYBEANS, CONVENTIONAL DRILL WITH DISK OR HOE OPENING DEVICES, PER ACRE | | | | | | | | | |
| Number Reporting | # | # | 8 | # | 6 | # | # | 5 | 18 |
| Average Rate | - | - | 15.38 | - | 16.83 | - | - | 20.20 | 17.17 |
| Range | - | - | 12.00-20.00 | - | 10.00-22.00 | - | - | 18.00-22.00 | 10.00-22.00 |
| Most Common | - | - | 15.00 | - | 20.00 | - | - | 20.00 | 20.00 |
| DRILLING SOYBEANS, NO-TILL DRILL, PER ACRE | | | | | | | | | |
| Number Reporting | # | 3 | 11 | 4 | 26 | 4 | 3 | 23 | 69 |
| Average Rate | - | 20.67 | 17.45 | 17.25 | 18.58 | 17.25 | 18.00 | 17.82 | 17.76 |
| Range | - | 20.00-21.00 | 14.00-22.00 | 12.00-22.00 | 12.00-33.00 | 16.00-18.00 | 15.00-23.00 | 12.00-24.00 | 12.00-25.00 |
| Most Common | - | 21.00 | 15.00 | - | 20.00 | 18.00 | - | 18.00 | 18.00 |
| PLANTING DRY EDIBLE BEANS, PER ACRE | | | | | | | | | |
| Number Reporting | 4 | # | # | # | # | # | # | # | 7 |
| Average Rate | 19.00 | - | - | - | - | - | - | - | 19.14 |
| Range | 14.00-24.00 | - | - | - | - | - | - | - | 14.00-24.00 |
| Most Common | - | - | - | - | - | - | - | - | 20.00 |
| PLANTING SUGARBEETS | | | | | | | | | |
| Number Reporting | # | # | # | # | # | # | # | # | 5 |
| Average Rate | - | - | - | - | - | - | - | - | 21.20 |
| Range | - | - | - | - | - | - | - | - | 18.00-24.00 |
| Most Common | - | - | - | - | - | - | - | - | 22.00 |
| SEEDING GRASS SEED, PER ACRE | | | | | | | | | |
| Number Reporting | # | # | # | # | # | # | # | 3 | 8 |
| Average Rate | - | - | - | - | - | - | - | 21.83 | 21.81 |
| Range | - | - | - | - | - | - | - | 15.00-31.00 | 15.00-31.00 |
| Most Common | - | - | - | - | - | - | - | - | - |
| SEEDING GRASS SEED WITH DEPTH BANDS, PER ACRE | | | | | | | | | |
| Number Reporting | # | # | # | # | # | # | # | # | 4 |
| Average Rate | - | - | - | - | - | - | - | - | 19.00 |
| Range | - | - | - | - | - | - | - | - | 14.00-22.00 |
| Most Common | - | - | - | - | - | - | - | - | 22.00 |
| SEEDING LEGUMES, PER ACRE | | | | | | | | | |
| Number Reporting | # | # | 3 | # | # | # | # | 5 | 13 |
| Average Rate | - | - | 17.00 | - | - | - | - | 19.65 | 17.56 |
| Range | - | - | 12.00-24.00 | - | - | - | - | 16.00-28.00 | 10.00-28.00 |
| Most Common | - | - | - | - | - | - | - | 16.00 | 16.00 |
| SEEDING LEGUMES WITH DEPTH BANDS, PER ACRE | | | | | | | | | |
| Number Reporting | # | # | # | # | # | # | # | # | 6 |
| Average Rate | - | - | - | - | - | - | - | - | 19.17 |
| Range | - | - | - | - | - | - | - | - | 14.00-30.00 |
| Most Common | - | - | - | - | - | - | - | - | - |

# Too few responses to publish

## 2016 FARM CUSTOM RATES - PART I (Continued)

| CUSTOM PRACTICE | NEBRASKA AGRICULTURAL STATISTICS DISTRICTS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | NW | N | NE | C | E | SW | S | SE | STATE |
| | All Units in Dollars Unless Specified | | | | | | | | |
| SEEDING CRP GROUND, PER ACRE | | | | | | | | | |
| Number Reporting | # | # | # | # | 4 | # | # | 6 | 13 |
| Average Rate | - | - | - | - | 18.75 | - | - | 22.00 | 21.15 |
| Range | - | - | - | - | 10.00-25.00 | - | - | 15.00-31.00 | 10.00-31.00 |
| Most Common | - | - | - | - | - | - | - | 20.00 | 20.00 |
| SEEDING CRP GROUND WITH DEPTH BANDS, PER ACRE | | | | | | | | | |
| Number Reporting | # | # | # | # | # | # | # | # | 5 |
| Average Rate | - | - | - | - | - | - | - | - | 21.60 |
| Range | - | - | - | - | - | - | - | - | 15.00-35.00 |
| Most Common | - | - | - | - | - | - | - | - | 18.00 |
| INTERSEEDING LEGUMES WITH POWER SEEDER, PER ACRE | | | | | | | | | |
| Number Reporting | # | # | # | # | # | # | # | # | 3 |
| Average Rate | - | - | - | - | - | - | - | - | 12.33 |
| Range | - | - | - | - | - | - | - | - | 5.00-20.00 |
| Most Common | - | - | - | - | - | - | - | - | - |
| CULTIVATION TILLAGE, ROTARY HOE, PER ACRE | | | | | | | | | |
| Number Reporting | # | # | 3 | # | 5 | # | # | # | 9 |
| Average Rate | - | - | 7.67 | - | 9.10 | - | - | - | 8.28 |
| Range | - | - | 6.00-10.00 | - | 7.00-11.00 | - | - | - | 6.00-11.00 |
| Most Common | - | - | - | - | 10.00 | - | - | - | 10.00 |
| CULTIVATION TILLAGE, CONVENTIONAL CROP CULTIVATOR, PER ACRE | | | | | | | | | |
| Number Reporting | # | # | 4 | 6 | 5 | # | # | # | 20 |
| Average Rate | - | - | 9.25 | 9.33 | 12.60 | - | - | - | 10.25 |
| Range | - | - | 8.00-10.00 | 8.00-11.00 | 8.00-15.00 | - | - | - | 8.00-15.00 |
| Most Common | - | - | 10.00 | 10.00 | 15.00 | - | - | - | 10.00 |
| CULTIVATION TILLAGE, CULTIVATOR HANDLING RESIDUE &/OR MAKING RIDGES, PER ACRE | | | | | | | | | |
| Number Reporting | 3 | # | # | 9 | 9 | # | # | # | 26 |
| Average Rate | 11.00 | - | - | 12.42 | 13.56 | - | - | - | 12.32 |
| Range | 9.00-14.00 | - | - | 7.00-16.00 | 10.00-16.00 | - | - | - | 7.00-16.00 |
| Most Common | - | - | - | 10.00 | 13.00 | - | - | - | 10.00 |
| CULTIVATION TILLAGE, HILL OR DITCH FOR IRRIGATION, PER ACRE | | | | | | | | | |
| Number Reporting | # | # | # | 14 | 8 | # | # | # | 30 |
| Average Rate | - | - | - | 10.57 | 12.13 | - | - | - | 11.13 |
| Range | - | - | - | 7.00-15.00 | 9.00-15.00 | - | - | - | 7.00-15.00 |
| Most Common | - | - | - | 10.00 | 10.00 | - | - | - | 10.00 |
| PLANTING ROW CROPS, NO COULTERS OR ROW CLEANING DEVICE, WITH BAND APPLICATOR, PER ACRE | | | | | | | | | |
| Number Reporting | 4 | # | 9 | 6 | 12 | 3 | # | 14 | 47 |
| Average Rate | 20.00 | - | 16.78 | 19.83 | 18.71 | 17.67 | - | 19.39 | 18.62 |
| Range | 14.00-24.00 | - | 12.00-22.00 | 15.00-25.00 | 12.00-25.00 | 17.00-18.00 | - | 14.00-25.00 | 12.00-25.00 |
| Most Common | 24.00 | - | 16.00 | 20.00 | 20.00 | 18.00 | - | 18.00 | 20.00 |
| PLANTING ROW CROPS, NO COULTERS OR ROW CLEANING DEVICE, WITHOUT BAND APPLICATOR, PER ACRE | | | | | | | | | |
| Number Reporting | # | # | 5 | # | 7 | # | # | 14 | 33 |
| Average Rate | - | - | 20.60 | - | 16.43 | - | - | 17.46 | 18.02 |
| Range | - | - | 14.00-35.00 | - | 10.00-22.00 | - | - | 10.00-24.00 | 10.00-35.00 |
| Most Common | - | - | - | - | 15.00 | - | - | 18.00 | 15.00 |
| PLANTING ROW CROPS, WITH COULTERS, WITH BAND APPLICATOR, PER ACRE | | | | | | | | | |
| Number Reporting | 5 | 3 | 10 | 5 | 17 | # | # | 16 | 53 |
| Average Rate | 18.90 | 17.33 | 17.05 | 18.00 | 20.79 | - | - | 18.34 | 18.55 |
| Range | 14.00-27.00 | 15.00-20.00 | 12.00-24.00 | 15.00-20.00 | 15.00-30.00 | - | - | 14.00-24.00 | 12.00-30.00 |
| Most Common | - | - | 12.00 | 20.00 | 20.00 | - | - | 18.00 | 20.00 |

**# Too few responses to publish**

## 2016 FARM CUSTOM RATES - PART I (Continued)

| CUSTOM PRACTICE | NEBRASKA AGRICULTURAL STATISTICS DISTRICTS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | NW | N | NE | C | E | SW | S | SE | STATE |
| | All Units in Dollars Unless Specified | | | | | | | | |
| PLANTING ROW CROPS, WITH COULTERS, WITHOUT BAND APPLICATOR, PER ACRE | | | | | | | | | |
| Number Reporting | # | # | 6 | 3 | 9 | # | 3 | 20 | 40 |
| Average Rate | - | - | 16.83 | 14.67 | 17.78 | - | 20.00 | 17.20 | 17.33 |
| Range | - | - | 10.00-24.00 | 10.00-19.00 | 12.50-25.00 | - | 16.00-22.00 | 11.00-24.00 | 10.00-25.00 |
| Most Common | - | - | 15.00 | - | 15.00 | - | 22.00 | 15.00 | 15.00 |
| PLANTING ROW CROPS, WITH ROW CLEANING DEVICES FOR RIDGE PLANTING, WITH BAND APPLICATOR, PER ACRE | | | | | | | | | |
| Number Reporting | # | 3 | 9 | 13 | 17 | 5 | # | 11 | 56 |
| Average Rate | - | 20.67 | 16.78 | 19.65 | 18.94 | 16.80 | - | 19.91 | 18.91 |
| Range | - | 20.00-21.00 | 15.00-20.00 | 15.00-25.50 | 12.00-25.50 | 15.00-18.00 | - | 15.00-25.00 | 12.00-25.50 |
| Most Common | - | 21.00 | 15.00 | 20.00 | 20.00 | 18.00 | - | 25.00 | 18.00 |
| PLANTING ROW CROPS, WITH ROW CLEANING DEVICES FOR RIDGE PLANTING, WITHOUT BAND APPLICATOR, PER ACRE | | | | | | | | | |
| Number Reporting | # | # | 6 | 8 | 6 | # | 3 | 10 | 34 |
| Average Rate | - | - | 16.50 | 16.88 | 19.33 | - | 20.17 | 17.55 | 17.79 |
| Range | - | - | 12.00-20.00 | 14.00-22.00 | 15.00-25.00 | - | 15.50-24.00 | 12.00-24.00 | 12.00-25.00 |
| Most Common | - | - | 18.00 | 15.00 | - | - | - | 18.00 | 15.00 |
| PLANTING ROW CROPS, LISTER, WITH BAND APPLICATOR, PER ACRE | | | | | | | | | |
| Number Reporting | # | # | # | # | # | # | # | # | 5 |
| Average Rate | - | - | - | - | - | - | - | - | 17.60 |
| Range | - | - | - | - | - | - | - | - | 15.00-20.00 |
| Most Common | - | - | - | - | - | - | - | - | 15.00 |
| PLANTING ROW CROPS, LISTER, WITHOUT BAND APPLICATOR, PER ACRE | | | | | | | | | |
| Number Reporting | # | # | # | # | # | # | # | # | 4 |
| Average Rate | - | - | - | - | - | - | - | - | 17.25 |
| Range | - | - | - | - | - | - | - | - | 15.00-20.00 |
| Most Common | - | - | - | - | - | - | - | - | - |
| HAYING AND BALING | | | | | | | | | |
| MOWING, PER ACRE | | | | | | | | | |
| Number Reporting | # | # | 5 | # | 9 | # | # | 3 | 19 |
| Average Rate | - | - | 12.60 | - | 13.67 | - | - | 13.67 | 16.16 |
| Range | - | - | 6.00-20.00 | - | 6.00-30.00 | - | - | 11.00-18.00 | 6.00-60.00 |
| Most Common | - | - | - | - | 15.00 | - | - | - | 15.00 |
| RAKING, PER ACRE | | | | | | | | | |
| Number Reporting | # | 3 | 8 | 6 | 15 | # | # | 9 | 41 |
| Average Rate | - | 6.67 | 3.13 | 5.33 | 5.43 | - | - | 4.67 | 4.94 |
| Range | - | 4.00-10.00 | 2.00-6.00 | 4.00-6.00 | 1.50-10.00 | - | - | 2.00-7.50 | 1.50-10.00 |
| Most Common | - | - | 2.00 | 6.00 | 5.00 | - | - | 5.00 | 5.00 |
| MOWING AND RAKING, PER ACRE | | | | | | | | | |
| Number Reporting | # | # | # | # | 3 | # | # | # | 6 |
| Average Rate | - | - | - | - | 19.67 | - | - | - | 16.33 |
| Range | - | - | - | - | 15.00-24.00 | - | - | - | 10.00-24.00 |
| Most Common | - | - | - | - | - | - | - | - | 15.00 |
| SWATHING WITH CRUSHING/CRIMPING, PER HOUR | | | | | | | | | |
| Number Reporting | # | # | # | # | # | # | # | 14 | 18 |
| Average Rate | - | - | - | - | - | - | - | 124.29 | 127.94 |
| Range | - | - | - | - | - | - | - | 70-225 | 70-225 |
| Most Common | - | - | - | - | - | - | - | 100.00 | 100.00 |
| SWATHING WITH CRUSHING/CRIMPING, PER ACRE | | | | | | | | | |
| Number Reporting | 6 | 3 | 6 | 8 | 25 | 3 | 3 | 16 | 65 |
| Average Rate | 16.17 | 16.67 | 12.00 | 15.13 | 14.78 | 15.00 | 12.83 | 14.22 | 14.63 |
| Range | 14.00-19.00 | 15.00-18.00 | 10.00-14.00 | 14.00-17.00 | 9.50-25.00 | 12.00-17.00 | 12.00-13.50 | 10.00-20.00 | 9.50-25.00 |
| Most Common | 15.00 | - | 12.00 | 15.00 | 15.00 | - | - | 14.00 | 15.00 |
| SWATHING WITHOUT CRUSHING/CRIMPING, PER HOUR | | | | | | | | | |
| Number Reporting | # | # | # | # | # | # | # | # | # |
| Average Rate | - | - | - | - | - | - | - | - | - |
| Range | - | - | - | - | - | - | - | - | - |
| Most Common | - | - | - | - | - | - | - | - | - |

# Too few responses to publish

## 2016 FARM CUSTOM RATES - PART I (Continued)

| CUSTOM PRACTICE | NEBRASKA AGRICULTURAL STATISTICS DISTRICTS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | NW | N | NE | C | E | SW | S | SE | STATE |
| | All Units in Dollars Unless Specified | | | | | | | | |
| SWATHING WITHOUT CRUSHING/CRIMPING, PER ACRE | | | | | | | | | |
| Number Reporting | # | # | 3 | # | 3 | # | # | # | 11 |
| Average Rate | - | - | 11.33 | - | 14.33 | - | - | - | 14.05 |
| Range | - | - | 10.00-12.00 | - | 10.00-18.00 | - | - | - | 10.00-18.00 |
| Most Common | - | - | 12.00 | - | - | - | - | - | 12.00 |
| BALING SMALL SQUARE BALES WITH TWINE TIE, (AVERAGE LBS/BALE = 62), PER BALE | | | | | | | | | |
| Number Reporting | # | # | 3 | # | 11 | # | # | 3 | 19 |
| Average Rate | - | - | 0.60 | - | 0.88 | - | - | 0.68 | 0.82 |
| Range | - | - | 0.40-0.70 | - | 0.50-1.50 | - | - | 0.50-0.80 | 0.40-1.50 |
| Most Common | - | - | 0.70 | - | 1.00 | - | - | - | 1.00 |
| BALING SMALL SQUARE BALES WITH WIRE TIE, (AVERAGE LBS/BALE = 70), PER BALE | | | | | | | | | |
| Number Reporting | # | # | # | # | # | # | # | # | 6 |
| Average Rate | - | - | - | - | - | - | - | - | 1.36 |
| Range | - | - | - | - | - | - | - | - | 0.50-3.50 |
| Most Common | - | - | - | - | - | - | - | - | 1.00 |
| BALING LARGE SQUARE BALES, (AVERAGE LBS/BALE = 1330), PER BALE | | | | | | | | | |
| Number Reporting | 5 | # | 3 | # | 7 | # | # | 6 | 20 |
| Average Rate | 16.00 | - | 14.33 | - | 13.43 | - | - | 13.67 | 14.20 |
| Range | 13.00-21.00 | - | 8.00-20.00 | - | 12.00-15.00 | - | - | 12.00-15.25 | 8.00-21.00 |
| Most Common | 13.00 | - | - | - | 12.00 | - | - | - | 15.00 |
| BALING LARGE ROUND BALES WITHOUT NET WRAP, (AVERAGE LBS/BALE = 1530), PER BALE | | | | | | | | | |
| Number Reporting | # | # | 6 | # | 8 | # | # | 8 | 25 |
| Average Rate | - | - | 13.67 | - | 13.69 | - | - | 11.81 | 12.90 |
| Range | - | - | 12.00-17.00 | - | 10.50-17.00 | - | - | 10.00-13.00 | 10.00-17.00 |
| Most Common | - | - | 12.00 | - | 13.00 | - | - | 12.00 | 13.00 |
| BALING LARGE ROUND BALES WITH NET WRAP, (AVERAGE LBS/BALE = 1535), PER BALE | | | | | | | | | |
| Number Reporting | 3 | 5 | 9 | 11 | 17 | 3 | 4 | 29 | 77 |
| Average Rate | 15.50 | 11.28 | 13.67 | 14.91 | 14.29 | 15.00 | 13.88 | 13.36 | 13.85 |
| Range | 12.50-19.00 | 9.00-13.00 | 10.00-18.00 | 10.00-23.00 | 12.00-18.00 | 11.00-20.00 | 12.00-16.00 | 10.00-18.00 | 9.00-23.00 |
| Most Common | - | - | 13.00 | 15.00 | 15.00 | - | - | 13.50 | 15.00 |
| RAKING CORNSTALKS, PER ACRE | | | | | | | | | |
| Number Reporting | # | # | 5 | 4 | 3 | # | # | 6 | 21 |
| Average Rate | - | - | 4.20 | 6.38 | 5.67 | - | - | 5.00 | 5.18 |
| Range | - | - | 2.00-6.00 | 1.50-10.00 | 4.00-7.00 | - | - | 2.00-8.00 | 1.50-10.00 |
| Most Common | - | - | 5.00 | 7.00 | - | - | - | 2.00 | 7.00 |
| BALING CORNSTALKS WITH LARGE ROUND BALER, (AVERAGE LBS/BALE = 1312), PER BALE | | | | | | | | | |
| Number Reporting | # | 3 | 10 | 5 | 10 | # | # | 14 | 44 |
| Average Rate | - | 13.00 | 14.20 | 18.10 | 16.05 | - | - | 14.79 | 15.11 |
| Range | - | 10.00-15.00 | 10.00-19.00 | 14.50-23.00 | 15.00-19.00 | - | - | 12.00-18.00 | 10.00-23.00 |
| Most Common | - | - | 15.00 | - | 15.00 | - | - | 15.00 | 15.00 |
| LOADING AND STACKING SMALL BALES, PER BALE | | | | | | | | | |
| Number Reporting | # | # | 3 | # | 3 | # | # | # | 5 |
| Average Rate | - | - | 0.70 | - | 0.72 | - | - | - | 0.65 |
| Range | - | - | 0.10-1.00 | - | 0.15-1.00 | - | - | - | 0.10-1.00 |
| Most Common | - | - | 1.00 | - | 1.00 | - | - | - | 1.00 |
| LIFTING AND MOVING LARGE ROUND BALES WITH TRACTOR, (AVERAGE DISTANCE = 0.70 miles), PER BALE | | | | | | | | | |
| Number Reporting | # | # | # | 3 | 4 | 3 | # | 3 | 18 |
| Average Rate | - | - | - | 1.67 | 3.25 | 4.00 | - | 1.33 | 2.84 |
| Range | - | - | - | 1.00-2.00 | 1.00-5.00 | 3.00-5.00 | - | 1.00-2.00 | 1.00-5.00 |
| Most Common | - | - | - | 2.00 | 5.00 | - | - | 1.00 | 2.00 |
| LOADING AND MOVING LARGE ROUND BALES WITH TRACTOR, (AVERAGE DISTANCE = 1.14 miles), (BALES/LOAD = 17) PER LOAD | | | | | | | | | |
| Number Reporting | # | # | # | # | # | # | # | # | 3 |
| Average Rate | - | - | - | - | - | - | - | - | 2.50 |
| Range | - | - | - | - | - | - | - | - | 2.00-3.00 |
| Most Common | - | - | - | - | - | - | - | - | - |

**# Too few responses to publish**

## 2016 FARM CUSTOM RATES - PART I (Continued)

| CUSTOM PRACTICE | NEBRASKA AGRICULTURAL STATISTICS DISTRICTS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | NW | N | NE | C | E | SW | S | SE | STATE |
| | All Units in Dollars Unless Specified | | | | | | | | |
| **SMALL GRAIN HARVEST( WHEAT, OATS, AND BARLEY)** | | | | | | | | | |
| WINDROWING GRAIN CROPS, PER ACRE | | | | | | | | | |
| Number Reporting | # | # | 5 | # | # | # | # | 3 | 15 |
| Average Rate | - | - | 17.20 | - | - | - | - | 33.00 | 20.83 |
| Range | - | - | 12.00-30.00 | - | - | - | - | 25.00-38.00 | 10.50-38.00 |
| Most Common | - | - | 12.00 | - | - | - | - | - | 12.00 |
| COMBINING SMALL GRAINS, FLAT CHARGE, PER ACRE | | | | | | | | | |
| Number Reporting | 4 | 5 | 10 | 11 | 15 | 4 | # | 24 | 71 |
| Average Rate | 30.63 | 33.00 | 32.50 | 37.00 | 33.83 | 31.75 | - | 29.23 | 31.87 |
| Range | 27.50-35.00 | 24.00-45.00 | 25.00-42.00 | 25.00-49.00 | 30.00-40.00 | 22.00-35.00 | - | 18.00-38.00 | 18.00-49.00 |
| Most Common | 30.00 | - | 35.00 | 35.00 | 30.00 | 35.00 | - | 30.00 | 30.00 |
| COMBINING SMALL GRAINS, MINIMUM WITH EXTRA CHARGE FOR HIGH YIELDS, PER ACRE | | | | | | | | | |
| Number Reporting | 5 | # | # | # | # | 3 | # | # | 12 |
| Average Rate | 23.00 | - | - | - | - | 22.67 | - | - | 24.75 |
| Range | 21.00-25.00 | - | - | - | - | 20.00-25.00 | - | - | 20.00-40.00 |
| Most Common | 22.00 | - | - | - | - | - | - | - | 25.00 |
| PLUS ADDITIONAL FEE IN CENTS PER BUSHEL FOR CROPS YIELDING OVER 23 BUSHELS PER ACRE | | | | | | | | | |
| Number Reporting | 5 | # | # | # | # | 3 | # | # | 11 |
| Average Rate | 22.20 | - | - | - | - | 22.67 | - | - | 23.00 |
| Range | 21.00-25.00 | - | - | - | - | 20.00-25.00 | - | - | 20.00-28.00 |
| Most Common | 22.00 | - | - | - | - | - | - | - | 23.00 |
| COMBINING SMALL GRAIN, COMBINATION CHARGES REGARDLESS OF YIELD, PER ACRE | | | | | | | | | |
| Number Reporting | # | # | # | # | # | # | # | # | 4 |
| Average Rate | - | - | - | - | - | - | - | - | 19.75 |
| Range | - | - | - | - | - | - | - | - | 12.00-25.00 |
| Most Common | - | - | - | - | - | - | - | - | - |
| PLUS ADDITIONAL FEE IN CENTS FOR EACH BUSHEL | | | | | | | | | |
| Number Reporting | # | # | # | # | # | # | # | # | 4 |
| Average Rate | - | - | - | - | - | - | - | - | 13.50 |
| Range | - | - | - | - | - | - | - | - | 6.00-20.00 |
| Most Common | - | - | - | - | - | - | - | - | - |
| HAULING SMALL GRAIN FROM COMBINE TO LOCAL STORAGE, FLAT RATE, PER BUSHEL | | | | | | | | | |
| Number Reporting | 9 | # | # | 11 | 14 | 6 | # | 19 | 61 |
| Average Rate | 17.22 | - | - | 11.73 | 12.36 | 14.67 | - | 11.08 | 12.70 |
| Range | 10.00-22.00 | - | - | 7.00-16.00 | 6.00-22.00 | 10.00-23.00 | - | 3.50-20.00 | 3.50-23.00 |
| Most Common | 15.00 | - | - | 10.00 | 10.00 | 10.00 | - | 10.00 | 10.00 |
| PLUS EXTRA CHARGE FOR DISTANCE OVER 8.5 MILES, IN CENTS PER BUSHEL | | | | | | | | | |
| Number Reporting | # | # | # | 8 | 8 | 4 | # | 6 | 31 |
| Average Rate | - | - | - | 5.63 | 5.19 | 3.25 | - | 8.00 | 5.76 |
| Range | - | - | - | 1.00-18.00 | 0.50-10.00 | 1.00-5.00 | - | 2.00-15.00 | 0.50-18.00 |
| Most Common | - | - | - | 1.00 | 10.00 | 5.00 | - | - | 5.00 |

**# Too few responses to publish**

## 2016 FARM CUSTOM RATES - PART I (Continued)

| CUSTOM PRACTICE | NEBRASKA AGRICULTURAL STATISTICS DISTRICTS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | NW | N | NE | C | E | SW | S | SE | STATE |
| | All Units in Dollars Unless Specified | | | | | | | | |
| **APPLICATION OF FERTILIZER (EXCLUDING COST OF FERTILIZER)** | | | | | | | | | |
| DRY FERTILIZER SOLID BROADCAST, INCLUDING POWER, LABOR, & APPLICATOR, PER ACRE | | | | | | | | | |
| Number Reporting | # | # | 10 | # | 13 | 3 | # | 17 | 42 |
| Average Rate | - | - | 5.85 | - | 7.04 | 6.92 | - | 5.62 | 6.17 |
| Range | - | - | 3.50-7.00 | - | 3.00-12.00 | 5.75-8.00 | - | 3.00-7.50 | 3.00-12.00 |
| Most Common | - | - | 7.00 | - | 12.00 | - | - | 6.00 | 7.00 |
| DRY FERTILIZER SOLID BROADCAST, APPLICATOR RENTAL ONLY, PER ACRE | | | | | | | | | |
| Number Reporting | # | # | 3 | # | # | # | # | 4 | 8 |
| Average Rate | - | - | 3.50 | - | - | - | - | 3.13 | 3.59 |
| Range | - | - | 0.50-5.00 | - | - | - | - | 2.00-5.50 | 0.50-5.75 |
| Most Common | - | - | 5.00 | - | - | - | - | 2.00 | 2.00 |
| DRY FERTILIZER SOLID BROADCAST, APPLICATOR RENTAL ONLY, PER TON | | | | | | | | | |
| Number Reporting | # | # | # | # | # | # | # | # | 4 |
| Average Rate | - | - | - | - | - | - | - | - | 9.06 |
| Range | - | - | - | - | - | - | - | - | 1.25-20.00 |
| Most Common | - | - | - | - | - | - | - | - | - |
| DRY FERTILIZER VARIABLE RATE, INCLUDING POWER, LABOR, & APPLICATOR, PER ACRE | | | | | | | | | |
| Number Reporting | # | # | 6 | # | 10 | # | # | 11 | 28 |
| Average Rate | - | - | 7.50 | - | 8.10 | - | - | 6.62 | 7.52 |
| Range | - | - | 6.50-9.00 | - | 4.50-15.00 | - | - | 4.50-8.00 | 4.50-15.00 |
| Most Common | - | - | 7.00 | - | 6.00 | - | - | 6.50 | 6.50 |
| DRY FERTILIZER VARIABLE RATE, APPLICATOR RENTAL ONLY, PER ACRE | | | | | | | | | |
| Number Reporting | # | # | # | # | # | # | # | # | 5 |
| Average Rate | - | - | - | - | - | - | - | - | 7.15 |
| Range | - | - | - | - | - | - | - | - | 4.00-10.00 |
| Most Common | - | - | - | - | - | - | - | - | - |
| LIQUID FERTILIZER SOLID APPLICATION, POWER, LABOR, & APPLICATOR, PER ACRE | | | | | | | | | |
| Number Reporting | 3 | # | 7 | # | 8 | 4 | 4 | 9 | 31 |
| Average Rate | 5.33 | - | 7.68 | - | 7.81 | 6.94 | 7.88 | 8.58 | 8.13 |
| Range | 4.50-6.00 | - | 6.25-12.00 | - | 4.50-12.00 | 5.75-9.00 | 5.75-12.00 | 5.00-24.00 | 4.50-24.00 |
| Most Common | - | - | 7.00 | - | 8.00 | - | - | 5.80 | 7.00 |
| LIQUID FERTILIZER SOLID APPLICATION, APPLICATOR RENTAL ONLY, PER ACRE | | | | | | | | | |
| Number Reporting | # | # | # | # | # | # | # | # | 5 |
| Average Rate | - | - | - | - | - | - | - | - | 7.25 |
| Range | - | - | - | - | - | - | - | - | 5.00-15.00 |
| Most Common | - | - | - | - | - | - | - | - | 5.00 |
| LIQUID FERTILIZER VARIABLE RATE, POWER, LABOR, & APPLICATOR, PER ACRE | | | | | | | | | |
| Number Reporting | # | # | 5 | # | # | 3 | 3 | 6 | 16 |
| Average Rate | - | - | 10.20 | - | - | 9.25 | 10.58 | 10.38 | 10.07 |
| Range | - | - | 7.00-15.00 | - | - | 8.00-10.50 | 9.25-12.00 | 6.00-19.00 | 6.00-19.00 |
| Most Common | - | - | 7.00 | - | - | - | - | 12.00 | 7.00 |
| LIQUID FERTILIZER VARIABLE RATE, APPLICATOR RENTAL ONLY, PER ACRE | | | | | | | | | |
| Number Reporting | # | # | # | # | # | # | # | # | 5 |
| Average Rate | - | - | - | - | - | - | - | - | 8.43 |
| Range | - | - | - | - | - | - | - | - | 5.00-15.00 |
| Most Common | - | - | - | - | - | - | - | - | 6.50 |
| ANHYDROUS AMMONIA, CONVENTIONAL KNIFE, POWER, LABOR, & APPLICATOR, PER ACRE | | | | | | | | | |
| Number Reporting | # | # | 3 | # | 5 | # | # | 4 | 14 |
| Average Rate | - | - | 10.67 | - | 15.00 | - | - | 16.75 | 13.00 |
| Range | - | - | 7.00-15.00 | - | 8.00-25.00 | - | - | 12.00-19.00 | 6.00-25.00 |
| Most Common | - | - | - | - | - | - | - | 18.00 | 8.00 |
| ANHYDROUS AMMONIA, CONVENTIONAL KNIFE, APPLICATOR RENTAL ONLY, PER ACRE | | | | | | | | | |
| Number Reporting | # | # | # | # | # | # | # | # | 3 |
| Average Rate | - | - | - | - | - | - | - | - | 8.83 |
| Range | - | - | - | - | - | - | - | - | 5.00-12.50 |
| Most Common | - | - | - | - | - | - | - | - | - |

**# Too few responses to publish**

## 2016 FARM CUSTOM RATES - PART I (Continued)

| CUSTOM PRACTICE | NEBRASKA AGRICULTURAL STATISTICS DISTRICTS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | NW | N | NE | C | E | SW | S | SE | STATE |
| | All Units in Dollars Unless Specified | | | | | | | | |
| ANHYDROUS AMMONIA, KNIFE WITH COULTERS, POWER, LABOR, & APPLICATOR, PER ACRE | | | | | | | | | |
| Number Reporting | # | # | 3 | # | 23 | # | 3 | 41 | 69 |
| Average Rate | - | - | 12.00 | - | 14.36 | - | 17.58 | 14.28 | 14.15 |
| Range | - | - | 7.00-16.00 | - | 8.00-25.00 | - | 16.75-18.00 | 7.50-25.00 | 7.00-25.00 |
| Most Common | - | - | - | - | 15.00 | - | 18.00 | 14.00 | 14.00 |
| ANHYDROUS AMMONIA, KNIFE WITH COULTERS, APPLICATOR RENTAL ONLY, PER ACRE | | | | | | | | | |
| Number Reporting | # | # | # | # | 3 | # | # | 4 | 9 |
| Average Rate | - | - | - | - | 13.17 | - | - | 4.88 | 8.44 |
| Range | - | - | - | - | 8.50-17.50 | - | - | 2.50-7.50 | 2.50-17.50 |
| Most Common | - | - | - | - | - | - | - | - | - |
| ANHYDROUS AMMONIA, KNIFE WITH COULTERS, APPLICATOR RENTAL ONLY, PER TON | | | | | | | | | |
| Number Reporting | # | # | # | # | 3 | # | # | # | 3 |
| Average Rate | - | - | - | - | 15.50 | - | - | - | 15.50 |
| Range | - | - | - | - | 1.50-30.00 | - | - | - | 1.50-30.00 |
| Most Common | - | - | - | - | - | - | - | - | - |
| **INSECT, DISEASE, AND WEED CONTROL PER APPLICATION (EXCLUDES COST OF MATERIALS)** | | | | | | | | | |
| SPRAYING WEED CONTROL, BOOM, PER ACRE | | | | | | | | | |
| Number Reporting | 8 | 3 | 12 | 5 | 27 | 6 | 4 | 21 | 79 |
| Average Rate | 6.06 | 5.33 | 6.92 | 7.50 | 7.29 | 5.91 | 6.19 | 6.88 | 6.82 |
| Range | 4.75-7.00 | 5.00-6.00 | 6.00-9.00 | 6.50-8.50 | 4.00-12.00 | 3.95-8.00 | 5.75-6.75 | 5.00-12.00 | 3.95-12.00 |
| Most Common | 5.50 | 5.00 | 7.00 | 7.00 | 7.50 | 6.00 | 5.75 | 6.50 | 7.00 |
| SPRAYING WEED CONTROL, RECIRCULATION SPRAYER, PER ACRE | | | | | | | | | |
| Number Reporting | # | # | # | # | # | # | # | # | 5 |
| Average Rate | - | - | - | - | - | - | - | - | 6.30 |
| Range | - | - | - | - | - | - | - | - | 4.00-8.00 |
| Most Common | - | - | - | - | - | - | - | - | - |
| CROP SPRAYING BY SURFACE VEHICLE OF INSECTICIDES &/OR HERBICIDES, PER ACRE | | | | | | | | | |
| Number Reporting | 4 | # | 8 | 4 | 19 | 5 | # | 19 | 54 |
| Average Rate | 6.50 | - | 6.75 | 6.75 | 8.25 | 5.75 | - | 6.64 | 7.13 |
| Range | 6.00-7.00 | - | 3.50-8.50 | 6.50-7.00 | 6.00-19.00 | 4.00-7.00 | - | 5.00-9.00 | 3.50-19.00 |
| Most Common | 6.50 | - | - | 7.00 | 6.50 | 6.00 | - | 6.00 | 6.50 |
| CROP SPRAYING BY AIRCRAFT OF INSECTICIDES AND/OR HERBICIDES, PER ACRE | | | | | | | | | |
| Number Reporting | # | # | 4 | # | 9 | # | # | 8 | 21 |
| Average Rate | - | - | 9.51 | - | 10.06 | - | - | 10.19 | 10.00 |
| Range | - | - | 6.75-12.00 | - | 7.50-15.00 | - | - | 6.50-18.00 | 6.50-18.00 |
| Most Common | - | - | - | - | 8.50 | - | - | - | 7.50 |
| **WASTE HANDLING** | | | | | | | | | |
| LOADING MANURE WITH TRACTOR & LOADER, PER HOUR | | | | | | | | | |
| Number Reporting | # | # | 4 | 3 | 3 | 3 | # | 3 | 14 |
| Average Rate | - | - | 92.50 | 93.33 | 98.33 | 61.67 | - | 47.33 | 74.79 |
| Range | - | - | 70-100 | 55-125 | 75-120 | 30-125 | - | 22-75 | 22-125 |
| Most Common | - | - | 100.00 | - | - | 30.00 | - | - | 100.00 |
| HAULING AND SPREADING DRY MANURE, PER HOUR | | | | | | | | | |
| Number Reporting | # | # | 4 | # | 4 | # | # | 4 | 15 |
| Average Rate | - | - | 172.50 | - | 112.50 | - | - | 77.50 | 136.67 |
| Range | - | - | 90-400 | - | 100-120 | - | - | 25-110 | 25-400 |
| Most Common | - | - | 100.00 | - | 120.00 | - | - | - | 100.00 |
| PUMPING, HAULING, & SPREADING LIQUID MANURE, PER HOUR | | | | | | | | | |
| Number Reporting | # | # | 4 | # | 3 | # | # | # | 7 |
| Average Rate | - | - | 87.50 | - | 123.33 | - | - | - | 92.86 |
| Range | - | - | 50-100 | - | 100-150 | - | - | - | 30-150 |
| Most Common | - | - | 100.00 | - | - | - | - | - | 100.00 |

**# Too few responses to publish**

## 2016 FARM CUSTOM RATES - PART I (Continued)

| CUSTOM PRACTICE | NEBRASKA AGRICULTURAL STATISTICS DISTRICTS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | NW | N | NE | C | E | SW | S | SE | STATE |
| | All Units in Dollars Unless Specified | | | | | | | | |
| **MISCELLANEOUS** | | | | | | | | | |
| MOWING GRASS PASTURE OR CRP, PER ACRE | | | | | | | | | |
| Number Reporting | # | # | 3 | # | 8 | # | # | 6 | 18 |
| Average Rate | - | - | 11.67 | - | 13.75 | - | - | 16.25 | 14.86 |
| Range | - | - | 10.00-15.00 | - | 7.00-25.00 | - | - | 6.00-22.50 | 6.00-25.00 |
| Most Common | - | - | 10.00 | - | 15.00 | - | - | 20.00 | 15.00 |
| DIGGING POST HOLES, PER HOLE | | | | | | | | | |
| Number Reporting | # | # | # | 3 | # | # | # | 4 | 9 |
| Average Rate | - | - | - | 1.50 | - | - | - | 1.13 | 1.67 |
| Range | - | - | - | 0.50-3.00 | - | - | - | 1.00-1.50 | 0.50-5.00 |
| Most Common | - | - | - | - | - | - | - | 1.00 | 1.00 |
| DRIVING WOODEN POST, PER POST | | | | | | | | | |
| Number Reporting | # | # | # | # | # | # | # | # | 3 |
| Average Rate | - | - | - | - | - | - | - | - | 1.00 |
| Range | - | - | - | - | - | - | - | - | 1.00-1.00 |
| Most Common | - | - | - | - | - | - | - | - | 1.00 |
| BUILDING FENCE, PER 1/4 MILE | | | | | | | | | |
| Number Reporting | # | # | # | # | # | # | # | 3 | 8 |
| Average Rate | - | - | - | - | - | - | - | 1856.67 | 2291.50 |
| Range | - | - | - | - | - | - | - | 1,320-2,600 | 800-4,620 |
| Most Common | - | - | - | - | - | - | - | - | - |
| TRENCHING, PER FOOT | | | | | | | | | |
| Number Reporting | # | # | # | # | # | # | # | # | 6 |
| Average Rate | - | - | - | - | - | - | - | - | 0.83 |
| Range | - | - | - | - | - | - | - | - | 0.50-1.00 |
| Most Common | - | - | - | - | - | - | - | - | 1.00 |
| INJECTION PUMP FOR CHEMICALS WITH CENTER PIVOT IRRIGATION, PER ACRE | | | | | | | | | |
| Number Reporting | # | # | # | # | # | # | # | # | 5 |
| Average Rate | - | - | - | - | - | - | - | - | 3.10 |
| Range | - | - | - | - | - | - | - | - | 2.00-5.00 |
| Most Common | - | - | - | - | - | - | - | - | 3.00 |
| TRACTOR RENT, TRACTOR ONLY (EXCLUDE FUEL AND OPERATOR), 50-69 H.P., PER METER HOUR | | | | | | | | | |
| Number Reporting | # | # | 3 | # | 3 | # | # | # | 6 |
| Average Rate | - | - | 19.67 | - | 18.33 | - | - | - | 18.83 |
| Range | - | - | 14.00-25.00 | - | 14.00-23.00 | - | - | - | 13.00-25.00 |
| Most Common | - | - | - | - | - | - | - | - | - |
| TRACTOR RENT, TRACTOR ONLY (EXCLUDE FUEL AND OPERATOR), 70-89 H.P., PER METER HOUR | | | | | | | | | |
| Number Reporting | # | # | # | # | 3 | # | # | # | 5 |
| Average Rate | - | - | - | - | 21.00 | - | - | - | 20.20 |
| Range | - | - | - | - | 18.00-25.00 | - | - | - | 18.00-25.00 |
| Most Common | - | - | - | - | - | - | - | - | 18.00 |
| TRACTOR RENT, TRACTOR ONLY (EXCLUDE FUEL AND OPERATOR), 90-109 H.P., PER METER HOUR | | | | | | | | | |
| Number Reporting | # | # | # | # | # | # | # | # | 5 |
| Average Rate | - | - | - | - | - | - | - | - | 23.20 |
| Range | - | - | - | - | - | - | - | - | 20.00-27.00 |
| Most Common | - | - | - | - | - | - | - | - | 22.00 |
| TRACTOR RENT, TRACTOR ONLY (EXCLUDE FUEL AND OPERATOR), 110-149 H.P., PER METER HOUR | | | | | | | | | |
| Number Reporting | # | # | 5 | # | 6 | # | # | # | 13 |
| Average Rate | - | - | 33.00 | - | 41.17 | - | - | - | 38.62 |
| Range | - | - | 20.00-50.00 | - | 20.00-75.00 | - | - | - | 20.00-75.00 |
| Most Common | - | - | 35.00 | - | - | - | - | - | 35.00 |
| TRACTOR RENT, TRACTOR ONLY (EXCLUDE FUEL AND OPERATOR), 150-199 PTO H.P., PER METER HOUR | | | | | | | | | |
| Number Reporting | # | # | 6 | # | 6 | # | # | 3 | 15 |
| Average Rate | - | - | 50.83 | - | 57.50 | - | - | 47.67 | 50.67 |
| Range | - | - | 30-100 | - | 35-100 | - | - | 25-80 | 25-100 |
| Most Common | - | - | 35.00 | - | 40.00 | - | - | - | 35.00 |

**# Too few responses to publish**

## 2016 FARM CUSTOM RATES - PART I (Continued)

| CUSTOM PRACTICE | NEBRASKA AGRICULTURAL STATISTICS DISTRICTS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | NW | N | NE | C | E | SW | S | SE | STATE |
| | All Units in Dollars Unless Specified | | | | | | | | |
| TRACTOR RENT, TRACTOR ONLY (EXCLUDE FUEL AND OPERATOR), 200 & ABOVE PTO H.P., PER METER HOUR | | | | | | | | | |
| Number Reporting | # | # | 6 | 3 | 10 | # | # | # | 18 |
| Average Rate | - | - | 76.67 | 65.33 | 62.80 | - | - | - | 65.50 |
| Range | - | - | 40-110 | 56-75 | 40-110 | - | - | - | 40-110 |
| Most Common | - | - | - | - | 40.00 | - | - | - | 50.00 |
| **CUSTOM CONTRACT FARMING** | | | | | | | | | |
| GRAIN SORGHUM (AVERAGE TIMES OVER THE FIELD = 4), PER ACRE | | | | | | | | | |
| Number Reporting | # | # | # | # | # | # | # | # | 3 |
| Average Rate | - | - | - | - | - | - | - | - | 77.33 |
| Range | - | - | - | - | - | - | - | - | 57-100 |
| Most Common | - | - | - | - | - | - | - | - | - |
| DRYLAND SOYBEANS (AVERAGE TIMES OVER THE FIELD = 4.2), PER ACRE | | | | | | | | | |
| Number Reporting | # | # | 3 | # | 5 | # | # | 8 | 15 |
| Average Rate | - | - | 73.33 | - | 72.00 | - | - | 83.38 | 78.20 |
| Range | - | - | 60-100 | - | 60-95 | - | - | 33-125 | 33-125 |
| Most Common | - | - | 60.00 | - | 70.00 | - | - | 100.00 | 100.00 |
| IRRIGATED SOYBEANS (AVERAGE TIMES OVER THE FIELD = 4.3), PER ACRE | | | | | | | | | |
| Number Reporting | # | # | 3 | # | 5 | # | # | 5 | 14 |
| Average Rate | - | - | 81.67 | - | 86.60 | - | - | 83.60 | 83.36 |
| Range | - | - | 65-110 | - | 45-153 | - | - | 33-100 | 33-153 |
| Most Common | - | - | - | - | 70.00 | - | - | 100.00 | 100.00 |
| DRYLAND CORN (AVERAGE TIMES OVER THE FIELD = 4.4), PER ACRE | | | | | | | | | |
| Number Reporting | # | # | 3 | # | 5 | # | # | 7 | 16 |
| Average Rate | - | - | 81.67 | - | 75.00 | - | - | 95.29 | 82.19 |
| Range | - | - | 65-100 | - | 57-88 | - | - | 59-125 | 40-125 |
| Most Common | - | - | - | - | 80.00 | - | - | 100.00 | 100.00 |
| IRRIGATED CORN (AVERAGE TIMES OVER THE FIELD = 5.1), PER ACRE | | | | | | | | | |
| Number Reporting | # | # | 3 | 5 | 4 | # | # | 4 | 17 |
| Average Rate | - | - | 88.33 | 112.00 | 98.00 | - | - | 102.50 | 100.82 |
| Range | - | - | 75-110 | 60-175 | 57-175 | - | - | 90-110 | 57-175 |
| Most Common | - | - | - | - | 80.00 | - | - | 110.00 | 110.00 |
| DOES THE CUSTOM FARMING RATE INCLUDE HAULING GRAIN FROM FIELD TO FARM? | | | | | | | | | |
| Number Reporting Yes | - | - | 1 | 3 | 1 | - | - | 2 | 6 |
| Number Reporting No | 1 | - | 2 | - | 7 | - | - | 3 | 10 |
| DOES THE CUSTOM FARMING RATE INCLUDE HAULING GRAIN FROM FIELD TO ELEVATOR? | | | | | | | | | |
| Number Reporting Yes | - | - | 1 | 1 | - | - | - | 2 | 4 |
| Number Reporting No | 1 | - | 2 | 2 | 7 | - | - | 5 | 14 |
| **LABOR RATE** | | | | | | | | | |
| AVERAGE LABOR RATE ASSUMED OR INCLUDED IN CUSTOM RATES, PER HOUR | | | | | | | | | |
| Number Reporting | 9 | 5 | 11 | 15 | 20 | 6 | 5 | 30 | 94 |
| Average Rate | 16.33 | 18.00 | 19.27 | 17.73 | 21.08 | 15.75 | 15.70 | 15.58 | 17.53 |
| Range | 13.00-25.00 | 12.00-25.00 | 13.00-55.00 | 13.00-30.00 | 12.50-65.00 | 10.00-25.00 | 12.50-18.00 | 12.50-25.00 | 10.00-65.00 |
| Most Common | 15.00 | 25.00 | 15.00 | 15.00 | 20.00 | - | 15.00 | 15.00 | 15.00 |
| EXPECTED FARM DELIVERED DIESEL FUEL COST IN 2016, PER GALLON | | | | | | | | | |
| Number Reporting | 7 | 6 | 10 | 12 | 23 | 6 | 5 | 27 | 89 |
| Average Rate | 1.79 | 1.49 | 1.72 | 1.76 | 1.70 | 1.51 | 1.62 | 1.73 | 1.68 |
| Range | 1.35-2.50 | 1.30-1.80 | 1.29-2.20 | 1.20-2.50 | 1.09-2.80 | 0.98-1.80 | 1.15-2.00 | 1.15-2.25 | 0.98-2.80 |
| Most Common | 1.50 | 1.50 | 1.50 | 1.50 | 2.00 | 1.60 | - | 2.00 | 1.50 |
| **AUTO STEER SYSTEM** | | | | | | | | | |
| ADDITIONAL CHARGE, PER ACRE | | | | | | | | | |
| Number Reporting | # | # | 4 | 5 | 10 | 3 | 3 | # | 21 |
| Average Rate | - | - | 3.00 | 2.60 | 3.25 | 4.58 | 4.25 | - | 2.89 |
| Range | - | - | 1.00-5.00 | 0.50-7.50 | 0.00-7.50 | 2.00-9.25 | 1.00-9.25 | - | 0.00-9.25 |
| Most Common | - | - | 3.00 | 2.00 | 5.00 | - | - | - | 2.00 |

# Too few responses to publish

# APPENDIX

The Nebraska Rural Response Hotline 1.800.464.0258

The hotline can be a first stop for information on the resources and services available to the farm and ranch families, beginning farmers, retiring landowners, women landowners, or rural residents throughout the state of Nebraska. The hotline is funded by Interchurch Ministries Rural Response Council. Financial, legal, counseling services, and referrals are available through the hotline. All of our services are free.

The hotline offers one-one sessions with callers through statewide Farm Finance clinics. These clinics are staffed with a financial advisor and a farm law attorney who can help create a business structure, write a lease, or review a cash flow. Whatever callers' needs are, Nebraska Rural Response will work with them.

The hotline responds to nearly 350 phone calls a month by offering such an array of services through the toll free number.