

BITING INTO FOOD ACCESS: A VIEW OF NEBRASKA'S FOOD SYSTEM



A REPORT BY MEGAN MCGUFFEY, PH.D. CANDIDATE, UNIVERSITY OF NEBRASKA-OMAHA,
WITH SUPPORT FROM SANDRA RENNER, PROJECT ASSOCIATE, CENTER FOR RURAL AFFAIRS,
FOR THE CENTER FOR RURAL AFFAIRS AND THE NEBRASKA FOOD COUNCIL



CENTER *for* RURAL AFFAIRS

BITING INTO FOOD ACCESS: A VIEW OF NEBRASKA'S FOOD SYSTEM

MEGAN MCGUFFEY

Ph.D. Candidate
University of Nebraska–Omaha

with support from

SANDRA RENNER

Project Associate
Center for Rural Affairs

February 2019

Biting into Food Access: A View of Nebraska's Food System

Megan McGuffey, Ph.D. Candidate,
University of Nebraska–Omaha
with support from
Sandra Renner, Project Associate,
Center for Rural Affairs

Additional support by Nebraska Food Council,
Nebraskans for Peace, and University of Nebraska-Extension

Funding provided by U.S. Department of Agriculture, National Institute of Food,
and Agriculture Community Foods Project grant

© Copyright 2019

Center for Rural Affairs
145 Main Street
PO Box 136
Lyons, NE 68038
402.687.2100
info@cfra.org
cfra.org

Photos by Kylie Kai, Rhea Landholm, and Wyatt Fraas
Cover photo by Kylie Kai

Report editing by Rhea Landholm,
Brand Marketing and Communications Manager,
Center for Rural Affairs,
and Liz Daehnke,
Communications Consultant,
Center for Rural Affairs

Design by Kylie Kai,
Communications Consultant,
Center for Rural Affairs

CONTENTS

1	I. Executive summary	14	A. Consumption
1	A. History	14	B. Dietary behavior
1	B. Community snapshot	14	C. Health issues
1	C. Production	15	D. Food access
1	D. Consumption and access	15	E. General access
2	E. Food waste	15	F. Traditional retail
2	F. Looking into the future	16	G. Assessing quality of retail access
2	II. Introduction	18	H. Emerging trends in local food sales
2	A. Why study the food system?	19	I. Food security
3	B. What is the Nebraska Food Council?	19	1. Background
3	1. Vision and mission	19	2. Addressing food insecurity
3	C. Scope and structure of the report	22	J. Conclusion
4	III. Production	22	V. Food waste
4	A. Natural resources	22	A. Food waste on county and state levels
4	1. Climate	23	B. Conclusion
5	2. Land resources	24	VI. Looking into the future
7	3. Water resources	24	A. Research agenda
8	4. Summary	24	B. Policy agenda
8	B. Farming trends	24	C. Areas of focus
12	C. Food production	25	Appendix. Previous food assessment efforts
13	1. Food production for local markets		
13	2. Food production for personal consumption		
14	D. Conclusion		
14	IV. Food consumption, access, and security		

FIGURES AND TABLES

2	Figure 1. Model of the food system	17	Table 4. Healthy food access
4	Table 1. Nebraska's state snapshot	18	Table 5. Nebraska Farm to School—2017 to 2018 local food purchasing totals
6	Figure 2. Nebraska land capability class	20	Figure 8. Food deserts in Nebraska
6	Figure 3. Nebraska drainage basins	21	Table 6. SNAP authorized markets as of July 1, 2018
8	Figure 4. Nebraska farm size by acres—2012		
9	Table 2. Comparison of top agricultural products in Nebraska		
10	Figure 5. Nebraska farm trends over time		
11	Figure 6. Age of Nebraska farmers in 2012, 1954		
11	Table 3. Farm operators by race		
15	Figure 7. Community gardens across Nebraska		

I. EXECUTIVE SUMMARY

A. HISTORY

This community food assessment is part of a larger project titled “Food Policy Opportunities for Nebraska: Growing Healthy Food Systems.” It is designed to provide the background research that defines the current food system landscape of the state, presenting baseline information to the newly formed Nebraska Food Council. Preparation for the project began in August 2015 and continues through 2018 with the formation and launch of the Nebraska Food Council through a U.S. Department of Agriculture (USDA) Community Foods Project planning grant for a project called “Nebraska Statewide and Regional Food Policy Council Planning.” The project aims to build capacity through training and education on food systems, and spotlights the importance of local councils to inform a statewide body. This assessment provides baseline data to look at current conditions in the Nebraska food system, using the basic model of the food system summarized in Figure 1 on Page 2.

B. COMMUNITY SNAPSHOT

Nebraska is home to more than 1.8 million people and has the 21st highest growth rate of U.S. states. It is located in the middle of the country and in the heart of the breadbasket region known for its grain agriculture production. Unemployment rates are

currently low (2.9 percent) with 69.7 percent participation in the workforce. In the state, 10.8 percent of the population lives under the poverty line with 13.9 percent of children experiencing poverty. More than 30 percent of adults and more than 12 percent of adolescents are overweight or obese. Many do not get the recommended number of servings of fruits and vegetables on a daily basis.

C. PRODUCTION

Nebraska has rich natural resources to support a large agricultural economy. The agricultural sector is increasingly concentrated on a small number of types of livestock and commodity crops and grows very few fruits and vegetables. Out of 45 million acres of farm and ranchland, less than 30 thousand acres are dedicated to vegetable or fruit production. The overall number of farms and farmers has decreased over time and farmers are aging. While Nebraska agriculture continues to be highly productive, much of these products become feed for animals or fuel or are exported out of state. More foods could be grown for local markets in the state to increase Nebraska’s ability to feed its own population.

D. CONSUMPTION AND ACCESS

Nebraskans experience dietary health issues, such as being overweight and obesity, at rates close to the national average, and do not as a whole meet targets for vegetable and fruit consumption.



Nebraska has rich natural resources to support a large agricultural economy. However the agricultural sector is increasingly concentrated on a small number of types of livestock and commodity crops and grows very few fruits and vegetables. This farm grows food for local markets, and is included in the less than 30 thousand acres that are dedicated to vegetable or fruit production.

Food access challenges impact the location and cost of healthy food products. Food deserts (areas of low retail access, low income, and low car ownership rates) are found in both rural and urban parts of the state. Various public and nonprofit safety net programs attempt to build household food security, but these programs are not fully utilized and could be expanded if interest and resources were adequate.

E. FOOD WASTE

The latest available waste characterization study shows that around 16 percent of solid waste going to Nebraska landfills is food waste. This waste could be diverted at all stages of the food system if appropriate education and systems were put into place. Many educational programs exist and can be expanded on topics like food safety, food preservation, and composting. Several organizations capture food when it is still safe for human consumption and redistribute it to charitable services for consumption. Several additional organizations capture inedible food waste and use techniques such as composting or vermiculture to create soil amendments that can go back into the food system and improve the soil. More research is needed to better understand food waste in Nebraska as well as additional work to promote a variety of strategies to minimize food waste and capture excess products in a positive manner for the system.

F. LOOKING INTO THE FUTURE

The final section of this assessment is focused on the next steps for the Nebraska Food Council. Food assessments are meant to provide a snapshot or baseline look at the data on a given food system. They become meaningful when a community uses the evidence to inform their work. Members of the Nebraska Food Council reviewed the research in this assessment and created an initial list of future research topics, policy work, and areas of focus they would like to pursue. The research agenda centers

mostly on data gaps that need to be addressed in the future. Many of these gaps focus on the agricultural sector's need for research to better understand the challenges farmers face serving local markets in Nebraska. Several initial policy topics were identified for further exploration, including improvements to Farm to School programming, cottage food laws, land use policies, and Double Up Food Bucks. Finally, the council members suggested initial areas of focus included increased marketing around locally and regionally branded food products, education about the realities and challenges of the food system to the general public, creation of toolkits to assist food and farm businesses and consumers, exploring land trusts to preserve agricultural land, and programming to increase local food purchasing by public procurement agencies. The areas of focus, policies, and research topics will likely evolve as the council continues their work.

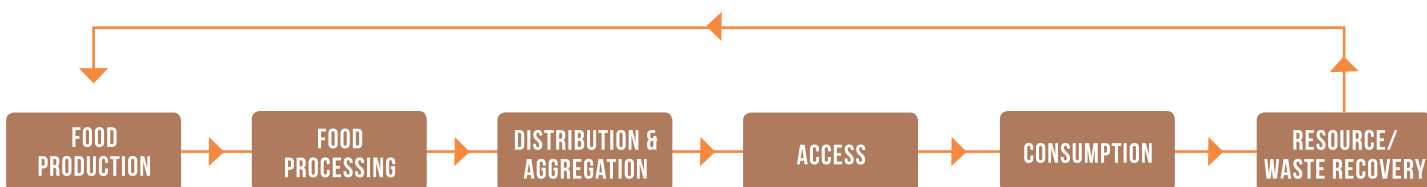
II. INTRODUCTION

A. WHY STUDY THE FOOD SYSTEM?

In Nebraska, more than \$4.4 billion is spent annually on food and 90 percent of that comes from outside of the state. Nebraska's food system is reliant on other areas of the country, the strength of their food systems and local economies, and the availability of their natural resources to feed its population.

By addressing key issues in food, farm, small business, and community-level and institutional policy, there is potential to identify strengths, changes needed, and gaps in the food system. Good food policy and effective coordination between food system stakeholders will produce strong farms, open new or existing markets that are difficult to access, cultivate a resilient food economy, and preserve a healthy future for all Nebraskans.

FIGURE 1. MODEL OF THE FOOD SYSTEM





Nebraska's food system is a large and complex structure that contains many smaller, overlapping systems. This report looks at the state of Nebraska as a whole, rather than creating a particular mile radius or sorting through various overlapping foodsheds of this region.

This community food assessment is part of a larger project titled, "Food Policy Opportunities for Nebraska: Growing Healthy Food Systems." It is designed to provide the background research that defines the current food system landscape of the state, presenting baseline information to the newly formed Nebraska Food Council. This council follows the model of food councils and coalitions across the country to bring a diverse array of actors involved in various parts of the food system together to create positive change.

B. WHAT IS THE NEBRASKA FOOD COUNCIL?

The project officially began on Aug. 18, 2015, with a public event to explore the potential for food councils in Nebraska. The evening included a keynote presentation from Mark Winne, nationally renowned food policy council expert, and a panel discussion with food system stakeholders. Following this public meeting, a smaller group of key stakeholders representing diverse sectors of our food system and communities statewide began working toward creating Nebraska state and local food councils. This work has the potential to change our food system in ways that make it work better for all of us.

1. VISION AND MISSION

The Nebraska Food Council envisions a thriving, inclusive, and accessible local food system that strengthens our economy and environment while fostering food security for all Nebraskans through collaboration with diverse agencies, organizations, individuals, and communities in the state.

Nebraska Food Council's mission:

- Gather information from across the state to create a rich picture of Nebraska's food systems through a statewide food assessment.
- Identify key food and agriculture policy issues and opportunities.
- Educate and advise policymakers and consumers.
- Organize support for change and new initiatives.
- Coordinate networks and connect partners.
- Build capacity for membership within communities by serving as a resource to provide opportunities for education and professional development.

C. SCOPE AND STRUCTURE OF THE REPORT

The food system is a large and complex structure that contains many smaller, overlapping systems. A lot of discussion has been held about how best to define "local" in "local food." Similarly, as communities begin to think about their local foodsheds, or the physical geography required to feed a given population, the boundaries and definitions of those foodsheds may vary and overlap. This report looks at the state of Nebraska as a whole, rather than creating a particular mile radius or sorting through various overlapping foodsheds of this region.

The majority of this report focuses on state- and national-level data, with occasional attention to the county level when data is available and appropriate. Data collection reflects the values and priorities of dominant trends, which are currently focused around a globalized food system. Potential areas for future localized data collection are identified where appropriate.

This report follows the overall structure of the food system model to provide a snapshot or baseline data about each major component of the Nebraska food system. It begins with a snapshot of community demographics and characteristics of

the state’s population. See Table 1.^{1,2,3} The report continues with a discussion of food production, including natural resources and farming trends in the state. Discussion ensues on food consumption and access, consumption trends and related health conditions, where and how citizens purchase or obtain their food, and what food security issues are seen across the state. The final research section covers food waste. The conclusion contains next steps from the Nebraska Food Council’s perspective, including an agenda for future research and initial policy priorities.

Engagement opportunities have been highlighted throughout this report to identify opportunities for readers to engage with the food system or provide input to local, regional, or state policy by participating.

III. PRODUCTION

Nebraska has a long agricultural history, supported by a favorable climate and natural land and water resources. Agriculture is a major component of the state’s economy and the characteristics of the sector have changed over time, in line with national trends. This section will discuss the natural resources of the state as well as farming trends over time.

1 Daily, Grant, et al. “Mapping the Quality of Life in Nebraska: The Geographic Distribution of Poverty.” QOL Series 1, University of Nebraska–Lincoln, 2017, digitalcommons.unl.edu/mapquallifene/1/. Accessed November 2018.

2 Coleman-Jensen, et al. “Food Security in the U.S.: Key Statistics & Graphs.” U.S. Department of Agriculture–Economic Research Service, Sept. 5, 2018, ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/key-statistics-graphics.aspx. Accessed November 2018.

3 “Table 204.10. Number and Percentage of Public School Students Eligible for Free or Reduced-price Lunch, by State: Selected Years, 2000-01 through 2015-16.” Institute of Education Sciences, National Center for Education Statistics, 2017, nces.ed.gov/programs/digest/d17/tables/dt17_204.10.asp. Accessed November 2018.

TABLE 1. NEBRASKA’S STATE SNAPSHOT

	Nebraska	U.S.
Population	1,920,076	325,719,178
Population		
Population growth overall (since 2010)	5.1%	5.5%
Minority percent of population	17.9%	41.5%
Economics		
Participation in the workforce	69.7%	62.9%
Unemployment rate (2017)	2.9%	4.35%
Basic needs		
Individuals below the poverty level	10.8%	12.3%
Number of children living in poverty (2016)	13.9%	17.5%
Food insecure households (2015 to 2017)	12.3%	13.5%
Children eligible for free and reduced price lunch (2015 to 2016)	44.2%	52.1%
Eligible, participating SNAP households	77%	83%
Overall health		
Obesity rate (adults)	30.2%	39.8%
Obesity rate (children)	12.7%	18.5%

A. NATURAL RESOURCES

Nebraska has had a major focus on agriculture, beginning with the Native American tribes that first inhabited this region, and continuing with European settlement. The rich natural resources in Nebraska make it an ideal place for agriculture. The state is part of the larger breadbasket region of the United States that produces a vast amount of grain crops and livestock.

1. CLIMATE

Nebraska is part of both the Great Plains and Midwestern regions of the United States. The eastern half of the state’s climate is considered humid continental, and the western half is mostly a semi-arid climate. Essentially, the western portion of the state has lower levels of precipitation and humidity while the eastern portion enjoys higher levels



Fox Run Farms, a family-owned farm located in Brainard, Nebraska, supplies fresh, naturally grown fruits and vegetables to their local Community-Supported Agriculture (CSA) group. This allows the consumer and producer relationship to flourish with direct correspondence.

of rainfall and experiences higher humidity overall. Temperatures vary widely over the course of the year. The 1980 to 2009 average length of the growing season (which is the number of days between last freeze and first freeze) in the state capital of Lincoln, Nebraska, was 161 days.⁴

Climate change⁵ is expected to have several major impacts on Nebraska in the coming decades. The average annual temperature is predicted to be 4 degrees Fahrenheit higher by 2050. In addition, experts anticipate wider swings in weather, including heat waves, violent storms, drought, and heavy precipitation events, which can negatively impact plant, human, and animal life.

2. LAND RESOURCES

Nebraska has two major land regions: the Dissected Till Plains and the Great Plains. The Dissected Till

4 “Lincoln, Nebraska - Length of the Growing Seasons - 1887 through 2010 (124 Growing Seasons).” Applied Climate Science School of Natural Resources, University of Nebraska–Lincoln, 2010, lincolnweather.org/growing-season.html. Accessed November 2018.

5 Shulski, Martha D., et al. “Climate change: What does it mean for Nebraska?” NebGuide No. G2208, University of Nebraska–Lincoln Extension, Institute of Agriculture and Natural Resources, October 2013, extensionpublications.unl.edu/assets/pdf/g2208.pdf. Accessed November 2018.

Plains include the eastern portion of the state with a topography of gently rolling hills.⁶ The remainder of the state to the west is the Great Plains, which is traditionally a prairie landscape with few trees. The Soil Survey Geographic Database “rates soils by their ability to support cultivation and farming of common crops without deterioration of the soil over long periods of time.”⁷ There are eight classes of soil, with class I having the least restrictions for agricultural use and classes I through IV soils “... are capable of producing common cultivated field crops, pasture plants, range plants, and forest trees without reducing the soils’ long-term capacity.”⁸ The state has rich soil resources, which support thriving agricultural production. Nebraska boasts 138 total soil series with many areas of class I and II soils. See Figure 2 on page 6.⁹

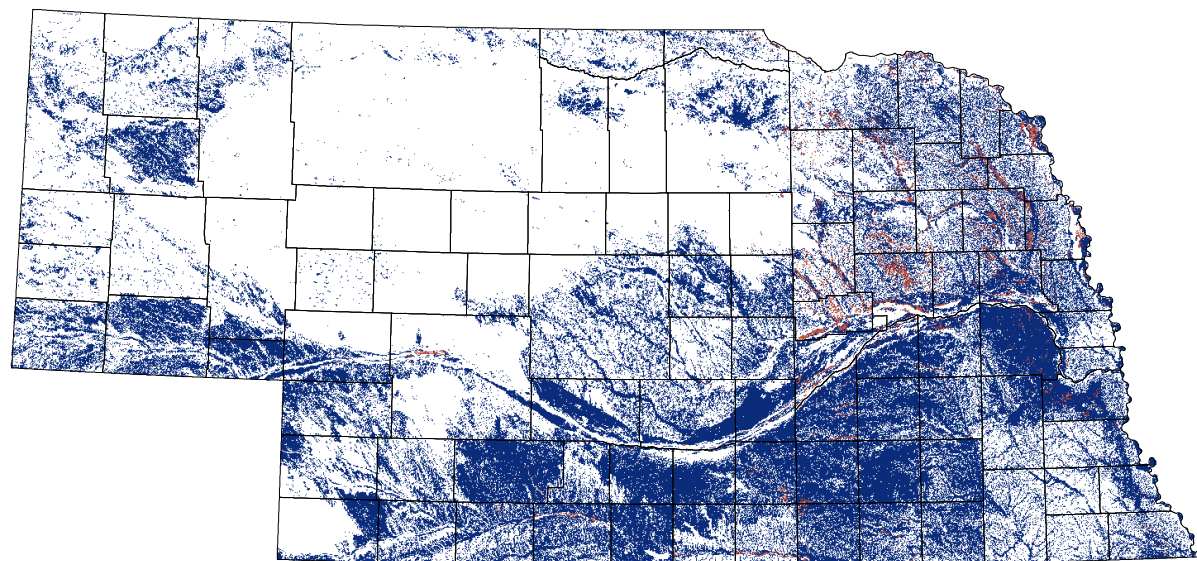
6 “A Tapestry of Time and Terrain: The Union of Two Maps - Geology and Topography.” U.S. Department of the Interior and U.S. Geological Survey, April 17, 2003, web.archive.org/web/20060515044037/http://tapestry.usgs.gov/physiogr/physio.html. Accessed November 2018.

7 “Agricultural Capability of United States Soils.” Esri-ArcGIS Resources, 2018, resources.arcgis.com/en/communities/soils/02ms00000005000000.htm. Accessed November 2018.

8 Ibid.

9 “Web Soil Survey.” U.S. Department of Agriculture Natural Resources Conservation Service, Aug. 21, 2017, websoilsurvey.sc.egov.usda.gov/App/HomePage.htm. Accessed November 2018.

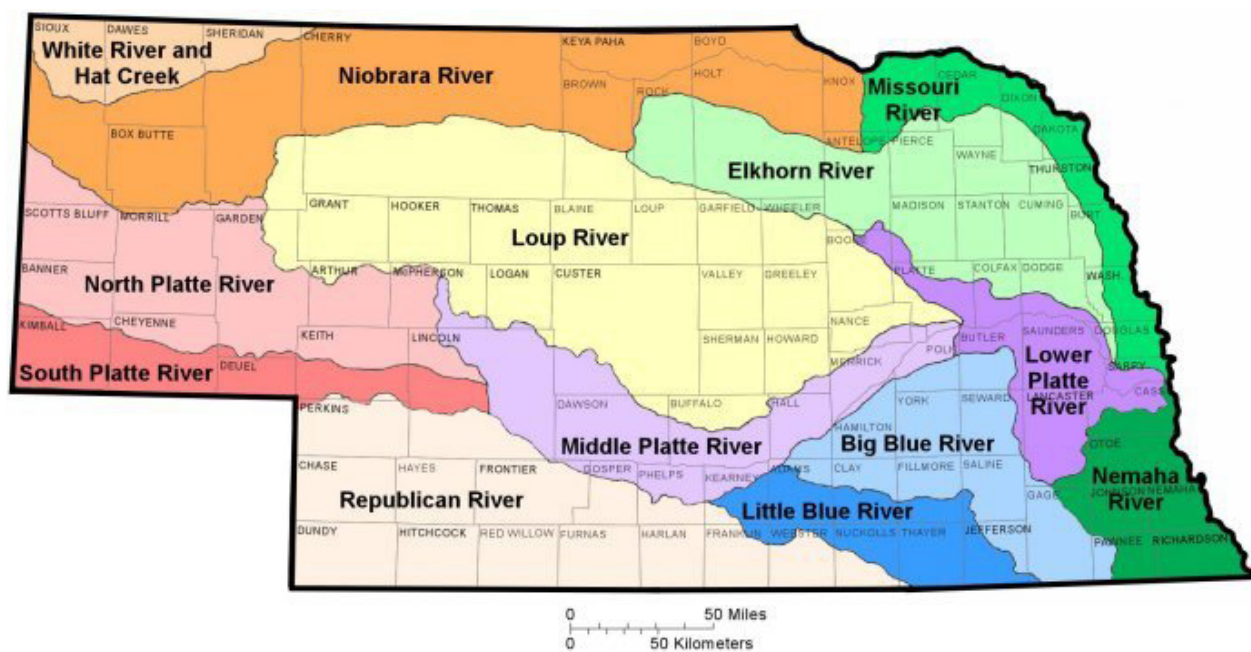
FIGURE 2. NEBRASKA LAND CAPABILITY CLASS



Legend

- Nebraska Counties
- Land Capability Class**
- 1
- 2

FIGURE 3. NEBRASKA DRAINAGE BASINS



3. WATER RESOURCES

Average precipitation in the far western panhandle region of Nebraska ranges from 12 to 19 inches annually. The average in Omaha, the state's most populated city at the far eastern end of the state, is much higher at around 30 inches. There are eight water basins in the state, shown in Figure 3 on page 6.¹⁰

Nebraska has at least seven aquifers, but the High Plains/Ogallala Aquifer is the largest both in terms of volume in storage and withdrawals for irrigation.¹¹ These water sources allow for extensive irrigation to support agriculture in much of the state and must be managed carefully. In 2012, there were 10,931 farms in Nebraska that irrigated 500 acres or more.¹² According to the University of Nebraska-Lincoln Department of Economics, about 80 percent of the state's public drinking water and almost all of its private water supply are from groundwater sources. Nebraska is the fourth largest user of groundwater in the nation behind California, Texas, and Arkansas.¹³ The Nebraska Department of Environmental Quality reports on groundwater quality monitoring throughout the state, and, while there is no clear trend in pesticide and herbicide water contamination rates after 2000, in some areas, the median nitrate concentration is approaching drinking water Maximum Contaminant Levels (MCL) of 10 mg/l.¹⁴

10 "Gem Collection Database." University of Nebraska-Lincoln School of Natural Resources, 2018, snr.unl.edu/data/geologysoils/gems/gemsdatabase.aspx. Accessed November 2018

11 "Aquifers of Nebraska." University of Nebraska-Lincoln, Institute of Agriculture and Natural Resources, 2018, water.unl.edu/article/groundwater/aquifers-nebraska. Accessed November 2018.

12 "Table 10. Irrigation: 2012 and 2007." U.S. Department of Agriculture, National Agricultural Statistics Service, 2012 Census of Agriculture - County Data, 2012, nass.usda.gov/Publications/AgCensus/2012/Full_Report/Volume_1,_Chapter_2_County_Level/Nebraska/st31_2_010_010.pdf. Accessed November 2018.

13 Johnson, Bruce, et al. "Nebraska Irrigation Fact Sheet." Report No. 190, University of Nebraska-Lincoln, Department of Agricultural Economics, September 2011, agecon.unl.edu/a9fcd902-4da9-4c3f-9e04-c8b56a9b22c7.pdf. Accessed November 2018.

14 "2017 Nebraska Groundwater Quality Monitoring Report." Nebraska Department of Environmental Quality, Dec. 1, 2017, deq.ne.gov/publications/PubsForm.xsp?documentId=E9394B0508EF3CF7862581E900522EB0&action=openDocument. Accessed November 2018.

Engagement opportunity: Nebraska Natural Resource Management

Nebraska has a unique system of natural resource management called the Natural Resource Districts, or NRDs. The state is divided into 23 NRDs based largely on the major river basins of the state. NRDs were created to manage important natural resource issues like flood control, soil erosion, irrigation runoff, and groundwater quantity and quality issues.¹⁵

- Each NRD is a local government entity led by an elected board of directors.
- Primary funding comes from local property taxes, typically about 1 to 2 percent of all property taxes collected in a given county.
- NRDs are often large landholders.
- Participation in NRDs can have a significant impact on local natural resources.

In 2016,
Nebraska
irrigated
9,301,956
acres.¹⁶

15 "About NRDs." Nebraska's Natural Resources Districts, nrdsn.net/about-nrds. Accessed November 2018.

16 "Irrigated Acres in Nebraska 1964 - 2016." Nebraska Energy Statistics, March 3, 2015, neo.ne.gov/statshtml/73b.html. Accessed December 2018.

4. SUMMARY

Nebraska agriculture is supported by a wealth of natural resources that enable successful farming conditions. Challenges related to maintaining and improving these resources while protecting from potential threats are also important to monitor.

B. FARMING TRENDS

The vast majority of Nebraska's total land area (45.2 million acres) is farm and rangeland, and cash receipts from farm marketings contributed more than \$21.5 billion to Nebraska's economy in 2017.¹⁷ The major data source for agricultural trends is the USDA's Census of Agriculture, which is conducted every five years. As of this report's publication, the most recent data available was from 2012.¹⁸ All data in this section on agricultural trends in Nebraska was drawn from that Census, unless otherwise noted.

Nationally, there were approximately 3.2 million farmers operating 2.1 million farms in 2012. In Nebraska, there were 49,969 farms in 2012. With 45.2 million acres in farm and rangeland, the average size of a Nebraska farm was 907 acres, and the median size was 280 acres. Of that, 21.6 million acres were in cropland (40,472 farms),

18.8 million acres were harvested cropland (35,747 farms), and 8.3 million acres were irrigated land (17,136 farms). See Figure 4.

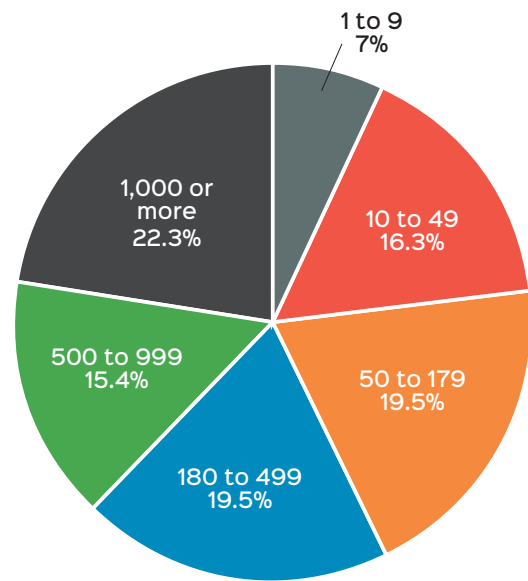
Agricultural land can be taken out of normal production and enrolled in various conservation programs. Nebraska has 854,538 acres of land enrolled in USDA's Conservation Reserve Program, Wetlands Reserve Program, Farmable Wetlands Program, or Conservation Reserve Enhancement Program.

Slightly more than half of farms have principal operators that report farming as their primary occupation (29,819), and 20,150 report other (off-site employment) as their primary occupation.

17 "Nebraska Agriculture Fact Card." Nebraska Department of Agriculture, U.S. Department of Agriculture, National Agricultural Statistics Service, Nebraska Field Office, Nebraska Bankers Association, February 2018, nda.nebraska.gov/facts.pdf. Accessed November 2018.

18 "Census of Agriculture." U.S. Department of Agriculture, National Agricultural Statistics Service, Sept. 4, 2018. nass.usda.gov/Publications/AgCensus/2012/. Accessed November 2018.

FIGURE 4. NEBRASKA FARM SIZE BY ACRES—2012



Nebraska held several top agricultural rankings in 2017.¹⁹ The state was first in beef and veal exports, second in all cattle and calves, third for corn and grain production, fourth in number of head for beef cattle, fifth in soybean exports, and sixth in harvested acres of principal crops, in addition to many other top rankings.

Nebraska agriculture has become more concentrated over time. Table 2 demonstrates this trend by taking the top agricultural products of Nebraska from 2012 and comparing that data to historical figures from 1978 and 1954.²⁰ The greatest increase has been in the number of acres dedicated to corn

19 "Nebraska Agriculture Fact Card." Nebraska Department of Agriculture, U.S. Department of Agriculture, National Agricultural Statistics Service, Nebraska Field Office, Nebraska Bankers Association, February 2018, nda.nebraska.gov/facts.pdf. Accessed November 2018.

20 "Table 7. Livestock and Poultry: 1969, 1964, and 1959." U.S. Department of Agriculture, National Agricultural Statistics Service, 1969 Census of Agriculture, 1969, usda.mannlib.cornell.edu/usda/AgCensus/Images/1969/01/20/481/Table-07.pdf. Accessed November 2018.

TABLE 2. COMPARISON OF TOP AGRICULTURAL PRODUCTS IN NEBRASKA

Agricultural product	2012	1978	1954
Livestock			
Cattle and calves inventory	6.4 million	6.4 million	4.9 million
Hogs and pigs inventory	10.6 million	3.7 million	2.86 million
Chickens (including layers and broilers/ other meat types)	13 million	3.16 million	12 million****
Crops			
Corn for grain	9.1 million acres (1.2 billion bushels)	4.39 million acres (402.6 million bushels)	6.38 million acres (184.6 million bushels)
Corn for silage or greenchop	446,386 acres (4.6 million bushels)	361,227 acres (N/A)*	219,815 and 130,777**
Soybeans for beans	4.98 million acres (193 million bushels)	511,958 acres (20.6 million bushels)	183,519 acres (3.89 million bushels)
Sorghum for grain	60,010 acres (3.6 million bushels)	1.56 million acres (105 million bushels)	517,959 acres (14.1 million bushels)
Wheat, all types	1.3 million acres (51.7 million bushels)	2.45 million acres (71.8 million bushels)	2.97 million acres (56.6 million bushels)***
Dried edible beans (excluding lima)	132,697 acres (3.1 million bushels)	Not reported	72,117 acres
Land in orchards	1,286 acres	748 acres	4,315 acres
Vegetables harvested for sale	25,931 acres	1,984 acres	2,901 acres
Notes: Exact measurement style for different crop and livestock categories has changed over time, making accurate trend lines difficult. Notes below provide clarification on variation seen between these three years. *Cut for silage, green or dry fodder, or hogged or grazed **Figures for silage and hogged, grazed, or foddered ***Wheat threshed or combined ****Closest category from this year was called "Chickens, 4 months old and over, on hand"			

and soybeans and the total number of hogs raised in the state.^{21,22,23} Sorghum and wheat acreage has decreased. Vegetable and orchard numbers are included to highlight the comparatively minimal

acreage committed to these crops.²⁴ Very little of the total farmland in Nebraska is used for fruit and vegetable production. While it is difficult to determine the exact breakdown of these figures, many grain crops become feed for animals or are used to create fuel products, like ethanol.²⁵

21 "1954 Census Publications: Nebraska, Vol. 1, Part 20." U.S. Department of Agriculture, Census of Agriculture Historical Archive, 1954, agcensus.mannlib.cornell.edu/AgCensus/getVolumeOnePart.do?year=1954&part_id=525&number=20&title=Nebraska. Accessed November 2018.

22 "Table 20. Cattle and Calves - Inventory and Sales: 1978 and 1974." U.S. Department of Agriculture, National Agricultural Statistics Service, 1969 Census of Agriculture, 1969, usda.mannlib.cornell.edu/usda/AgCensus/Images/1978/01/27/181/Table-20.pdf. Accessed November 2018.

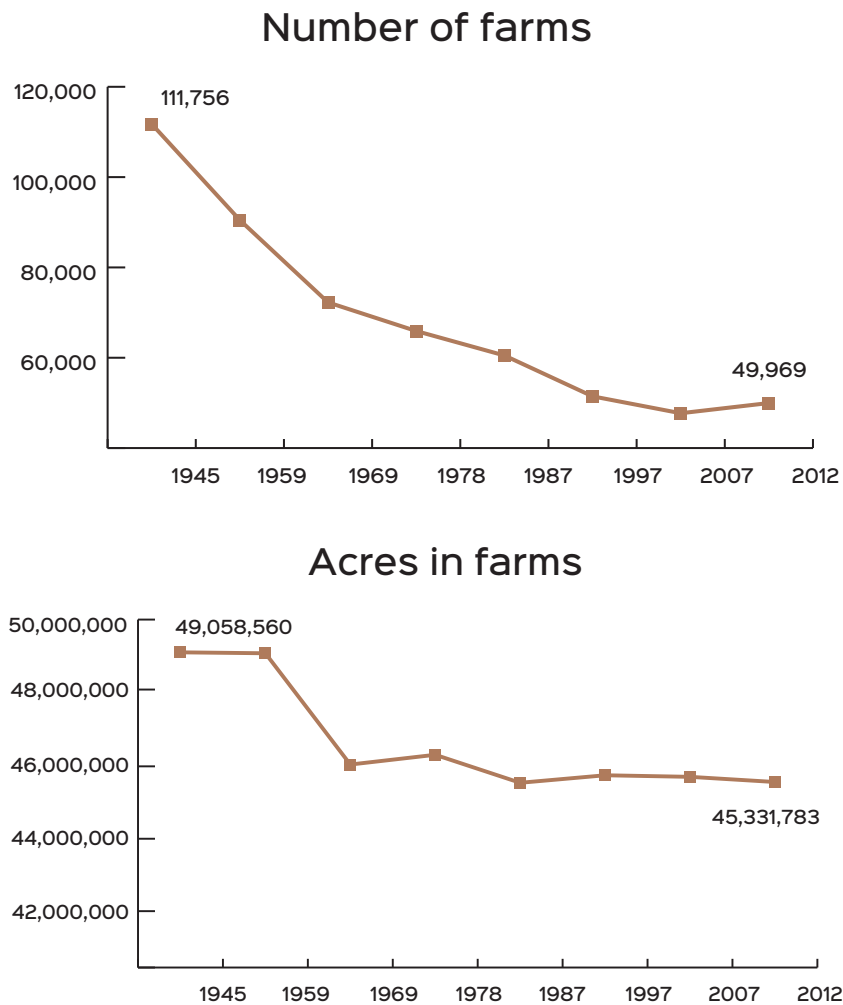
23 "1978 Census Publications: Nebraska, Vol. 1, Part 27." U.S. Department of Agriculture, Census of Agriculture Historical Archive, 1978, agcensus.mannlib.cornell.edu/AgCensus/censusParts.do?year=1978. Accessed November 2018.

Additionally, much of the edible grain and livestock may be sold and exported to national and global markets, making this agricultural state a net importer of food.

24 "1954 Census Publications: Nebraska, Vol. 1, Part 20." U.S. Department of Agriculture, Census of Agriculture Historical Archive, 1954, agcensus.mannlib.cornell.edu/AgCensus/getVolumeOnePart.do?year=1954&part_id=525&number=20&title=Nebraska. Accessed November 2018.

25 "1978 Census Publications: Nebraska, Vol. 1, Part 27." U.S. Department of Agriculture, Census of Agriculture Historical Archive, 1978, agcensus.mannlib.cornell.edu/AgCensus/censusParts.do?year=1978. Accessed November 2018.

FIGURE 5. NEBRASKA FARM TRENDS OVER TIME



Over time, Nebraska has lost millions of acres of farmland, although agriculture continues to be the top land use in the state. Since World War II and the rapid industrialization of farming, the acres of land and total number of farms decreased significantly, from more than 100,000 to just under 50,000 farms today. See Figure 5. The food system globalized over this same period, and we see extreme specialization of farming regions.

Another important trend to track in Nebraska agriculture is the changing characteristics of farmers. The population of farmers in Nebraska is aging overall. Figure 6 on page 11 shows the proportional increase in farmers over the age of 55 compared to those under the age of 55. Around 31 percent of farmers in 1954 were age 55 or older. In 2012, that number moved to more than 50 percent, with the average age of a Nebraska farmer at 55.7 years.

Barriers are high for beginning farmers. Access to land, capital, and labor are important factors

influencing beginning farmers. New farmers also need to receive appropriate training and support to continue Nebraska's agricultural tradition. A variety of programs are available; this report is limited to highlighting a few. Higher education, such as the University of Nebraska system and community colleges, is one important resource for individuals who wish to gain farming knowledge. Various USDA grants and loans are available to support beginning farmers. Several public or nonprofit agencies, such as the Center for Rural Affairs, Community Crops, Nebraska Extension, and Big Muddy Urban Farm, offer training workshops or programs.

Beyond age, several other characteristics make up Nebraska farmers. The Census of Agriculture tracks data on up to three operators per farm. The state had a reported 74,786 operators in 2012. There were 19,851 female operators in Nebraska that year. Data on farm operators by race was more limited and is summarized in Table 3.

FIGURE 6. AGE OF NEBRASKA FARMERS—2012, 1954

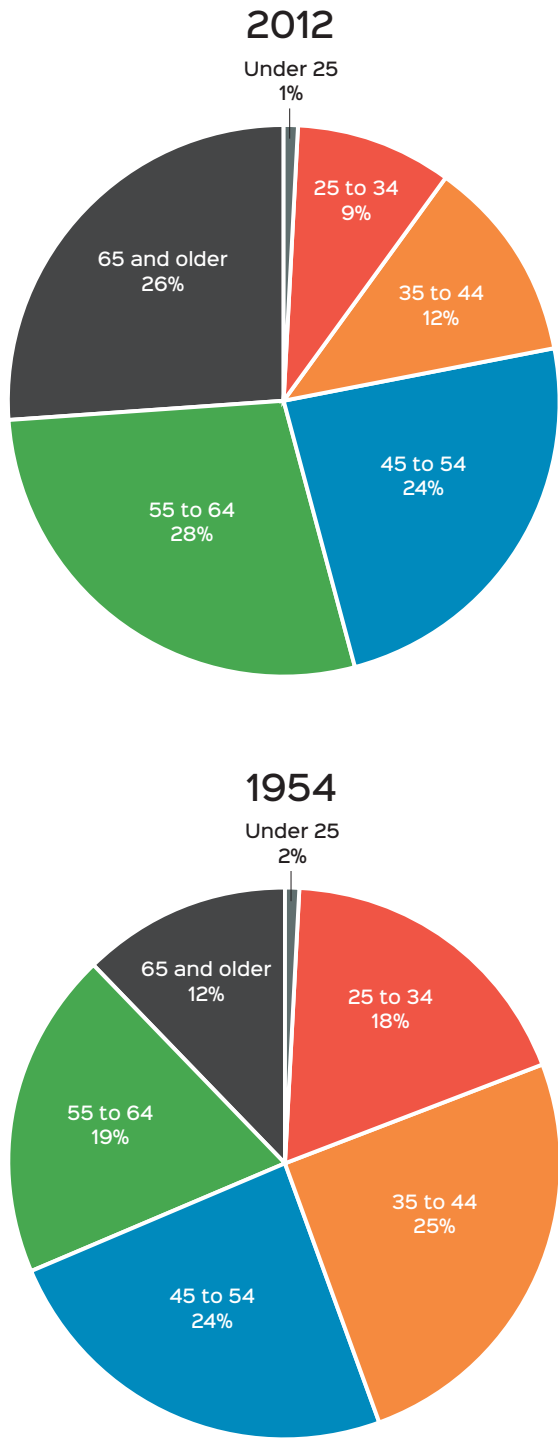


TABLE 3. FARM OPERATORS BY RACE

Farms with any operator reporting race (alone or in combination with other races)	Number of farms	Acres of land
American Indian or Alaska Native	179	111,291
Asian	39	14,895
Black or African American	29	5,289
Native Hawaiian	2	-
White	49,886	45,290,943
Spanish, Hispanic, or Latino origin	414	277,315

More data is needed to better understand the unique challenges and opportunities experienced by women and other minority operators, as well as the challenges faced by groups such as veteran farmers. The limited data available indicates Latino farmers face barriers such as access to land, little economic resilience, restricted access to equipment and machinery, reduced financial literacy, and limited formal education in agriculture.²⁶ Special attention should also be given to Native American populations in Nebraska. Existing research indicates these populations lack access to healthy, fresh, and culturally appropriate foods, and often must rely on food assistance programs, such as SNAP and WIC, to meet some of their basic food needs. In addition, data indicates native Nebraskans have a strong interest in revitalizing their traditional foods, and farming and gardening can be strategies to improve their food independence.²⁷

26 Martinez-Feria, Rafael. “Barriers, Challenges, and Limitations that Hispanic and Latino Farmers and Ranchers Face to Start, Develop, and Sustain Farming and Ranching Businesses in the State of Nebraska.” Center for Rural Affairs, Lyons, Nebraska, August 2011, cfra.org/node/3508. Accessed November 2018.

27 Keim, Becky. “Digging in: Supporting a Healthy, Sustainable Food Future in Santee Sioux Nation.” Center for Rural Affairs, Lyons, Nebraska, November 2017, cfra.org/DiggingInSantee. Accessed November 2018.



Increasing the number of retailers and farmers markets accepting public benefits is one critical strategy for increasing food security. Pictured is fresh produce available at the Omaha Nation Market, one of the SNAP authorized farmers markets in Nebraska.

C. FOOD PRODUCTION

1. FOOD PRODUCTION FOR LOCAL MARKETS

Nebraska farmers have an increased interest in growing and selling food in local markets, rather than into the national and international markets that have been the norm for the past several decades. These farmers still represent a fairly smaller percentage of farming overall for Nebraska. Programs like Buy Fresh Buy Local Nebraska²⁸ work to promote local food production and purchasing in the state.

Efforts are growing locally and nationally to learn more about farmers serving local markets. In recent years, at least two reports have included information from producers serving the Lincoln-Lancaster County market to better understand the barriers and opportunities they experience. The Joslyn Institute has conducted research on the feasibility of a year-round public market and organized various focus groups on local markets in 2017 to 2018.²⁹ The Lincoln-Lancaster County Food Policy Council has surveyed farmers serving this region and found that land availability, cost of land, capital availability, and labor availability all impact local producers.³⁰ The USDA is also beginning to

28 “Buy Fresh Buy Local Nebraska.” University of Nebraska–Lincoln, Institute of Agriculture and Natural Resources, 2018, food.unl.edu/buyfreshbuylocalnebraska. Accessed November 2018.

29 “Initiatives: Lincoln Public Market.” Joslyn Institute for Sustainable Communities, 2018, joslyninstitute.org/initiatives/Lincoln-public-market/. Accessed November 2018.

30 “Lincoln-Lancaster County Community Food Assessment.” Lincoln-Lancaster County Food Policy Council, June 2016, letsgrowlincoln.wixsite.com/home/reports-and-resources. Accessed November 2018.

increase their focus on measuring food production related to local markets and is expected to continue expanding their reporting and state-level data in the coming years.³¹

2. FOOD PRODUCTION FOR PERSONAL CONSUMPTION

Growing at least some of your own food is another important trend in local food production. Nationally, rates of home gardening are at their highest in a decade, with 35 percent (or one in three households) growing food at home or in a community garden.³² While it is difficult to estimate the total number of home gardens in the state, more detailed information is available on community gardens. The Community Garden Task Force of the Nebraska Legislature defined a community garden as a piece of land cultivated for food production by members of a community, and found there are at least 184 community gardens across Nebraska.³³

31 Low, Sarah A., et al. “Trends in U.S. Local and Regional Food Systems: A Report to Congress.” U.S. Department of Agriculture, Economic Research Service, Administrative Publication Number 068, January 2015, ers.usda.gov/publications/pub-details/?pubid=42807. Accessed November 2018.

32 “Garden Learning Library.” The National Gardening Association, garden.org/learn/articles/view/3819/. Accessed November 2018.

33 “Nebraska Community Garden Task Force: Final report to the Nebraska Legislature.” Nebraska Community Garden Task Force, Dec. 15, 2016, nebraskalegislature.gov/FloorDocs/104/PDF/Agencies/Community_Garden_Task_Force/620_20161215-083229.pdf. Accessed November 2018.

Engagement opportunity: Prioritizing local food production

Following national trends, Nebraska communities are increasingly considering ways to expand local food production. One important way communities can show commitment to local food production is by incorporating appropriate language into community planning documents such as comprehensive plans. This language can help institutionalize a focus on food issues in the long-range planning of government.

Lincoln is one community taking this approach. The Lincoln Environmental Action Plan was proposed with community input from Mayor Chris Beutler's administration and adopted by the Lincoln City Council. The plan includes a land use indicator related to agriculture: identification and evaluation of 50 acres that could be utilized for urban agriculture in 2018 to 2019. This indicator shows an official commitment to ongoing city support of identifying and developing farming and gardening in the city.

Community gardens can take many forms and are managed by a variety of organizations. Most community gardens in Nebraska are managed by non-profits dedicated to food issues. Land is leased or donated for these gardens by faith-based organizations, private landowners, and public entities.

While community gardens are making a difference in families' abilities to feed themselves, more are needed. Most community gardens in metropolitan areas are at capacity, and many programs have waiting lists each year. See Figure 7 on page 15 for community garden locations across Nebraska.³⁴ Increasing the number of gardens and their capacity to support families growing their own food is important to household food security and education and awareness around growing and cooking fresh foods.

Engagement opportunity: Community gardening in Nebraska

The Nebraska Legislature authorized the convening of the Nebraska Community Garden Task Force in 2015. This group focused on three key areas: 1) Identifying policy barriers and innovations that can support community gardens in Nebraska; 2) Creating an initial inventory of community gardens in Nebraska; and 3) Updating an existing community garden toolkit as a statewide educational resource.

The task force ultimately made three primary recommendations to the Legislature:

Recommendation 1

All levels of government bodies in the State of Nebraska should review and consider adopting public policies in the following categories to encourage further expansion of community gardens: 1) Revise land use laws to support food production in urban spaces and prioritize food production as a land use for public and publicly-owned lands where appropriate; 2) Reduce costs and barriers to water access for community gardens; 3) Use tax incentives to encourage the creation and long-term maintenance of food production; 4) Create and support educational campaigns to improve food and agricultural literacy of Nebraskans; and 5) Expand opportunities for residents to donate produce.

Recommendation 2

Future policy discussions and proposals in the area of community gardens should use the broader term "urban agriculture" to more comprehensively address the needs of various types of food production in urban spaces.

Recommendation 3

The State of Nebraska should continue the work of connecting and growing community gardens throughout the state, through such means as widening the inventory, establishing a communication tool, expanding the Nebraska Community Garden Toolkit, and developing a central community garden contact.³⁵

D. CONCLUSION

This section examined the natural resources and food production trends in Nebraska through a current and historical lens. The state has a rich history of agricultural production supported by the natural resources such as climate, soil, and water. Following national patterns, Nebraska agriculture has consolidated and concentrated in a few main types of commodity crops and livestock. Fruit and vegetable production has not been a major emphasis. The population of farmers is aging, and education and support are needed to train the next generation of farmers from diverse backgrounds and experiences. Education, policies, and projects are also present to encourage gardening, and can be further expanded through additional support.

While this section has concentrated on the feeders or producers of food, the next section is focused on eaters. How Nebraskans access and consume food is another key aspect of the food system which helps further our understanding of food security in the state.

IV. FOOD CONSUMPTION, ACCESS, AND SECURITY

Food consumption and access are two important and related issues within the food system. Eating patterns have an impact on health through a variety of diet-related diseases. Food access helps determine how people connect with food resources and the quality of the resources available to them, which in turn impacts health. Food security is focused on whether communities, families, and individuals have consistent and adequate access to the foods they need to thrive, and is closely tied to issues of consumption and access.

A. CONSUMPTION

Consumption is focused on how much food individuals and households consume and the types and preparations of those foods. Diet and exercise have a major impact on health, so it is important to understand current behaviors and trends.

B. DIETARY BEHAVIOR

In Nebraska, 39.7 percent of adults and 37.8 percent of adolescents report consuming fruit less than one time daily,³⁶ and 23.3 percent of adults and 38.6 percent of adolescents report eating vegetables less than one time daily.³⁷ Early eating patterns can be critical for long-term health, and breastfeeding can be an important way of giving infants a good start. The American Academy of Pediatrics currently recommends infants be fed breast milk exclusively for the first six months after birth, and that breastfeeding continue from six months to 1 year of age while gradually introducing solid food.³⁸ In Nebraska, 83.5 percent of infants were reportedly breastfed with 60.0 percent of infants breastfed for at least six months.

C. HEALTH ISSUES

Many health conditions and chronic diseases can be strongly linked and can be addressed in part with diet. In 2016, 36.5 percent of adults and 13.8 percent of adolescents in Nebraska were overweight and 30.2 percent of adults and 12.7 percent of adolescents were obese.³⁹ Among children ages 2 to 4 who were in the Special Supplemental Nutrition Program for Women, Infants, and Children, 18.0 percent were overweight and 17.2 percent were obese.⁴⁰ Current trends demonstrate substantial room for improvement in the diets of Nebraskans. More fresh and healthy foods need to be consumed to help reduce the rates of chronic diet-related health conditions.

36 “Nebraska State Nutrition, Physical Activity, and Obesity Profile.” U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, Division of Nutrition, Physical Activity, and Obesity, Sept. 7, 2016, cdc.gov/nccdphp/dnpao/state-local-programs/profiles/nebraska.html. Accessed November 2018.

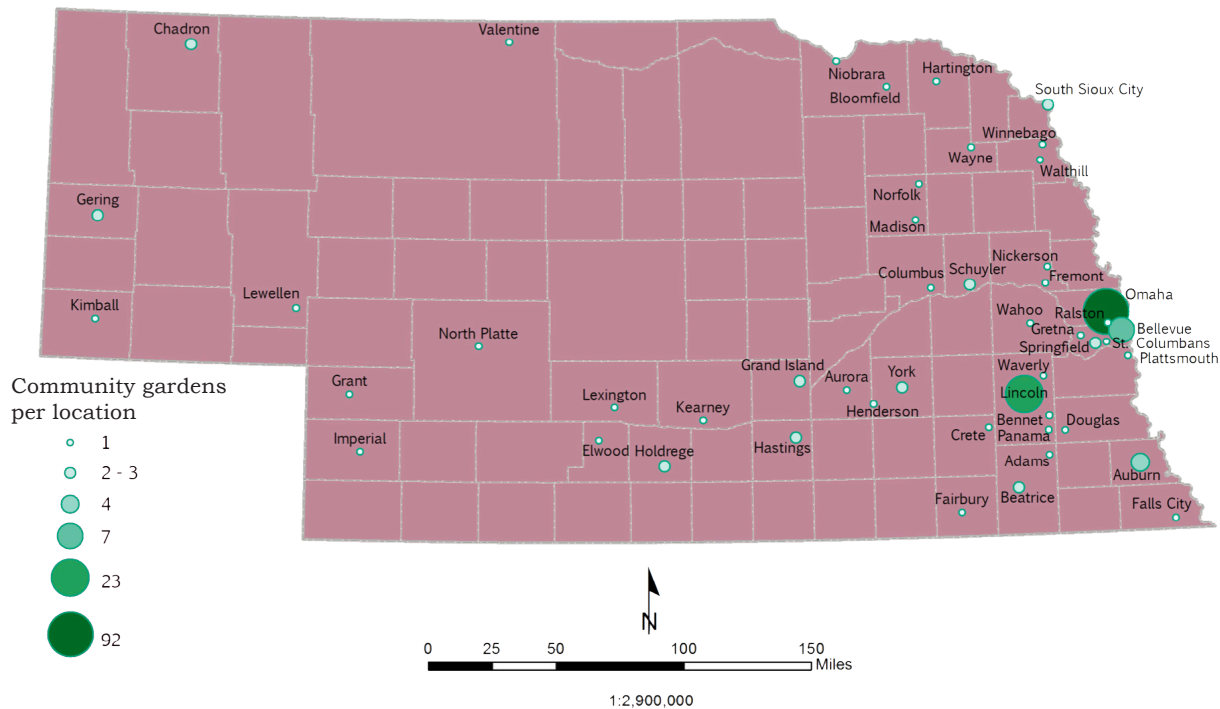
37 Ibid.

38 “Breastfeeding and the Use of Human Milk.” American Academy of Pediatrics, Pediatrics, Vol. 129, Issue 3, March 2012, pediatrics.aappublications.org/content/129/3/e827.full.pdf+html. Accessed November 2018.

39 “Nebraska State Nutrition, Physical Activity, and Obesity Profile.” U.S. Department of Health & Human Services, Centers for Disease Control and Prevention, Division of Nutrition, Physical Activity, and Obesity, Sept. 7, 2016, cdc.gov/nccdphp/dnpao/state-local-programs/profiles/nebraska.html. Accessed November 2018.

40 Ibid.

FIGURE 7. COMMUNITY GARDENS ACROSS NEBRASKA



Map created by Casey Dunn. Sources: U.S. Census, ESRI Community Gardens Taskforce, Nov. 18, 2016.

D. FOOD ACCESS

Residents of Nebraska access food in a variety of ways. Food access includes purchasing food through traditional retail or other means, from farmers markets to online retailers, to emergency and charitable food access, such as food pantries, backpack programs, and hot meal sites. It is important to understand the various ways residents access food to determine the health of the food system in Nebraska.

E. GENERAL ACCESS

Food has a significant impact on the state economy, and producer and consumer issues must be looked at together to understand how food access impacts Nebraska. In 2010, Ken Meter reported, “Nebraska consumers spend \$4.4 billion buying food each year, including \$2.6 billion for home use.” Meter summarizes the current economic impact of our production and consumption patterns as follows:

“Farmers gain \$1.3 billion each year producing food commodities, spending \$6 billion buying inputs from external suppliers, for a total outflow of \$4.7 billion from the state economy. Meanwhile, consumers spend more than \$4 billion buying food from outside.

Thus, total loss to the state is \$8.7 billion of potential wealth each year. This loss amounts to more than half of the value of all farm commodities raised in the state.”⁴¹

This data helps demonstrate both the importance of food purchasing to the state and the enormous potential of capturing more of those sales locally.

F. TRADITIONAL RETAIL

Traditional retailers, ranging from big box stores, to grocery stores, to small retailers, like convenience stores, are all valuable parts of food access. Types of stores available close to where a family lives impact the assortment of foods that are easily accessible to them. Large traditional retailers are increasingly emphasizing local food. Chains like Hy-Vee, Russ’s, Super Saver, and many more are advertising and highlighting their products from local farmers, although their definitions of local vary.

41 Meter, Ken. “Highlights of a Data Compilation.” Crossroads Resource Center, No More Empty Pots, Nov. 19, 2010, crcworks.org/crcdocs/nebsum10.pdf. Accessed November 2018.



A nonprofit, student-run grocery store in Cody, Nebraska, Circle C Market is an innovative example of a sustainable model. The store provides class credit to students working during the day, and part-time income to students working at night or on the weekends.

Engagement opportunity: Rural grocery stores

Access to nutritious and affordable food is a major challenge for many rural communities in the state. Residents in rural communities often must travel great distances to reach a grocery store, and rural grocery stores are often viewed as important anchor businesses in rural communities.⁴² Efforts introduced by Nebraska lawmakers to ensure residents have easy access to healthy food have stalled amid opposition from the grocery industry. One such effort proposed the creation of a state financing program for stores operating in food deserts, allowing them access to funding for fresh food offerings.

Several rural and urban grocery stores alike have closed across the state in the past five years. Nebraska rural communities are exploring innovative ways of saving existing stores or creating new stores with more sustainable models suited to the current environment. A nonprofit, student-run grocery store in Cody, Nebraska, Circle C Market, is one such innovative example of a sustainable model. The grocery store opened in a community in need of one. The store provides class credit to students working during the day, and part-time income to students working at night or on the weekends, while building entrepreneurs in the community.

The presence of food retailers does not automatically guarantee access to fresh and healthy foods.

G. ASSESSING QUALITY OF RETAIL ACCESS

The presence of food retailers does not automatically guarantee access to fresh and healthy foods needed in a nutritious diet. For this reason, the University of Pennsylvania developed a series of tools under the Nutrition Environment Measures Survey. Their website states, “nutrition environments are the places in a community where people buy or eat food. In order to identify and describe community nutrition environments, there is a need for well-defined and reliable tools to measure these environments, and for trained observers who can use the measures in their communities.”⁴³ Different versions have been developed to assess a variety of food environments, including grab and go food at universities, hospital food, restaurants, and traditional retail.

42 “Saving the Small Town Grocery Store.” Center for Rural Affairs, Lyons, Nebraska, May 31, 2016, cfra.org/renewrural/grocery. Accessed November 2018.

43 “Nutrition Environment Measures Survey.” University of Pennsylvania, 2018, med.upenn.edu/nems/index.shtml. Accessed November 2018.

TABLE 4. HEALTHY FOOD ACCESS

Type of licensed store		Fruit		Grains		Meat		Milk		Vegetables		Total	
		N	%	N	%	N	%	N	%	N	%	N	%
Grocery stores	Neither SNAP nor WIC	21	55.26	10	26.32	22	57.89	13	34.21	20	52.63	38	16.38
	SNAP	44	52.38	37	44.05	54	64.29	39	46.43	58	69.05	84	36.21
	WIC	4	80.00	4	80.00	4	80.00	5	100.00	4	80.00	5	2.16
	SNAP and WIC	100	95.24	103	98.10	105	100.00	105	100.00	96	91.43	105	45.26
	Total	169	72.84	154	66.38	185	79.74	162	69.83	178	76.72	232	100.00
Convenience stores	Neither SNAP nor WIC	21	7.12	4	1.36	55	18.64	98	33.22	26	8.81	295	54.63
	SNAP	26	12.04	23	9.75	98	41.53	153	64.83	49	20.76	236	43.70
	WIC	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	0.19
	SNAP and WIC	5	17.86	5	62.50	8	100.00	8	100.00	5	62.50	8	1.48
	Total	52	9.63	32	5.93	161	29.81	259	47.96	80	14.81	540	100.00
Total		221	28.63	186	24.09	346	44.82	421	54.53	258	33.42	772	100.00

N = Total number of stores; % = Total number of stores that accept SNAP, WIC, or both SNAP and WIC.

The Choose Healthy Here program is a partnership between multiple state agencies to “improve healthy food access in Nebraska through community partnerships and retailer support.”⁴⁴ In 2015, six health departments used the Nebraska Nutrition Environment Measures Survey for Stores (NebNEMS-S) to assess retailers in four areas of interest: find, afford, choose, and use. The NEMS-S was developed by Dr. K. Glanz at Emory University. This study included 772 retailers, covering 30 counties.⁴⁵ Results at the state level are summarized in Table 4.

44 Wielenga, V., and K. Lubischer. “Choose Healthy Here Toolkit.” University of Nebraska–Lincoln Extension, Nebraska Department of Health and Human Services. food.unl.edu/CHH. Accessed November 2018.

45 Counties included Adams, Banner, Box Butte, Buffalo, Cheyenne, Clay, Dawson, Dawes, Deuel, Douglas, Fillmore, Franklin, Gage, Garden, Gosper, Grant, Hall, Harlan, Jefferson, Kearney, Kimball, Morrill, Nuckolls, Phelps, Saline, Scotts Bluff, Sioux, Sheridan, Thayer, and Webster.

This assessment looked across five categories of healthy food to determine availability in these retailers across the state. In the 2015 study, they found that 71 percent of total food retailers—both grocery and convenience stores—carried no more than 2 out of the 5 healthy food groups (for example, fruits, vegetables, whole grains, low-fat dairy, and lean meat/meat alternatives).⁴⁶ The data in Table 4 further shows that nearly half of SNAP qualified retailers carried no more than 2 out of the 5 healthy food groups. When healthy foods are limited, consumers are less likely to choose these options, so increasing their availability and affordability is important. Choose Healthy Here also acknowledges that promotion and nutrition education are key to ensuring healthy foods are utilized when retailers carry them. Ongoing research to assess availability with appropriate support for retailers and consumers is necessary to continuously improve food access in Nebraska.

46 Wielenga, V., and K. Lubischer. “Choose Healthy Here Toolkit.” University of Nebraska–Lincoln Extension, Nebraska Department of Health and Human Services. food.unl.edu/CHH. Accessed November 2018.

H. EMERGING TRENDS IN LOCAL FOOD SALES

Nebraska farmers reported \$8.36 million in direct-to-consumer sales in 2012.⁴⁷ More extensive data on the economic potential of local foods is not yet available, but the USDA is paying more attention to local foods and is experimenting with new data collection methods.⁴⁸ This direct-to-consumer number is just a small demonstration of the potential of localized markets. Local food sales have multiplier effects, where a dollar spent on a local product has a return of greater than a dollar to that economy. This occurs for variety of reasons, including that local farmers and food entrepreneurs are more likely to spend money with other local businesses to get the supplies they need for their work.

Between 2006 and 2014, the number of farmers markets in the U.S. increased by 180 percent.⁴⁹ There are nearly 100 registered farmers markets in Nebraska, although not all of these operate for the full growing season and some operate for very short periods around special events.⁵⁰

As the market for local foods grows, appropriate supporting infrastructure for processing, storage, and distribution will become increasingly important. Very few processing facilities in the state serve small producers selling to local markets. One strategy is to create local food hubs to serve as these processing and distribution centers. In Nebraska, the trend has been for these to exist largely as networks of online sales, rather than as centralized, physical spaces for local food aggregation, distribution, and wholesale. These organizations help farmers reach consumers and increase the scale of what they can offer by aggregating their products through online ordering

47 Ibid.

48 “Agricultural Act of 2014: Highlights and Implications.” Aug. 31, 2017, U.S. Department of Agriculture, Economic Research Service, ers.usda.gov/agricultural-act-of-2014-highlights-and-implications/local-and-regional-foods/. Accessed November 2018.

49 Low, Sarah A., et al. “Trends in U.S. Local and Regional Food Systems: A Report to Congress.” U.S. Department of Agriculture, Economic Research Service, Administrative Publication Number 068, January 2015, ers.usda.gov/webdocs/publications/42805/51173_ap068.pdf?v=0. Accessed November 2018.

50 “Nebraska Farmers Market Online Database.” Nebraska Department of Agriculture, nebraska.gov/apps-ag-farmers-market/. Accessed October 2018.

TABLE 5. NEBRASKA FARM TO SCHOOL—
2017 TO 2018 LOCAL FOOD PURCHASING TOTALS

Product type	Amount
Fruit	\$10,451
Vegetables	\$216,668
Meat	\$104,468
Dairy	\$2,390,540

systems and delivery networks. At publication, there were two major local food hubs operating in the state: the Nebraska Food Cooperative and Lone Tree Foods. A third food hub, FarmTable Procurement & Delivery, is located in southwest Iowa and serves the far eastern portion of Nebraska. Trends in food hubs will need to be monitored, including the feasibility of various models and strategies to overcome unique challenges, such as the large land area with population heavily concentrated in a small area of the state.

Community-Supported Agriculture (CSA) is another means of connecting farmers and consumers. Essentially, customers purchase “shares” in the farm by making an upfront payment to the farmer at the beginning of the season. In return, the consumer receives a weekly subscription of vegetables, fruits, and other farm products throughout the growing season. This model allows farmers and consumers to build more direct relationships.

Farm to School is a program where schools purchase and highlight food from local farmers in their cafeterias. Going beyond a simple procurement program, Farm to School also promotes connecting students to how their food is grown through educational opportunities with area farms and school gardens. According to the 2015 USDA Farm to School Census, approximately 29 percent of Nebraska school districts participated in farm to school activities. A total of 458 individual schools from 71 districts with an estimated 188,637 students participated.⁵¹ The economic benefit of this pro-

51 “Nebraska Districts.” U.S. Department of Agriculture, 2015 Farm to School Census, 2015, farmto-school-census.fns.usda.gov/find-your-school-district/nebraska. Accessed November 2018.

gram was an estimated \$6.29 million invested in local food. When surveyed, 39 percent of Nebraska districts responded they plan to increase local food purchases in the future. In addition, 27 school gardens are reported in Nebraska, and 39 percent of school districts in the state are engaging preschool children in farm to school activities.

During the 2017 to 2018 school year, Nebraska Farm to School reported \$2.7 million in total local food purchases. See Table 5 on page 18. Products included melons, various vegetables, chicken, and milk.

I. FOOD SECURITY

1. BACKGROUND

Food security is defined as “access at all times by all people within a household to enough food for an active, healthy life.”⁵² It can be challenging for people to comprehend that hunger and food insecurity exist in an agricultural state like Nebraska, in both urban and rural areas. Feeding America reports that 227,350 Nebraskans were food insecure, for an overall rate of 11.9 percent, in 2016.⁵³ From 2014 to 2016, 8.3 percent of households with seniors experienced food insecurity with 3.9 percent of those households experiencing very low food security.⁵⁴

A household can easily become at least temporarily food insecure due to a variety of challenges, including loss of employment or unexpected medical expenses. Many households that are food secure do have adults in the workforce, but these families may still struggle to access enough food, due to an unexpected bill or the challenge of low wages and underemployment. Food security can be further

complicated by geography. Even when people have money or public benefits to allow them to purchase food, gaining access to nutritious and culturally appropriate foods can be challenging. A food desert is a geographic area that is low income and is more than 1 or 10 miles (urban or rural) from a grocery store. Food deserts create challenges for people to have consistent access to a nutritious and adequate diet. Contrary to popular assumptions, many food deserts are actually located in rural areas of the state. See Figure 8 on page 20.⁵⁵

2. ADDRESSING FOOD INSECURITY

The safety net of programs feeding food-insecure families who do not have enough money to purchase all of their necessary food each month is a combination of public programs and private charity. The largest and most well-known public program is the Supplemental Nutrition Assistance Program (SNAP), formerly known as food stamps. The USDA reports that in 2015, the program provided about \$0.24 billion in food benefits to a monthly average of 174,092 people in Nebraska. In 2014, SNAP served 77.3 percent of those eligible for benefits in Nebraska.⁵⁶

Another major federal program is the Women, Infants, and Children program (WIC). This helps families as they prepare for the birth of a child and supports them through the child’s early years to help ensure adequate nutrition in the crucial early years of a child’s life. An average of 39,478 women, infants, or children received benefits each month in 2013.⁵⁷ An estimated 43.1 percent of eligible families accessed the WIC program in 2015.⁵⁸ School feed-

52 “Food Security in the U.S.: Key Statistics & Graphs.” U.S. Department of Agriculture–Economic Research Service, Sept. 5, 2018, ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/. Accessed November 2018.

53 “Food Insecurity in Nebraska.” Feeding America, 2016, map.feedingamerica.org/county/2016/overall/nebraska. Accessed November 2018.

54 “Rate of Food Insecurity among Households with Seniors (age 60+), by state, 2014-2016.” Food Research & Action Center, 2017, frac.org/maps/seniors/tables/sr_food_insec_2014_2016.html. Accessed November 2018.

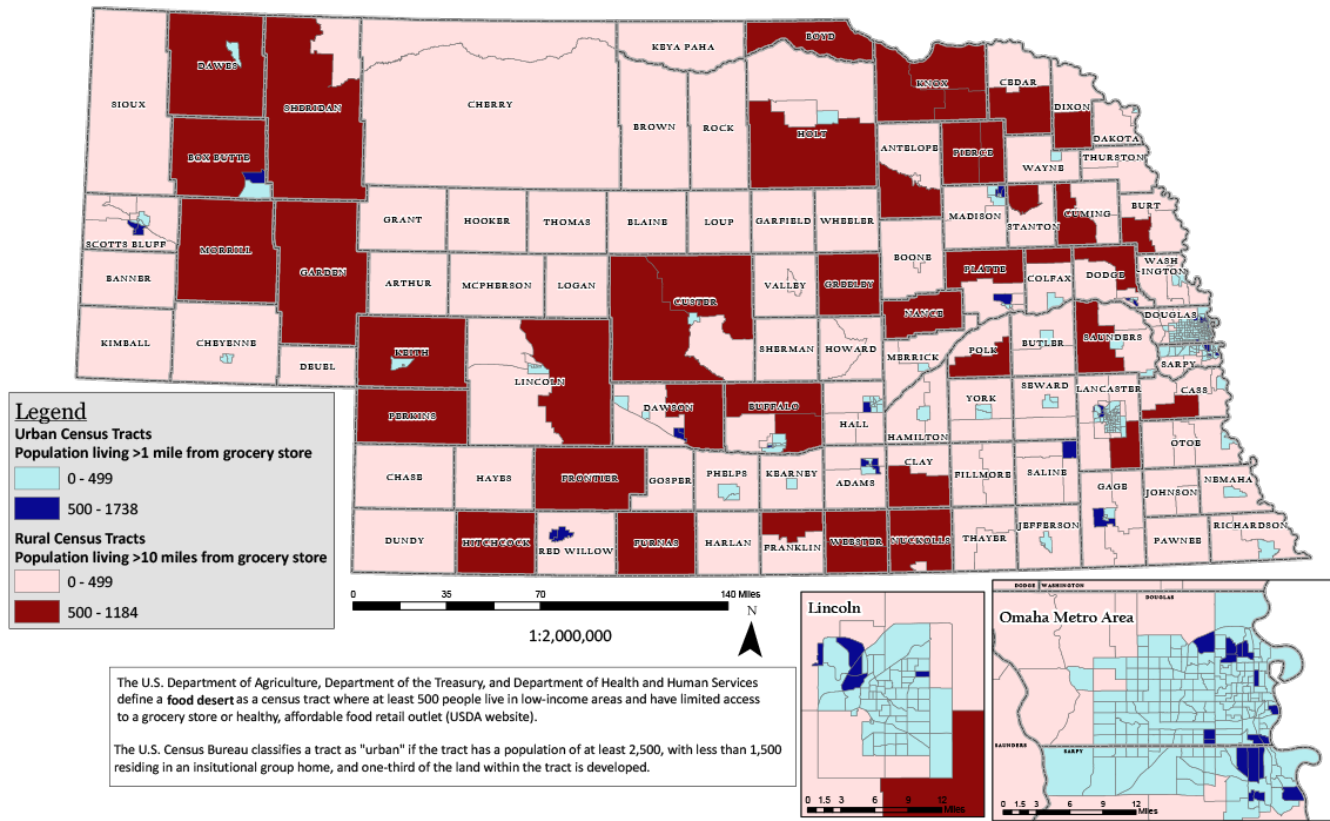
55 Dunn, Casey. “Food Deserts in Nebraska.” Vol. 76, No. 164, U.S. Census, U.S. Department of Agriculture, Food Access Research Atlas, March 2015, news.legislature.ne.gov/lrd/files/2015/12/lrd_mow_11.pdf. Accessed November 2018.

56 “SNAP Community Characteristics - Nebraska.” U.S. Department of Agriculture, Food and Nutrition Service, Jan. 19, 2018, fns.usda.gov/ops/snap-community-characteristics-nebraska. Accessed November 2018.

57 “WIC Works: Program Successes and Nebraska Data.” Voices for Children in Nebraska, May 12, 2015, voicesforchildren.com/wic-works-program-successes-and-nebraska-data/. Accessed November 2018.

58 “National and State-Level Estimates of Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) Eligibles and Program Reach in 2015.” U.S. Department of Agriculture, Food and Nutrition Service, April 25, 2018, fns.usda.gov/wic/national-and-state-level-estimates-special-supplemental-nutrition-program-women-infants-and-2. Accessed November 2018.

FIGURE 8. FOOD DESERTS IN NEBRASKA



Map created by Casey Dunn. Sources: U.S. Census (Federal Register vol. 76, no. 164), USDA (Food Access Research Atlas), March 2015.

ing programs are another important part of the food security safety net. Statewide, 44 percent of children are eligible for free and reduced-price breakfast and lunch.⁵⁹ It is important to ensure families know how to sign up for these programs and that program promotion and design supports high participation rates. In addition, summer feeding programs are increasingly common throughout Nebraska. These programs use USDA funding to provide meals to students when school is not in session. Guardians escorting the child to a meal site (schools or other community gathering place) may eat as well, positively impacting their food security.

59 "Children Eligible for Free or Reduced Price Lunch (Nebraska 2018 data)." University of Wisconsin Population Health Institute—School of Medicine and Public Health, County Health Rankings & Roadmaps, 2018, countyhealthrankings.org/app/nebraska/2018/measure/factors/65/data. Accessed November 2018.

Where and how these benefits can be accessed matters. Increasing the number of retailers and farmers markets accepting public benefits is one critical strategy for increasing food security. Enabling farmers markets to accept SNAP benefits helps the customer and the farmer by increasing consumer buying power. Greater impacts of this program can be seen when paired with other assistance programs, such as Double Up Food Bucks, WIC coupons, and Nebraska Senior Farmers' Market Nutrition Program. Of the 100 farmers markets in the state directory, only 17 reported accepting SNAP benefits, and WIC acceptance rates are extremely low. See Table 6 on page 21.⁶⁰ Programs like Double Up Food Bucks are an important way of increasing and incentivizing healthy

60 "SNAP and Farmers Markets." U.S. Department of Agriculture, Food and Nutrition Service, Aug. 6, 2018, fns.usda.gov/eat/snap-and-farmers-markets. Accessed November 2018.

TABLE 6. SNAP AUTHORIZED MARKETS

Store name	City	County
Bridgeport Farmers Market	Bridgeport	Morrill
City Sprouts Community Garden	Omaha	Douglas
College View Farmers Market	Lincoln	Lancaster
F Street Farmers Market	Lincoln	Lancaster
Fallbrook Farmers Market	Lincoln	Lancaster
Gifford Park Neighborhood Market	Omaha	Douglas
Grandview Farm	Fremont	Saunders
Nebraska City Farmers Market	Nebraska City	Otoe
No More Empty Pots	Omaha	Douglas
Sunday Farmers Market at College View	Lincoln	Lancaster
Omaha Farmers Market	Omaha	Douglas
Omaha Food Basket Program	Macy	Thurston
Omaha Nation Market	Macy	Thurston
Pekarek's Produce	Dwight	Butler
South Sioux City Farmers Market	South Sioux City	Dakota
Thomas County Farmers Market	Theadford	Thomas
Walthill Farmers Market	Walthill	Thurston

food access.⁶¹ Retailers and farmers markets can register to participate in this program. Once enrolled, a SNAP program participant can swipe their EBT card and for every \$1 they spend on SNAP eligible foods, they receive a \$1 credit per benefit that can be redeemed at that time or in the future. This effectively doubles the spending power available to low-income consumers for healthy food and benefits the retailers and farmers through increased sales.

Beyond public assistance programs, the charitable sector provides food to low-income residents. The charitable assistance system is composed of food banks, food pantries, and hot meal sites, or soup kitchens. Food banking emerged in the 1970s and 1980s as the need to warehouse increasingly large amounts of donated and surplus food emerged. They act as centralized storage and distribution centers for smaller front line agencies. There are two food banks serving Nebraska.

61 “Double Up Food Bucks.” University of Nebraska-Lincoln, Institute of Agriculture and Natural Resources, UNL Food, 2018, food.unl.edu/DoubleUp. Accessed November 2018.

The Food Bank of Lincoln serves southeast Nebraska and the Food Bank for the Heartland serves the rest of the state and a portion of southwest Iowa.

There are hundreds of pantries and hot meal sites across the state. Food pantries typically distribute shelf-stable items and vary in model from prepacked bags or boxes to “choice pantry” models, where clients can select their own items, in a manner similar to shopping at a grocery store. Best practices in food pantries is to increase the nutritional quality and availability of perishable items, such as dairy, meat, and fresh produce. Providing these items can be a challenge, due to their perishable nature and additional storage requirements to maintain food safety. Hot meals vary in who they serve, from the homeless population to children to seniors. This can be set meal sites or mobile operations, such as those run by food banks, Meals on Wheels, and the Salvation Army. Summer feeding programs, in particular, try to reach children outside of the regular school year when they may not have access to vital school breakfast and lunch at a free or reduced rate. Summer feeding programs are often run by private charities but also receive funding from the USDA. The Nebraska 2-1-1 data-

base is a centralized clearinghouse for individuals looking for information on charitable food assistance resources.⁶² A growing movement in the U.S. is to increase healthy foods in the emergency food system through local food production. Pantry gardens, grown specifically for donation, can be entire garden spaces, or utilized as “grow a row” systems, where a portion of the garden is set aside specifically for donation. These are often operated by private charities and faith-based organizations. A small number exist across the state. Finally, gleaning is a strategy that serves the dual purpose of reducing food waste and getting fresh, nutritious food to those in need. It involves collecting crops that were not harvested by farmers for sale and dispersing those foods directly or processing them into value-added items, such as canned goods, to be distributed. Currently, Produce from the Heart is the primary gleaning organization in the state.⁶³

Engagement opportunity: Increasing healthy food access through farmers markets

Farmers markets can be an important resource in increasing access to fresh, healthy foods. While there is limited time on the calendar for these markets, they are an important source of food during the growing season.

Extra measures are needed to ensure farmers markets provide access to all members of a community. While individual vendors can register as SNAP retailers, farmers markets can become even more accessible by creating market-wide systems that allow families to use public benefits at all market vendors. To do so, market managers often set up a station where benefits can be converted into vouchers or tokens to be used on eligible products throughout the market. This makes it easier for both benefit recipients and vendors to participate in these programs smoothly.

62 “2-1-1 Helpline.” United Way of the Midlands, 2018, unitedwaymidlands.org/2-1-1/. Accessed November 2018.

63 “Produce from the Heart.” Produce from the Heart, 2018, producefromtheheart.org. Accessed November 2018.

J. CONCLUSION

Current research shows areas for improvement in Nebraska food consumption, access, and security patterns. Residents need to consider changing their diets to reduce nutrition-related health conditions. This requires adequate access to affordable and healthy foods across the state and in every neighborhood. Beyond traditional retail, safety net programs in the public and nonprofit sector help ensure Nebraskans get the foods they need. Strategies that improve access by location and availability of healthy foods are key.

The next section examines how food waste is managed in our state food system. Food waste is tied to food security issues where it can be rescued and distributed to those in need. Preventing and reducing food waste can help minimize economic losses to the food system and contribute to the maintenance of the state’s natural resources, such as high quality soils.

V. FOOD WASTE

A. FOOD WASTE ON COUNTY AND STATE LEVELS

An estimated 25 to 40 percent of all food produced in the U.S. is wasted at some point in the food system. This represents 133 billion pounds of food per year or 1,249 calories per person.⁶⁴ Not only is this a loss that could be feeding food-insecure citizens, it is also an enormous waste of limited natural resources and economic potential. Before it reaches people’s homes, food is wasted on farms, fishing boats, packing houses, and manufacturing facilities; through transportation and distribution networks; and by retail outlets and restaurants.⁶⁵ Once consumers purchase food, it is often lost through food spoilage, over-preparing, date label confusion, overbuying, and poor planning.⁶⁶

64 “Food waste in the U.S. is...” U.S. Department of Agriculture and Environmental Protection Agency, 2018, pingree.house.gov/sites/pingree.house.gov/files/wysiwyg_uploaded/Food%20Waste%20Infographic%20shareable.jpg. Accessed November 2018.

65 “The Problem of Food Waste.” Food Print, 2018, foodprint.org/issues/the-problem-of-food-waste/?cid=5664. Accessed November 2018.

66 Ibid.



Compost can be used in community gardens such as this one, located on the Santee Sioux Reservation in Knox County, Nebraska.

The Nebraska Department of Environmental Quality regularly commissions a process to better understand how much paper, trash, plastic, food, etc., is discarded in the state. The most recently published report was released in 2009.⁶⁷ Food was found to be the third largest category of solid waste, representing 16.64 percent total. This represents refuse that could be minimized or diverted to composting and other energy production to make productive products. When landfilled, food scraps take up valuable space and emit greenhouse gases.

There are a growing number of organizations attempting to educate and support the prevention and diversion of food waste. Public organizations like the United States Cooperative Extension System⁶⁸ help teach consumers about appropriate food storage to prevent spoilage. Numerous gardening-focused nonprofits educate on the creation and maintenance of compost bins to transform food and yard waste into a soil amendment for gardens. These same organizations also teach food preservation skills such as freezing, dehydrating, and canning. At least two organizations capture perishable food that cannot be sold before it must be composted or otherwise recycled as food waste. Saving Grace in Omaha collects fresh and prepared foods

67 “Final Report: Nebraska Waste Characterization Study.” State of Nebraska Department of Environmental Quality, Engineering Solutions and Design, Inc., March 9, 2009, deq.state.ne.us/NDEQProg.nsf/PubsForm.xsp?databaseName=CN=DEQSER6/O=NDEQ!!Publica.nsf&documentId=E3B876E52F86F1A6862575C900733CCA&action=editDocument. Accessed November 2018.

68 “Extension: For Extension Professionals and the People They Serve” U.S. Cooperative Extension System, Kansas City, Missouri, extension.org. Accessed January 2019.

from retail stores and special events and redirects the food to local charitable feeding organizations and restaurants. Produce from the Heart focuses on gleaning, where fresh fruits and vegetables that either were not harvested or were not able to be sold through venues like farmers markets, are collected and redistributed to pantries and hot meal programs throughout the state.

At this time, no government entity has an established food composting program as part of the waste services offered in Nebraska. Several private and nonprofit sector organizations are working to fill this gap. Soil Dynamics and Big Red Worms are two organizations that use composting and vermiculture in Omaha and Lincoln to process food waste. In addition, several public school systems are experimenting with composting alongside school lunch programs with community partners.

B. CONCLUSION

Awareness of food waste and appropriate prevention strategies is a crucial part of a healthy food system. Several organizations in Nebraska are working to understand food waste and are finding productive ways to capture and reuse these products. More research is needed to understand the prevalence of food waste in the state. Additional education to raise awareness of this issue and how to prevent or reduce waste is also needed. The state and localities may choose to support organizations that prevent, capture, or reuse food waste through programs and policies.

At this time, no government entity has an established food composting program as part of the waste services offered in Nebraska.

VI. LOOKING INTO THE FUTURE

This community food assessment was designed to provide baseline data on the condition of Nebraska's food system to inform the work of the Nebraska Food Council. It touched on demographics, agricultural production, consumption and access, and food waste patterns. The Nebraska Food Council will use this picture of the current state of the food system to inform goal setting. Based on the research findings presented in this report, this section lists initial suggestions by members of the Nebraska Food Council for a preliminary research and policy agenda for their organization, as well as suggested areas of focus.

A. RESEARCH AGENDA

- Overall need for data focused on the local food system, such as information on producers selling within localized markets.
- More data on underserved populations in farming such as women, minorities, veterans, and immigrant populations in Nebraska.
- Further explore climate data and how it will impact producers, as well as data on how Nebraska farmers are already adapting to climate change and extreme weather patterns.
- Monitor water resources (availability and quality) in the state and a breakdown of water use by agriculture versus other uses.
- More information on the processing and distribution portion of the local food system and the current problems related to processing and distribution that hinder small to medium-sized operational growth.
- Explore food miles required for local food distribution and/or local food donations.
- Explore gaps in the food system to determine whether more cooperative (co-op) development in targeted areas could provide a boost to small farmers.
- Explore opportunities for collaboration in areas of waste, gleaning, and market second foods.

B. POLICY AGENDA

- Fund the creation of a permanent Farm to School position within Department of Agriculture and/or Education.
- Prioritize local purchases for schools and institutions, or designation of local purchasing percentages.

- Amend existing cottage food laws to assist food and farm businesses in direct sales.
- Consider land use policies and limits on development to permanently protect arable soil, farmland, and small and diverse farms so that healthy food can be grown for generations to come.
- Document chemical drift issues and explore ways of protecting land in food production.
- Explore full utilization of food assistance programs that support communities and farmers alike by expanding Double Up Food Bucks program sites statewide.

C. AREAS OF FOCUS

- Educate the Nebraska food system about the current realities and vulnerabilities of our food system.
- Develop toolkits for food and farm business and consumers.
- Create a land trust to ensure beginning farmers have access to land, since currently only conservation easements are provided for in the Nebraska Land Trust.
- Market and create local brands such as state, county, city, region, foodshed, or state-based brands.
- Educate food and farm businesses about the opportunity to sell to federal and local purchasing programs and distributors that schools and institutions purchase from most often.

About the Center for Rural Affairs

Established in 1973, the Center for Rural Affairs is a private, nonprofit organization with a mission to establish strong rural communities, social and economic justice, environmental stewardship, and genuine opportunity for all while engaging people in decisions that affect the quality of their lives and the future of their communities.

APPENDIX

PREVIOUS FOOD ASSESSMENT EFFORTS

This food assessment was created to support the start up of the Nebraska Food Council, a statewide food policy council. It provides up-to-date data across the food system to inform the council as they begin to develop their research agenda and action plan for the future. To acknowledge previous research in Nebraska that contributes to local knowledge of the food system, below is a list of some of these resources. This is not a complete list, but provides a helpful starting point to understanding recent food systems research efforts in Nebraska.

1. “Lincoln-Lancaster County Community Food Assessment.” Lincoln-Lancaster County Food Policy Council, 2016, letsgrowlincoln.wixsite.com/home/reports-and-resources. Accessed October 2018.
2. “Local Foods Systems in Nebraska: An Examination of Perceptions, Participation, & Ideas for Change.” Gretchen Swanson Center for Nutrition, ConAgra Foods Foundation, 2013. Accessed October 2018.
3. Meter, Ken. “Nebraska Food and Farm Economy.” No More Empty Pots, Nov. 19, 2010, crcworks.org/crcdocs/nebsum10.pdf. Accessed October 2018.
4. “State and Regional Assessment Report on Food and Nutrition.” Community Action of Nebraska, 2014, canhelp.org/wp-content/uploads/2017/11/final2014assessmentonfoodandnutrition.pdf. Accessed October 2018.

