

Wheels of Fortune



**Center for
Rural Affairs**

CENTER FOR RURAL AFFAIRS
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THE CENTER FOR RURAL AFFAIRS

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Wheels of Fortune

A REPORT ON THE IMPACT OF CENTER PIVOT IRRIGATION
ON THE OWNERSHIP OF LAND IN NEBRASKA

Published by the Center for Rural Affairs,
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PREFACE

As an irrigator who lives in one of the fastest developing irrigation areas of the state, I was pleased to serve on the study committee which oversaw the preparation of this report. The committee, consisting of two other irrigators and a University of Nebraska economist, was established by the Board of Directors of the Center for Rural Affairs in the summer of 1975 to provide guidance to the Center staff in developing material for this report.

The report is written with a point of view. It is the point of view of farmers and rural people who are concerned about the proper economic use of the natural resources, and about sustaining locally controlled communities which nurture the democratic spirit of America. We are not detached scientists unwilling to express our opinions.

On the other hand, we have tried to be fair, to present what we have found in an objective manner, saving for the end our own comments about the implications of our findings.

For the most part, the report describes changes which are taking place in the ownership of land irrigated by center pivot systems. It begins to answer the questions many of us have been asking each other over a cup of coffee: Who are the developers? Who benefits? Who will control?

Hopefully readers of this report will be able to judge more carefully the benefits or detriments of irrigation development in the state, and to chart for Nebraska's future a sounder course, environmentally and economically, for its People, Land, and Water--our only resources.

Robert Warrick
Meadow Grove, Nebraska
January, 1976

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SECTION 1
THE CENTER PIVOT PHENOMENON

If you were a passenger on a midsummer flight between Denver, Colorado, and Sioux City, Iowa, you could not help but notice the circular green oases which polka-dot the landscape of the Great Plains of Nebraska.

If you did not know that these green circles were cultivated fields, irrigated by sprinkler systems which rotate from a point in the center of the field, you might conclude that their locations were random. You would observe with curiosity that the circles are uniform in size and are placed in the center of square fields frequently bordered by county roads, looking for the world like strategically deployed pieces on a giant checkerboard.

You would probably notice that they tend to follow the river valleys, avoiding the rough terrain and delicate soils. Occasionally, you would see that one had intruded across the natural soil barrier on to coarse, unfriendly terrain. As often as not, however, the intrusion has been repelled by the rough, sandy range, and the green circle is indiscriminately dotted with the parched brown of failure.

As your flight moves northeast, you would pass over parts of Nebraska where carefully planted rows of trees protect the land from hard blowing winds which otherwise would carry away tons of precious top soil each year. Here you would see that these strange circles have the power to compel the removal of these trees, whose purpose is either forgotten or accomplished by other means, if they dare to interfere with the magic circle.

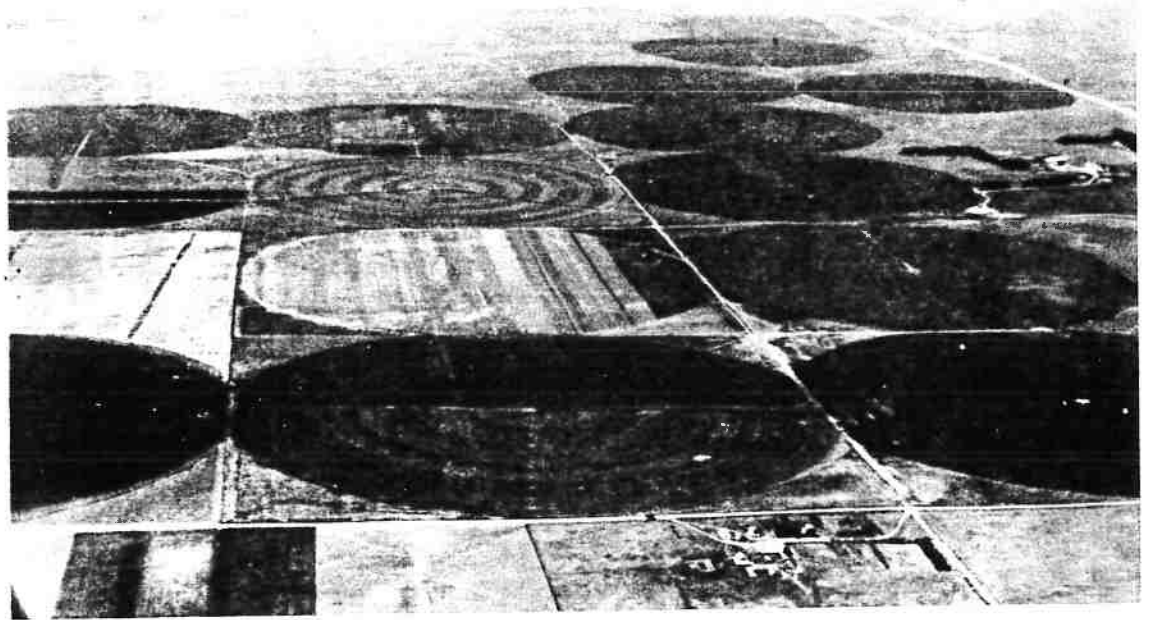
There must be thousands of these green circles, you would have to guess as you count them by the dozens, often border-to-border, four to a square mile. Once you realize that the green circles are irrigated fields which once lay dry, it is impossible for you to conclude that these circles have not had a dramatic impact on the economy of the state of Nebraska.

If you are a thoughtful passenger you might wonder if the changes taking place on the land have not also transformed the lives of people, perhaps less obviously, but nonetheless dramatically. You would suppose that there has been tremendous economic growth as a result of this irrigation, but you might also wonder what these wheels of fortune change about the way people live, about how they make decisions, or about who owns and controls the productive resources around them. This report is for those who are the thoughtful passengers.

Irrigation in Nebraska

It has become commonplace in Nebraska to talk of the state's water resources as the finest in the nation. In fact, Nebraska has an abundance of both surface and underground water. About seven million acre feet of water flow through the state's rivers and streams each year. One popular image has it that Nebraska has enough underground water to cover the entire state to a depth of 39 feet.¹

Although such figures tend to be controversial, estimates are that Nebraska irrigates about 5.5 million acres, placing it third behind California and Texas. Some promoters see the state's potential surpassing the current leaders whose land may have already been developed close to their maximum.² Based on purely agronomic characteristics much as 19 million acres might eventually be irrigated in Nebraska according to the State Water Plan.³ Short-range projections estimate that total irrigated acres in the state would exceed 7,000,000 by 1980 under current growth rates.⁴



University of Nebraska Cooperative Extension Service

A Midday Flight on a Clear Day. Green circles polka dot the landscape of Nebraska. From the sky, they look like giant pieces on a checker board, but they are fields of grain irrigated by revolving sprinkler systems that evenly distribute water on land much of which was previously considered too rough or too sandy for irrigation. "Center pivot" systems have transformed the entire economy of regions of Nebraska which have plentiful groundwater supplies and land suitable for sprinkler irrigation. There are over 10,000 pivots in Nebraska.

Already the contribution of irrigation to the state's economy is nearly inestimable. In some parts of the state, irrigation is the economy, and has been for several generations. Two economists at the University of Nebraska recently concluded that irrigation directly and indirectly adds two billion dollars to the Nebraska economy annually.⁵ More important perhaps, it provides stability to a frightfully weather-dependent agricultural economy. During the drought of 1974, irrigated crops unquestionably stemmed the tide of a massive economic disaster. The state's corn acreage is divided roughly in half between dry land and irrigation. The 1974 dry land crop was worth only \$229,942,000; the irrigated corn brought home \$1,313,818,000.⁶

Most of the irrigation in Nebraska (about four million acres) has been accomplished by using gravity to distribute water along the surface of the ground. The land must be level enough to move the water from one end of the field to the other. Gravity systems typically require a large amount of labor to deliver the water to the crop. Under the most mechanized gravity system, one person can irrigate 400 acres with difficulty--and that is doing some irrigating.

The remaining 1.5 million acres are irrigated by newer methods which use sprinkler systems to distribute the water. There are about nine varieties of sprinkler irrigation, but the center pivot system stands above the rest in terms of its popularity and potential for growth. Center pivots now sprinkle over a million acres of circular fields in Nebraska, more than in any other state. Over half of this development has occurred since 1969. In fact, since 1969 about one-half of all newly irrigated acres in Nebraska have been irrigated by center pivot sprinkler systems:

The Center Pivot Phenomenon

The use of the center pivot systems in Nebraska is booming for two reasons: Pivots eliminate much of the labor associated with irrigation and they are adaptable to a wide range of soils and terrains which were previously considered unirrigable.

The center pivot saves labor because it achieves push-button distribution of water. Essentially, the system is simply an irrigation pipeline with sprinkler nozzles located at intervals along its length. It is anchored in the center of the field. The pipeline is then rotated around the central anchor, much as the hands of a clock move. It is propelled by oil or water hydraulics or electric or air drive, and rides on steel wheels or, more frequently rubber tires. The arm of the pivot is typically one-quarter mile long, irrigating a circle with a diameter of one-half mile, about 133 acres. Its speed can be adjusted to complete its rotation in less than one day or up to seven days.

Once the system is installed and programmed to deliver proper amounts of water, the labor requirement is virtually reduced to maintenance.

Management - changing the watering program to meet changes in moisture conditions in the field, adding fertilizer through the system, planting and field operations strategies all become far more important.

One person can reasonably operate and maintain six systems during a season, more if that person is an accomplished center pivot operator.⁷ This is double the acreage which a surface irrigator can usually manage.

However, the labor saving factor is probably no more important than the versatility of the system in explaining the center pivot phenomenon in Nebraska. Because the mechanized sprinkler can move nonchalantly over hills, it can cover terrain which would have to be leveled by bulldozer for irrigation by gravity systems. In fact, pivots irrigate land which could never be irrigated using gravity systems, even with the most ambitious land leveling surgery. Moreover, the sprinkler accomplishes an even distribution of water over the entire field. The gravity systems, by contrast, saturate the end of the field where the water is introduced, and tend to starve the far end of the field. For this reason, sandy soils, which absorb water quickly, cannot be adapted to gravity systems. At one end, the sand sucks down the water faster than the plants can use it, and water never reaches the other end of the field. The sprinkler system is more democratic - every plant gets its fair share. As a result, dry sandy soils once considered unirrigable are easily developed from native range to irrigated cropland.

Such soils are plentiful in Nebraska. Nebraska, generally speaking, is a plains state, and much of its expansive terrain is unbroken native range land, pasture, or marginal cropland. Most soils of this area, particularly in the central and western parts of the state, consist of sand or sand and silt, and receive less than 25 inches of precipitation per year. (See figure 1)

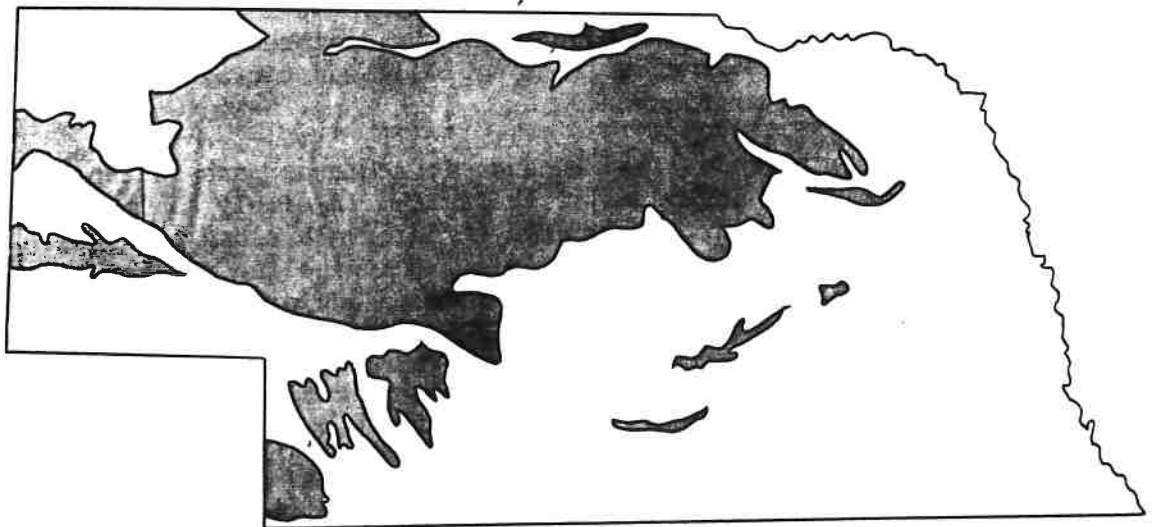


FIGURE 1
SANDY SOILS IN NEBRASKA

Much of the same area is underlain with a great thickness of permeable water-bearing sand and gravel. (See figure 2) This underground rock formation, known as the Ogallala Formation, is one of the nation's richest aquifers and with some exceptions, is close enough to the surface to permit massive pumping from relatively shallow wells.

These areas historically have been devoted to ranching operations with a limited amount of dryland farming. They are generally sparsely populated, and land is held in relatively large ownership units.

This region which includes the vast Nebraska Sand Hills has considerable potential for center pivot systems. It has rich underground water supplies, the soils are marginal but not suited for gravity irrigation and risky for dryland farming. The land is relatively cheap and available in suitably large parcels. It should come as no surprise that pivot systems were commercially pioneered in this region of Nebraska, and that today, most of the state's 10,000 pivot systems are located here.

Pivots were introduced to this region in the mid-fifties. They were a product of the inventive mind of Frank Zybach, who built a prototype "self-propelled irrigation apparatus" as a tenant wheat farmer in Colorado in 1949.

Zybach has been described by his contemporaries as a "tinkerer". Although he started commercially producing the systems in partnership with A.E. Trowbridge at Columbus, Nebraska, in 1952, the credit for the initial large scale manufacturing and marketing of center pivot systems goes to Valley Manufacturing Company (now Valmont Industries, Inc.). Valmont, located in Valley, Nebraska, is the largest of some 20 producers

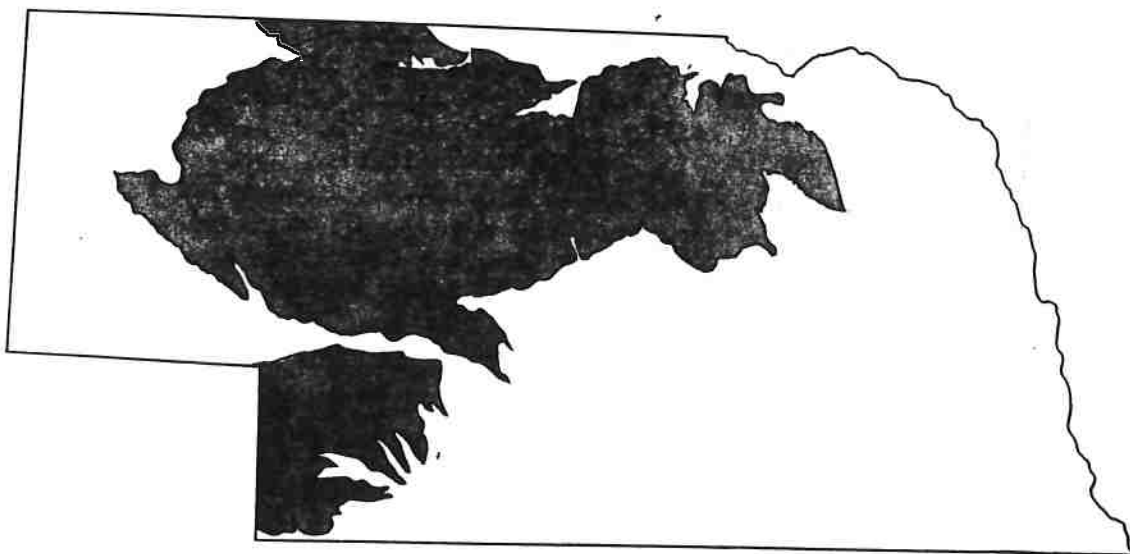


FIGURE 2
UNDERGROUND WATER REGIONS IN NEBRASKA

of center pivot systems in the nation.

Center pivot irrigation can be used on any crop grown commercially in Nebraska, but the great majority of the green circles are planted to corn. Moisture sensitive crops like corn, grow well in sandy soils when sufficiently fertilized. They are also reliably marketable, especially in the grain conscious world of the mid-1970s. As a result, so-called "new corn" areas have mushroomed across Nebraska. Regions once limited to breeding livestock are suddenly sporting grain elevators and feedlots.

There are no better examples of this than Holt County and the adjacent counties in north central Nebraska where the Corn Belt gives way to the Sand Hills. Since the mid-1950s, development of pivots there has been feverish at times, cautious at times, but continuous. In Holt County alone, over 130,000 acres are now irrigated by pivot systems. The county has been transformed from a predominantly cattle raising economy into a major corn producer. The impact in the other counties in the region has been nearly as dramatic.

Unquestionably, in terms of agricultural product sales, jobs, real estate values, retail sales, and most other economic indicators, areas have boomed where pivots have been widely introduced. The local impact of irrigation development in north central Nebraska can hardly be better described than it was by Clyde Burdick, Ainsworth mayor, in the Lincoln Sunday Journal and Star. He said that his community has seen, "seven new churches, a new hospital and an average of one new business in the community each year since irrigation began here."⁸

Money Makes Them Run

There was a time, not long ago, that a farmer could install a center pivot system, necessary equipment, and a well for about \$20,000. Today, knowledgeable people estimate an investment of \$60,000 or more, plus interest, taxes, and insurance not including land costs. Annual costs of pivot irrigation are also formidable. Dr. Leslie Sheffield, Coordinator, Irrigation Development Program, University of Nebraska-Lincoln, estimates that 1975 annual fixed and variable costs total \$35,184.96 per quarter section of corn, (133 acres irrigated). Sheffield pencils in an estimate of a 125 bushel per acre yield, and concludes that the break even price for corn produced under this typical system is \$2.12 per bushel.⁹

In other words, center pivot systems are expensive. They are, as the economists say, "capital intensive." Energy turns them, people manage them, but money makes them run.

The fact that corn produced under pivot irrigation costs \$2.12 per bushel to produce is not without implications. In the first place, the

first \$2.12 of every new bushel of corn produced under pivot systems is paid to people other than the producer -- the fuel supplier, the pivot manufacturer, the well driller, insurance companies, and, of course, the county treasurer, and others, all of whom have a first claim on the producer's income, and therefore realize increased revenue from irrigation.

For the producer, the payoff is principally in reducing the risk of crop loss due to drought and in increasing production per acre of land. He does not benefit from lower costs of production. His benefit is in fewer production risks; nonetheless he has higher price risks. Woe to the irrigator who produces 125 bushels of corn per acre at a cost of \$2.12 per bushel and has to sell it for \$1.85 per bushel. Thus, the producer is not necessarily the prime beneficiary of pivot irrigation.

The second implication of the high cost of pivot irrigation is that many people cannot afford it. The owner of one quarter section of marginal range land, valued at \$250 per acre, who is considering buying a pivot is considering an investment in a non-permanent piece of equipment which is worth more than the land it will irrigate.

The high costs and risks inherent in center pivot irrigation have discouraged many cautious farmers from investing in them. However, many non-farm investors view pivots as a high return investment for which it is worth risking excess income.

While much of the capital for center pivot development has come from traditional farm financing sources (banks, insurance companies, cooperative institutions and the equipment manufacturers) in the form of loans to operating farmers, a substantial amount has also come from investors outside of the traditional agricultural finance sector. In fact, pivot irrigation has become an investment novelty in Nebraska, challenging the ingenuity of real estate developers, trust departments of banks, money brokers and others with sophisticated money strategies.

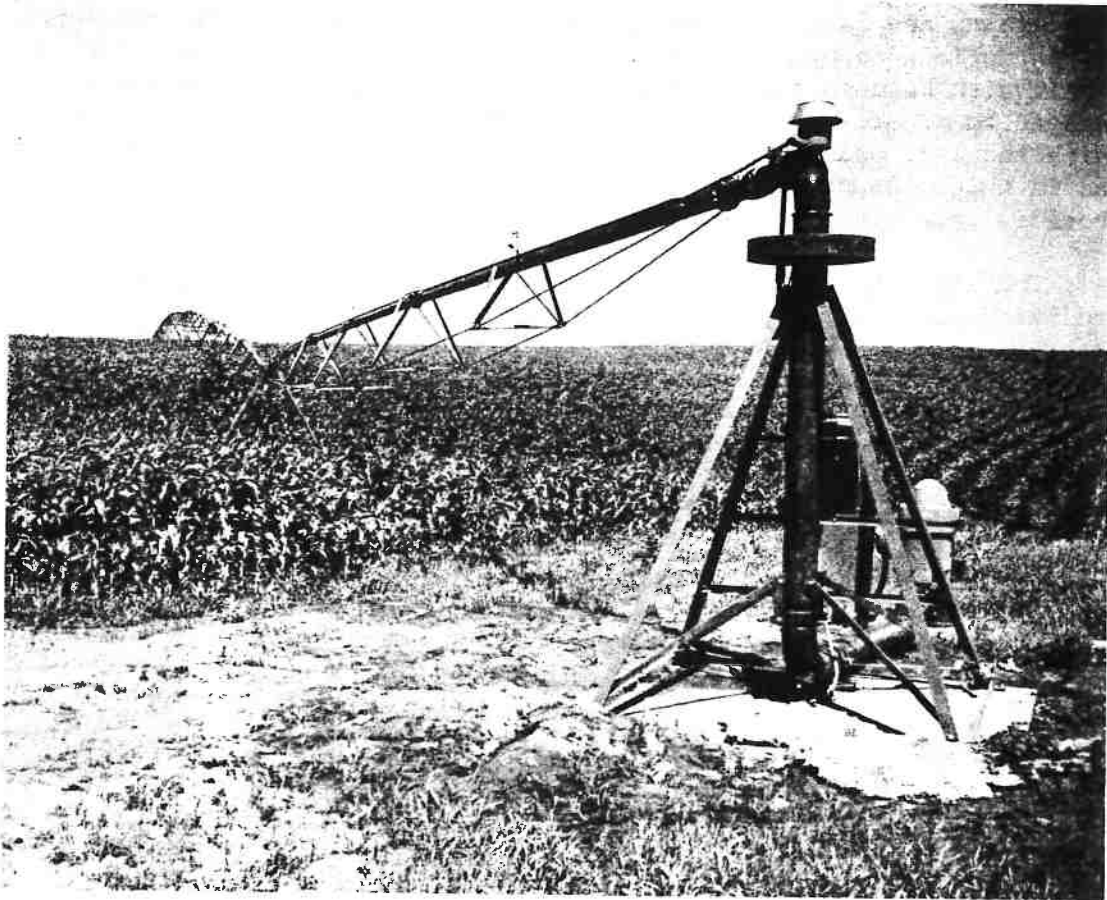
These investors are not merely supplying capital to agriculture in the manner of traditional farm financing. They are buying the land and water of the state. They are taking an "equity" interest in the productive resources of Nebraska farms and ranches.

Investors, of course, are not homesteaders. Farms owned by investors are not operated by their owners. They are farmed by hired employees, custom farm managers, or tenant farmers. Center pivot systems are not without their social implications.

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SECTION 2
WHY THIS REPORT

The purpose of this report is to explore the impact of center pivot irrigation development on ownership and control of the productive resources of portions of Nebraska.



USDA Soil Conservation Service

Wheels of Fortune. The center pivot circles automatically around a central point in the field. The automation saves on labor costs but the system itself is expensive, costing as much as \$60,000 to install on 132 acres. As a result of the cost, a considerable amount of investment in pivots has come from non-farm sources. The purpose of this report is to explore the impact which the boom in this kind of irrigation development is having on the ownership and control of the productive resources of Nebraska.

Irrigation development is good for Nebraska and Nebraskans. It is not our intent to deny or dispute the well-documented economic benefits of center pivot irrigation. Instead, we address the question of who benefits now, or in the future, from the remarkable changes in irrigation represented by the center pivot system. It is our intent to outline and document substantial shifts in the ownership and control of land and water resources in Nebraska which are accompanying pivot development, and to raise questions about the long-range implications which this shift has for the resource base of the state.

For the purposes of this report, we distinguish between operator-owned farms and investor-owned farms. Detailed definitions are supplied at appropriate points in the text. Essentially we are attempting to distinguish between entrepreneurial farms in which the land owner is engaged in day-to-day farming for a living, and investment farms, in which the land owner's interest is limited to a commercial investment, and in which the normal management and operation of the farm is provided by a hired professional.

The agricultural heritage of Nebraska is the homestead heritage. Traditionally, this state's farm and ranch operations have been owner-operated. The farmers and ranchers of this state have been entrepreneurs; their relationship to the land has been one of steward as well as producer; their relationship to the community has been one of citizen as well as investor. Their return on investment has been measured not only in gross economic terms, but in the strength of community institutions as well.

This report is limited in scope to a review of developments in a six county region in north central Nebraska including: Brown, Rock, Holt, Antelope, Pierce and Madison counties, and in Dundy County in southwestern Nebraska. (See figure 3) Two counties are given special

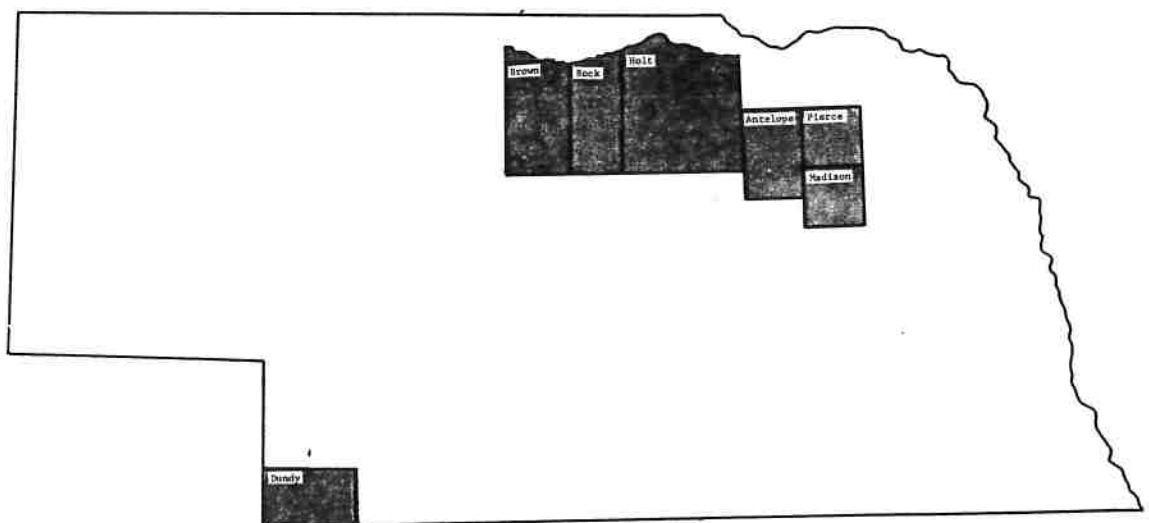


FIGURE 3
REPORT STUDY AREA

treatment: Holt, where development has occurred over the longest period and may have peaked; Dundy, where development is a recent phenomenon and appears to be accelerating.

It is not our goal to answer the many questions which this report raises. That is the charge of responsible public officials and, in a deeper sense, of the public as a whole. It is our purpose, however, to ask the right questions, and to probe the conscience of a state whose heritage is justifiably proud.

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SECTION 3
A SURVEY OF IRRIGATION DEVELOPMENT IN NORTH CENTRAL NEBRASKA

In order to evaluate the extent of investor involvement in north central Nebraska, we surveyed irrigation well registrations filed with the Nebraska Department of Water Resources. Since 1960, all well owners have been required to register their wells. The registration requires disclosure of the legal description of the land on which the well is located and the land owner's name and address.

Antelope, Brown, Holt, Madison, Pierce and Rock counties were surveyed for the years 1960 through mid-1975. These counties were selected because soil and water characteristics in portions of these counties are ideal for pivot development, and extensive development has occurred in these counties. Also, because there is little or no gravity pump irrigation in these counties, any existing irrigation wells can be assumed to supply sprinkler systems only.

Each parcel of land was classified according to its owner as



USDA Soil Conservation Service

Drilling for Irrigation Water. Over 300 irrigation wells were drilled in a six-county North Central Nebraska region in the first six months of 1975, bringing a fifteen-year total to 2,466. About one-third of the wells each year have been registered to non-farm operators, most of whom are either absentee or corporate investors.

either operator-owned or investor-owned. The investor-owned class was divided into three sub-classes based on differences in investor characteristics. The three subclasses are: Multiple or Corporate investor, Absentee investor, and Local Non-farm investor. The classification was based on information available at the Nebraska Secretary of State's Corporate Division, County Agricultural Stabilization and Conservation Service offices (ASCS), and the personal knowledge of the investigators.

The definitions used for each of the classes and subclasses are:

Operator-Owned

Individual or family-owned farm in which the owner(s) are directly involved in (or retired from) the day-to-day labor and management of the farm (includes proprietorships, partnerships and corporations whose owners are so involved).

Investor-Owned

A farm in which the majority of ownership interest is held by one or more persons or legal entities not directly engaged in the day-to-day labor and management of the farm. Investor-owned farms are operated by persons or firms who are employed specifically for this purpose. This class is divided into three subclasses:

Multiple/Corporate: in which there are more than one investor or in which the investor is a corporation or partnership which is owned by more than one investor or by unknown investors. Joint ventures, multi-household partnerships or corporations, or any corporation organized to engage primarily in a non-farm business are included in this subclass.

Absentee: in which an individual investor who owns a farm does not live in the county where the farm is located or in any of the adjacent counties.

Local Non-Farm: in which an investor individually owns a farm, lives in the county in which the farm is located, or in an adjacent county.

The results of this procedure are presented in Table 1.

TABLE 1
NEW IRRIGATION WELL REGISTRATIONS IN SIX NEBRASKA COUNTIES

YEAR	Operator- Owned	Investor-Owned				TOTAL
		Multiple/ Corporate	Absentee	Local Non-Farmer	Total	
1960	2	0	0	1	1	3
1961	6	0	3	1	4	10
1962	9	1	5	1	7	16
1963	14	3	4	1	8	22
1964	15	0	8	1	9	24
1965	27	6	5	1	12	39
1966	69	25	35	1	61	130
1967	112	18	16	6	40	152
1968	151	7	16	5	28	179
1969	129	20	10	7	37	166
1970	110	21	27	14	62	172
1971	164	21	17	12	50	214
1972	251	63	28	13	104	355
1973	192	66	38	15	119	311
1974	260	43	33	29	105	365
1975*	232	25	37	14	76	308
TOTAL	1,743	319	282	122	723	2,466

*First six months of 1975

Although the total number of wells registered to Operator-Owners has exceeded the total number registered to Investors in every year, the data show that 29.3 percent of the registered wells in the six county region are in the Investor class. Their percentage of the total and of the number of new wells has remained fairly constant during the 15 year period surveyed. With the exception of a leveling off period in 1968 through 1970 and a slump in 1973, the total number of new wells in these six counties has grown each year. However, the slowdown was apparent only for the Operator-Owner class during these periods.

Within the Investors, the proportion held by each subclass has changed from year to year, but overall the greatest share of the development has been equally divided between Absentee and the Multiple/Corporate investors. Local Non-Farmers have been less important.

If each of the wells registered to the Investor class irrigated one quarter section of land, the acreage under irrigation by this class in the six county region would total over 115,000.

However, two problems with this procedure prevent anything more than general conclusions based on this data.

First, wells are not always registered at the time they are drilled. This makes analysis of trends from year to year difficult. Secondly, well registration is required only once, at the time of drilling. Subsequent sales of land and well do not require new registrations. Therefore, well registrants are not necessarily current owners.

We assume that the errors in the date of well registrations are equally distributed among the classes and therefore do not create any bias in the results.

However, the second problem is a more serious source of possible error, especially since the drilling and registration of a suitable well is sometimes a precondition of sale. Therefore, a land owner may drill and register a well immediately before selling. Current ownership may therefore vary considerably from the ownership indicated at the time of the well registration.

In order to evaluate the reliability of well registrations as a measure of current ownership, we compared both current and past ownership as recorded in deed records with the well registrations for those quarter sections with both a pivot system and a well. This procedure was applied for Holt County only, where the location of actual pivots could be determined from aerial photographs. Holt County has approximately 30 percent of the registered wells in the six-county region. The results of this comparison are presented in Table 2.

TABLE 2
COMPARISON OF ORIGINAL WELL REGISTRANT WITH CURRENT OWNER
IN HOLT COUNTY, 1975

Original Well Registrant Matches Current Owner	525
Sold by Original Well Registrant	92
Never Owned by Original Well Registrant	58
Insufficient Data	22
State-Owned School Lands	<u>11</u>
Total Well Registrants	708

Approximately 75 percent of the well registrants are the current owners. Thirteen percent are clearly identified as having owned the land at the time the well was registered but subsequently sold it. The disposition of these 92 parcels is shown in Table 3.

Table 3 reveals that most buyers were in the Investor class (53), although so were most sellers (60). Within the Investor class, the Multiple/Corporate subclass was most active (seller 32 times, buyer 37 times). Overall, however, the Operator class has a net gain of seven parcels from the Investor class.

TABLE 3
DISPOSITION OF IRRIGATED LANDS IN HOLT COUNTY
SOLD BY ORIGINAL WELL REGISTRANT

Quarter Sections
Sold By:

		Operator	Investor			Total Buyers
			Multiple/ Corporate	Absentee	Local Non-Farmer	
Quarter Sections Bought By:	Operator	12	6	21	0	39
	Multiple/ Corporate	11	20	5	1	37
	Absentee	8	6	0	0	14
	Local Non-Farmer	1	0	1	0	2
	Total Sellers	32	32	27	1	92

Inasmuch as 75 percent of the parcels in the sample are currently owned by the owner who registered the well, and of the 92 whose sales are traceable, there has been a net change from class to class of only seven (about one percent of the total sample), we find well registrations to be a reliable measure of current ownership of pivot irrigated lands in the six county region.

We feel it is safe to say that from one-fourth to one-third of the land irrigated by pivots in the six county region are not owned by farm operators.

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SECTION 4
CENTER PIVOT DEVELOPMENT IN HOLT AND DUNDY COUNTIES

Two counties were selected for detailed analysis, one from among the six north central Nebraska counties included in the general survey of well registrations, and one in southwestern Nebraska.

Holt County was selected because of the intensity and age of its center pivot development. In Holt County, there are over 1,000 pivot systems (10 percent of the state total), and they are clustered in the northern part of the county. (See figure 4) The first pivots in the county were installed in the mid-1950s. As we have pointed out, they were the first in commercial use in the world.

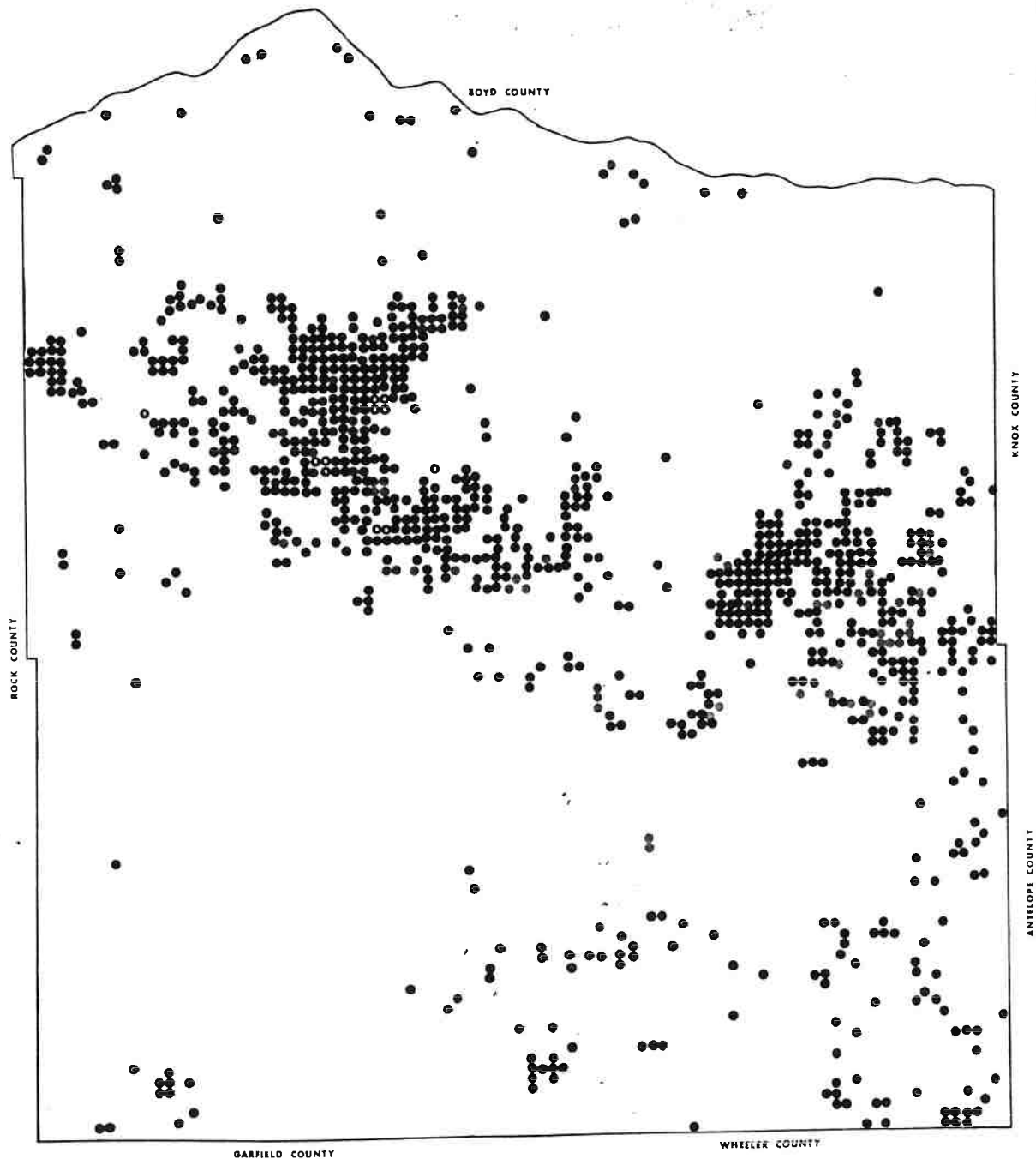
Dundy County was selected for different reasons. First, Dundy County has not had pivots very long: The first was established in the 1960s. Secondly, Dundy is experiencing a very rapid growth in irrigated acres, from 36,100 in 1971 to 53,400 in 1974.¹⁰ About two-thirds of those acres are irrigated by pivots, and pivots are being installed at an accelerating pace.

Similar methods were used in both counties to inventory pivot systems and to determine the owners of the land on which they were located.

High-altitude, color, infrared transparencies from May, 1975, were used to determine the location of all center pivot irrigation systems in Dundy County. Low altitude black-and-white photographs taken in July, 1974, and updated by ASCS personnel through June, 1975, were used to determine the location of all center pivots in Holt County.

A 15 year ownership history and other pertinent information for each parcel of irrigated land was obtained from the Numerical Index, Deed Records, Miscellaneous Records, and Financing Statements at county court houses. Ownership was assumed to be consistent with the title recordings, although in some instances rumors and other informal information seemed to indicate that unrecorded land transfers had occurred. Because we could not verify all such suggestions, we confined ourselves to the use of recorded title. We classified each owner according to the owner's relationship to the farm operation.

Characteristics revealed in deeds, financing statements, well registrations, articles of incorporation and occupation tax reports (filed with the Secretary of State), Polk's City Directories, Dunn & Bradstreet's Million Dollar Market Directory, ASCS farm cooperators list, as well as the personal knowledge of the investigators were used as the basis for classification.



- Operator-owners
- Absentee Investors
- Local Non-Farm Investors
- State School Lands
- Multiple/Corporate Investors

FIGURE 4
IRRIGATION DEVELOPMENT, HOLT COUNTY, 1975

We necessarily had to make some difficult judgments in classifying the owners and a word about our interpretations of the class definitions is in order.

Lands owned by persons who are involved in the day-to-day practice of farming those lands directly are classified as Operator-Owned. This class includes some land owned by persons who might not meet a popular definition of a farm operator.

Widows, retired farmers, part-time farmers, active farmers who own but do not farm the particular land being classified, and absentee owners who are heirs of farm operators and whose relatives farm the land being classified are all included as farm operators. We have given this rather broad interpretation to the farm operator concept in order to avoid classifying persons as investors who do not have investor motives. Some of the persons classified as farm operators may not be involved in day-to-day farming, but they do have an historical operator relationship with the land. Furthermore, their current ownership status is not the result of any conscious decision to invest in irrigation development.

This broad interpretation of the Operator-Owned class may tend to understate the extent of investor involvement in irrigation. For example, it is possible that a retired farmer may rent land to an investor-owned corporation. These quarters would be classified as Operator-Owned quarters. This seems inappropriate, however, we are concerned primarily with the ownership and control of the productive resources of the region. We are more interested in investor ownership of land than we are with investor ownership of farming operations, although the two are not entirely separable.

For similar reasons, we have classified absentee owners in the Investor class if the absentee owner has had no involvement with the operation of the farm prior to its development for irrigation, or if the absentee owner has no family relationship to the hired manager or tenant who currently operates the farm.

The Multiple/Corporate subclass was interpreted to include both incorporated and unincorporated firms. Any incorporated firm which is a stock corporation whose shares are traded publically, or which is organized for some purpose other than farming, or which is a non-Nebraska corporation or which is owned by non-farm operators is included in this subclass. Any unincorporated firm (such as a partnership) which is owned by a group of investors who are not principally engaged in farming is also included in this subclass.

HOLT COUNTY

Using these interpretations, we classified the irrigated lands in

TABLE 4
OWNERSHIP OF IRRIGATED QUARTER SECTIONS, HOLT COUNTY, 1975

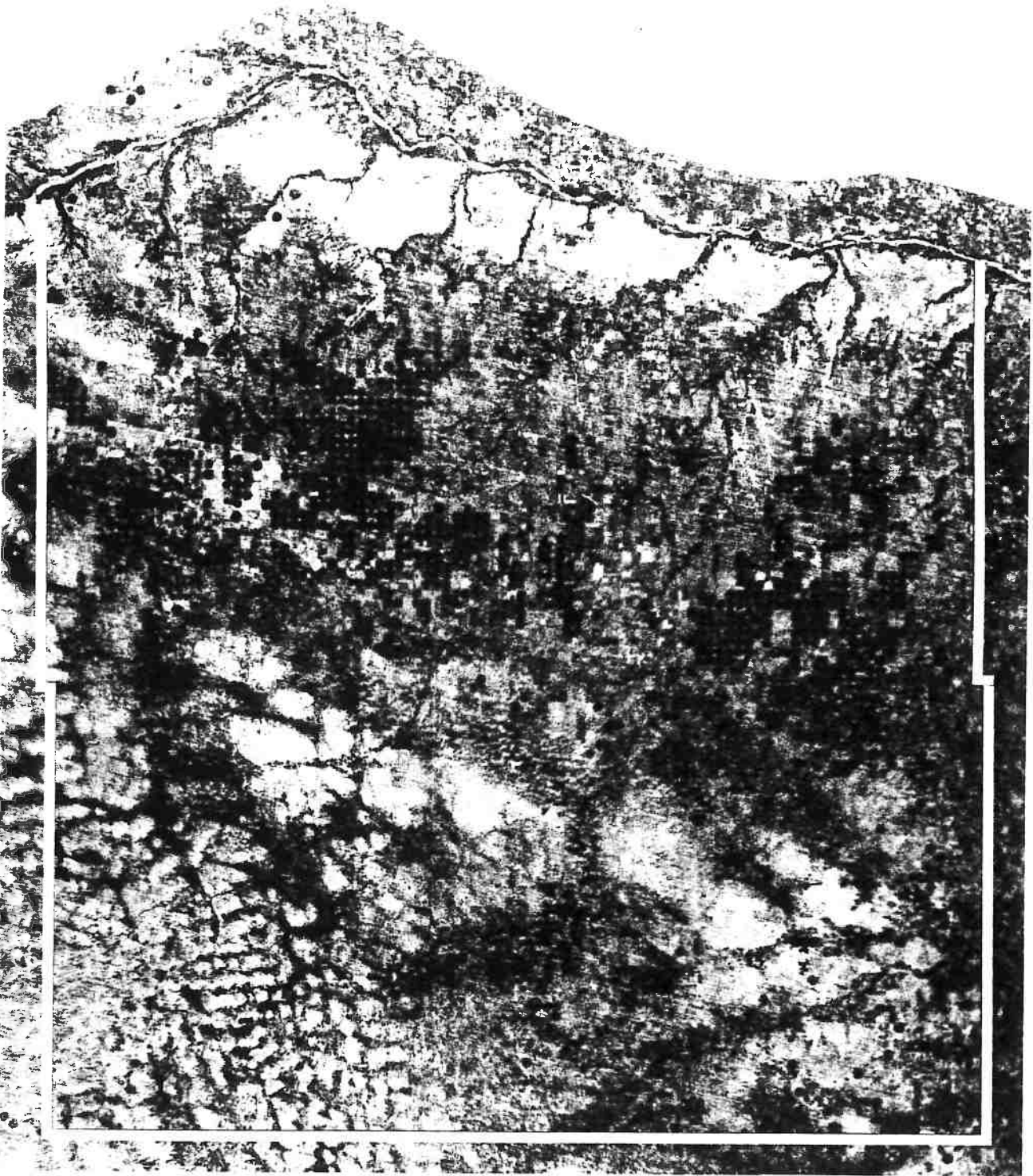
<u>CLASS</u>	<u>NUMBER OF OWNERS</u>	<u>NUMBER OF PIVOTS</u>	<u>PIVOTS/OWNER</u>
Operator-Owner	357	638	1.8
Investor-Owner	71	354	5.0
Multiple/Corporate	27	255	9.4
Absentee	40	86	2.2
Local Non-Farmer	4	13	3.3
State School Lands	<u>1</u>	<u>11</u>	11.0
TOTAL	429	1,003	2.3

Holt County. The results are summarized in Table 4 and depicted in Figure 4. An inventory of the individuals and firms included in each subclass of the Investor class is included in the Appendix. In the summer of 1975, there were 1,003 pivot systems in Holt County. The lands irrigated by these pivots are owned by 429 owners, averaging 2.3 systems per owner.

Most of the owners are in the Operator class (83 percent), although they average only 1.8 systems per owner for a total of 638 systems (64 percent of all pivots). The Investor class by contrast amounts to only 17 percent of the owners, but accounts for 35 percent of the pivots. The Multiple/Corporate subclass has the largest number of pivots per owner (9.4). Although they represent only six percent of the owners, they own 25 percent of all pivots. The Local Non-Farm subclass is very small, having only one percent of both owners and pivots.

The pivots per owner figures in Table 4 do not necessarily reflect the level of concentration in the various classes and subclasses. Table 5 shows the number of owners by the number of pivots that they own. The overwhelming majority of the owners in the Operator class (96 percent) own four or fewer pivots. On the other hand, the Investor class tends to have larger ownership units, especially in the Multiple/Corporate subclass where only 56 percent of the owners have four or fewer pivots. The largest owner in the Multiple/Corporate subclass owns 127 pivots, which is half of the subclass total, 36 percent of all investor-owned pivots, and 13 percent of all pivots in the county.

In addition, some Absentee and Local Non-Farm Investors are also officers, directors and stockholders in firms which are in the Multiple/



Circles Everywhere. Northern Holt County irrigation from LANDSAT Satellite shows the intensity of center pivot development in the area where the first pivot was commercially used in the mid-1950s. The county has experienced steady growth in pivots for 20 years and had 1,003 pivots in 1975, of which 354 were owned by non-operator investors. One public stock corporation alone owns 127 irrigated quarter sections and leases an additional 21, for a corn farm empire of over 23,000 acres. Most of the pivots owned by non-farmers are operated by hired employees or professional farm managers.

TABLE 5
NUMBER OF OWNERS BY NUMBER OF IRRIGATED QUARTER SECTIONS OWNED,
HOLT COUNTY, 1975

NO. PIVOTS OWNED	NO. OPERATOR-OWNERS	NO. INVESTOR-OWNERS				TOTAL
		ABSENTEE	MULTIPLE/ CORPORATE	LOCAL NON-FARMER	TOTAL	
1	220	20	4	3	27	247
2	83	7	5	0	12	95
3	29	6	4	0	10	39
4	10	4	2	0	6	16
5	6	2	3	0	5	11
6	4	0	3	0	3	7
7	1	0	0	0	0	1
8	0	1	1	0	2	2
9	0	0	2	0	2	2
10	0	0	0	1	1	1
11	1	0	1	0	1	2
12	0	0	0	0	0	0
13	0	0	0	0	0	0
14	0	0	0	0	0	0
15	1	0	0	0	0	1
16	0	0	0	0	0	0
17	0	0	0	0	0	0
18	1	0	0	0	0	1
19	1	0	0	0	0	1
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24	0	0	1	0	1	1
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127	0	0	1	0	1	1

Corporate subclass. Within the Multiple/Corporate subclass, there are several instances in which firms have interlocking directorates. These combinations and interlocks would increase the degree of concentration of Investors beyond that shown in Table 5.

There are ten such interlocks and combinations involving 27 members of the Investor class. These ten interlocks and combinations own a total of 94 pivot systems. The top three own 55 pivots. When these three are added to the two largest firms in the Multiple/Corporate subclass, these five "owners" have 206 pivot systems, or 21 percent of the total.

Who Are the Investors in Holt County?

The investors who own farms with pivot systems in Holt County are a varied group. However, there are some notable characteristics about them.

The absentee owners are mainly Nebraskans primarily engaged in business pursuits other than farming. Of the 40 absentee owners, 28 are Nebraska non-farmers. Sixteen of these live in either Omaha (6), Grand Island (5), or Columbus (5). The rest are scattered throughout the state. They represent a variety of occupations including doctors, bankers, retail business people, grain elevator owners, irrigation equipment manufacturers and corporate executives. There seems to be no significant occupational characteristic of the absentee investors, other than the fact that they are overwhelmingly non-farmers.

Only four of the absentee investors who are Nebraska residents are primarily engaged in farming. Eight of the absentees are non-Nebraskans; only two of them live in an adjacent state (Colorado and South Dakota). The other six are scattered in five states (California is the residency of two). One absentee investor's residency is unknown. (We only know he is not a local resident.)

The Multiple/Corporate subclass consists of a mixture of companies whose primary business may or may not be farming. Twelve of the 27 firms in the subclass are incorporated and identify their primary business as farming. These 12 own 57 pivot systems. They are placed in the Multiple/Corporate subclass because they are owned by non-farmers, groups of non-farmers, or absentees. None of their owners are engaged in the day-to-day farming operation of the land in Holt County on which there are pivots. Two other companies which are not incorporated, and therefore have not registered their business purposes with the Secretary of State, are also primarily engaged in farming in Nebraska and are owned by absentee non-farmers. One of these owns 24 pivots; the other owns one.

Another 12 companies owning 46 pivots are incorporated, but primarily engaged in a non-farm business. They are also owned by persons not primarily engaged in farming. Nine of them are farm input supply companies or crop marketing firms, and two are real estate companies. One is a financial firm.

Finally, one investor-owned company stands out from the rest. It is the only company owning land in Holt County which is a non-Nebraska corporation, the stock of which is publically traded on the American Stock Exchange. This company, which has approximately 1,000 shareholders, is National Alfalfa Dehydrating and Milling Company. We shall describe it in detail later.

Who Operates Investor-Owned Farms in Holt County?

Farms in the Investor class are operated in one of four ways:

1. By tenant farmers who have a conventional cash rent or crop share arrangement with the owner;
2. By the employees of the owner who provide both management and labor for a salary or wage;
3. By custom farm managers and their crews who provide the entire package of services involved in producing, harvesting, and marketing a crop, usually on a fee per acre basis;
4. By a Multiple/Corporate firm which operates the farm on a lease arrangement.

We reviewed the operating arrangements of investor-owned farms in Holt County using data supplied to us by ASCS. ASCS has traditionally maintained information on the operating arrangements of all farms under the provisions of the production stabilization programs. These programs have generally been abandoned or severely curtailed under recent national farm policy. Thus information on some of the farms, particularly farms which have only recently begun producing feed grains or which have recently been sold, is not available.

Nevertheless, ASCS was able to provide us with operating data on 78 percent of the Multiple/Corporate-owned farms, 78 percent of the Absentee-owned farms, and 75 percent of the Local-Non-Farmer-owned farms. In each instance, the farms for which there was no information were the smaller farms in the subclass. Therefore, data were available on 91 percent of the pivots in the Multiple/Corporate subclass, 79 percent of the pivots in the Absentee subclass, and 92 percent of the pivots in the Local Non-Farm subclass.

The data for operating arrangements of Investor Owned irrigated farms in Holt County are presented in Tables 6 and 7.

The data show that most investors for which information is available lease land to independent tenant farmers (65 percent), but these tenants farm a disproportionately smaller percentage of the investor-owned land (27 percent). The other 73 percent of the Investor-Owned irrigated quarter sections are farmed by hired personnel of one type or another. The larger Investor-Owned farms, particularly those in the Multiple/Corporate subclass, favor direct employment of labor

TABLE 6
INVESTOR-OWNED FARMS BY TYPE OF OPERATOR, HOLT COUNTY, 1975

TYPE OF OPERATOR	CLASS OF OWNER			TOTAL
	Multiple/ Corporate	Absentee	Local Non-Farmer	
Employees	9	2	1	12
Custom Manager	2	4	1	7
Tenant Farmer	10	25	1	36
Multiple/Corporate	2	0	0	2
Unknown	6	9	1	16
TOTAL FARMS	29*	40	4	73

*The number of Multiple/Corporate farms totals 29 instead of 27 because two of them use two different operator arrangements

TABLE 7
INVESTOR-OWNED IRRIGATED QUARTER SECTIONS BY TYPE OF OPERATOR,
HOLT COUNTY, 1975

TYPE OF OPERATOR	CLASS OF OWNER			TOTAL
	Multiple/ Corporate	Absentee	Local Non-Farmer	
Employees	143	10	10	163
Custom Manager	50	7	1	58
Tenant Farmer	31	51	1	83
Multiple/Corporate	7	0	0	7
Unknown	24	18	1	43
TOTAL $\frac{1}{4}$ -SECTIONS	255	86	13	354

and management. This is the case in 52 percent of all Investor class quarter sections and 62 percent of all Multiple/Corporate subclass quarters. Only the Absentee subclass seems to show a preference for the tenant farmer. Sixty-three percent of the absentee owners have a tenant farmer and 75 percent of all Absentee-Owned land is farmed by tenants.

Custom farm managers are utilized by 13 percent of the investor owners, and they farm 19 percent of the Investor-Owned acres. Eighty-

six percent of the acres farmed by these custom farm managers are owned by two Multiple/Corporate owners.

The Biggest of the Big Farms in Holt County

We have presented a statistical picture of irrigation development in Holt County. We are confident that the data accurately reflect conditions in the county. However, irrigation development in Holt County can hardly be described by data alone. No description of irrigation in Holt County is complete without outlining the role of one corporation which has been largely responsible for the rapid growth in the use of pivots in Nebraska. That corporation is National Alfalfa Dehydrating and Milling Company (NADM).

NADM is sometimes known by other names: P & P Farms or P & P Farm Supply from a predecessor company name, or National Farm Products, which is the current name used by the company in its Nebraska operations. However, National Alfalfa Dehydrating and Milling Company remains the legal name of the corporation which overwhelms all other irrigated farms in Holt County in the sheer size of its operations.

The company owns 127 irrigated quarter sections in Holt County, most of which are operated by company employees. Some of the sections are farmed under contract with a custom farming company. In addition, NADM leases 21 quarter sections, primarily from individuals and corporations which are closely related to NADM.

As its name implies, NADM is an alfalfa processor. It owns 17 production mills in a variety of midwestern and southern states, including one in Nebraska.¹¹ The Alfalfa Division of the company has generally been profitable over the years. NADM's introduction to farming occurred in 1969 when it merged with the business enterprises of Charles R. Peterson, (of P & P Farms) a Holt County native who was in on the ground floor of the pivot boom in Holt County. At the time of the merger, Peterson's operation reportedly included 8,500 irrigated acres, as well as a cattle feeding and farm supply operation.¹² The superior working capital of NADM was needed to finance expansion. Peterson, however, gained effective control over NADM in the merger. He technically still owns a little less than half of NADM, and until 1974 served as President and Chief Executive Officer of the company. Developments have reduced his power in the corporation significantly. The rest of the stock is owned by about a thousand stockholders; shares are traded on the American Stock Exchange. NADM is a Delaware corporation, but its corporate headquarters are in Kansas City, Missouri.

The company's Farm Feedlot and Farm Supply Division accounted for about three-fourths of NADM's total revenues in 1975. It is expected to contribute a proportionately larger share in the future because of expanded acreage under irrigation. Nebraska is not the only theater

for NADM's farming operations. Besides the 25,120 acres which it has here, NADM has nearly 17,000 acres under its program in Texas, and over 12,000 acres owned by a subsidiary, Lakin Farms, in Kansas. The stated value of NADM's farm real estate is over \$9,200,000, a figure which appears to be conservative. The 233 deep well self-propelled irrigation systems on the company's farms are valued at \$6,365,232.

In the past, NADM farms have produced only corn. But current plans are to diversify operations to include wheat, alfalfa, milo and edible beans in order to make better use of equipment and personnel. In fiscal year 1975, the company employed 100 full-time personnel in its farming division (compared with 107 full-time, 190 seasonally in the Alfalfa Division). The Farm Feedlot and Farm Supply Division grossed \$14,682,000 and had net earnings of \$2,228,000. It has a grain storage capacity in Holt County alone of two million bushels.

NADM owns about 6,700 acres in Holt County which are leased to Green Circles Farming Company, a custom farm management company owned by Donald Chohon and Ronald M. Shonka of Holt County. The terms of the lease between NADM and Green Circles (filed at the Holt County Courthouse) set out that NADM will lease to Green Circles up to 44 quarter sections of land, each with a pivot system, a well which produces 750 gallons per minute and other irrigation equipment. NADM will pay for one-half of the seed, fertilizer, herbicide, insecticide, and fuel, oil and filters consumed by the irrigation motors. It will also pay property taxes and one-half the insurance premium on stored grain.

Green Circles agrees to supply personnel and equipment, to pay the other half of the production costs and to be responsible for all decisions relating to production and harvesting, including irrigation management decisions. Green Circles is forbidden under the terms of the lease from engaging in farming on land which it owns or which is owned by any of its stockholders or their relatives.

Each company has an undivided one-half interest in the crop, although the lease sets out crop disposal terms which appear to give NADM a greater control over the crop.

Green Circles is second only to NADM as the largest operator of pivots in Holt County. Besides NADM's 41 pivots, the company operates another 18 pivots under leases with other investor-owners. It also farms land owned by operator-owners.

Its operation, however, depends largely on the land leased to it by NADM. Although Green Circles does not operate on a straight fee basis, as most custom farm services do, it really serves NADM as a custom farmer.

In its 1975 annual report to the Securities and Exchange

Commission, NADM sums up its relationship to Green Circles this way: "...labor and certain other expenses are contracted with non-company personnel for 50 percent of the crops produced."

Unfortunately for NADM, it also owns feedlots in association with some of its farming operations. These feedlots have fed cattle for packers and other customers. 1974 was a disastrous year for cattle feeders generally, and for NADM in particular. Due largely to losses from the cattle feeding operation, the company suffered a net loss of over \$5,000,000 in fiscal 1974. Rumors spread that the company was on the brink of collapse. NADM stock was temporarily suspended from trade on the American Stock Exchange because of legal disputes arising over the company's alleged misuse of customers' cattle and corn inventories. Iowa Beef Processors, which had a 1.5 million bushel corn dispute with the company, was among the claimants knocking at the door in early 1974.

Peterson was fired in February, 1974, for disobeying the Board of Directors regarding dealings in cattle futures contracts. He was replaced by C. L. William Haw, a former Executive Vice-President of Commerce Bank in Kansas City, Missouri. When Haw took over in April, 1974, he found the company "suffering from illiquidity, unprofitability, lack of working capital, and an uncertain future." 13

As a result of this chaos, Peterson, who has been sued by the company for \$2,100,000, has authorized that record ownership of most of his shares of stock in NADM be transferred to the Crown Financial Corporation of Philadelphia, Pennsylvania, and has given to Crown an irrevocable proxy to vote those shares. These arrangements will terminate only if Peterson pays back a \$4,450,000 loan he made with the company in 1970. He had until December, 1975. At the time of this writing, it is unknown if he has succeeded in paying this loan.

This has placed effective control of the corporation in the hands of Crown Financial Corporation, which is a subsidiary of Crown Cork and Seal Company, a metal can manufacturer. Two officers of Crown were placed on the NADM Board of Directors in April, 1974. (A complete list of the Officers and Directors of NADM is included in the Appendix.)

The new management of NADM has taken steps to put the company back on its feet. The company sold an 18,190 acre tract acquired in North Carolina in 1972, took out a \$5,000,000 insurance company loan to refinance land in Holt County, and contracted to sell the 1975 corn crop at prices which averaged \$2.75 per bushel. Five of seven law suits arising from the 1974 cattle feeding fiasco have been settled. Total earnings jumped back into the black to the tune of \$3,004,000 in fiscal 1975 and in the same year company land under cultivation increased by 40 percent. Management does not plan to open the feedlots which were abandoned in 1974. (Haw's report to

the stockholders appears in the Appendix.)

Thus, NADM's impressive Holt County empire is intact despite the 1974 cattle feeding disaster. The 148 quarter section irrigated corn farm remains the biggest thing in irrigated farming in Nebraska. It is roughly equivalent to 82 of the typical operator-owned irrigated farms in Holt County.

DUNDY COUNTY

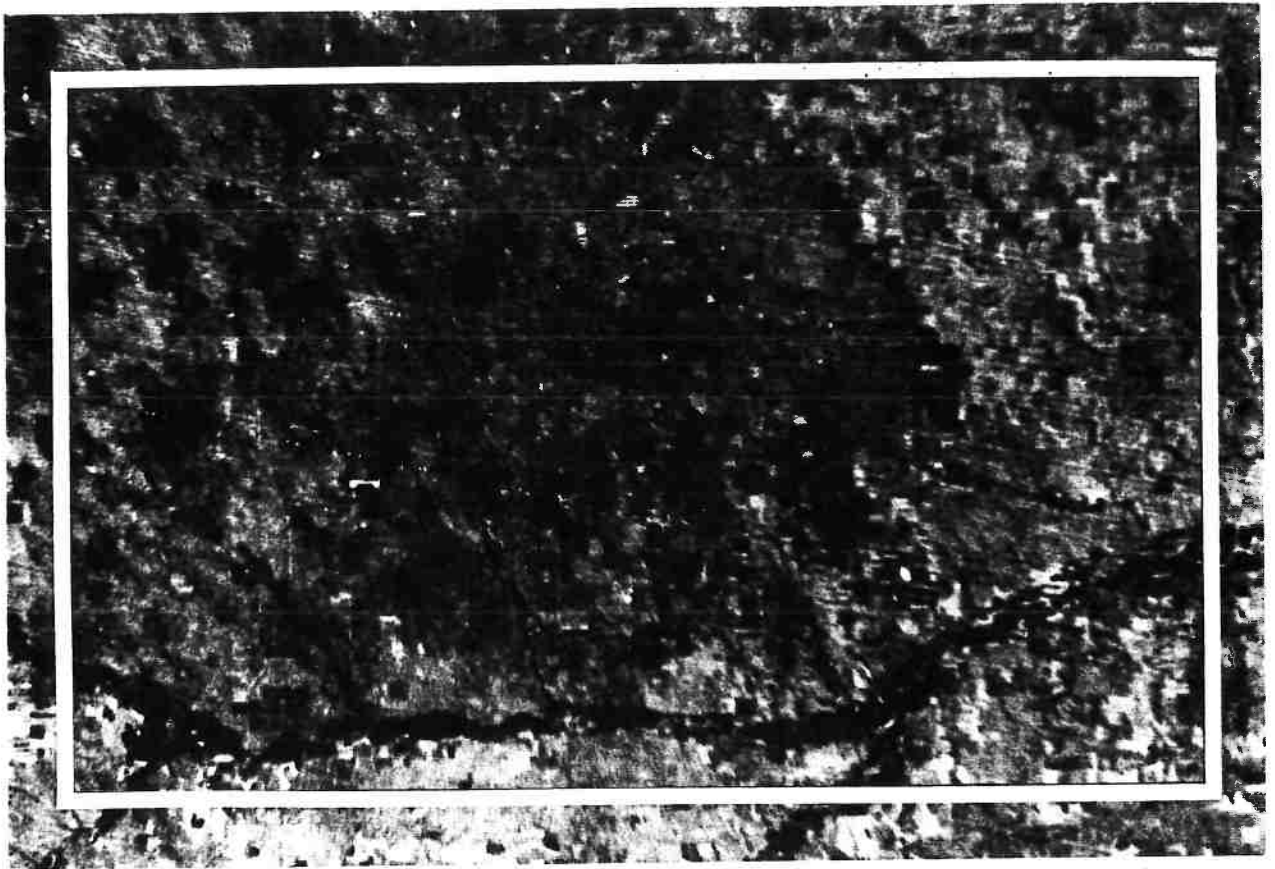
In Dundy County, as in Holt County, irrigated quarter sections were classified by owner. The results are presented in Table 8.

Of a total of 269 irrigated quarter sections, 67 percent (179) are owned by 107 operator-owners averaging 1.7 pivots per owner. Thirty-three percent (90) are owned by 13 investor-owners. Eighty-eight percent of the irrigated quarter sections owned by the entire Investor class belong to the four firms in the Multiple/Corporate subclass, averaging nearly 20 pivots per firm. The remainder of the pivots are classified as Absentee. Personal knowledge of ASCS personnel and recorded ownership history indicate that all of the absentee owners have an historical relationship to the land, ownership being the result of inheritance rather than acquisition. The absentee owners also have personal relationships with long standing local tenants.

Although the percentage of investor ownership of center pivot irrigated land is similar in both Holt and Dundy county (35 percent and 33 percent respectively), development in Dundy County, especially by investor interests has **not** been as gradual as evidenced in Holt County. Most investor development has taken place in the past two years.

TABLE 8
OWNERSHIP OF IRRIGATED QUARTER SECTIONS, DUNDY COUNTY, 1975

<u>CLASS</u>	<u>NUMBER OF OWNERS</u>	<u>NUMBER OF PIVOTS</u>	<u>PIVOTS/OWNER</u>
Operator-Owner	107	179	1.7
Investor-Owner	14	90	6.4
Multiple/Corporate	4	79	19.8
Absentee	10	11	1.1
Local Non-Farmer	0	0	0
TOTAL	121	269	2.2



New Developments. Dundy County irrigation from LANDSAT Satellite shows scattered development most of which has occurred in the 1970s. 33 per cent are owned by investors, and that percentage has grown rapidly in recent years. Dundy County has been the site of a new development in investor financing of irrigation in Nebraska - the limited partnership fund. The limited partnership is attractive to the high income non-farm investor because it provides the protection of the corporation (limited liability), while providing the tax advantages of the partnership.

Well registrations for the years 1960-75 reflect a gradual increase in the use of water for irrigation on the part of Operator-owners. Registrations also indicate, however, that in 1974 and continuing in 1975, well drilling activity increased sharply for the investor owners, who suddenly overshadowed the operator in the number of new wells registered. (See Table 9)

Actual development of pivots in Dundy County reflects the same trend toward investor ownership as indicated by well registration data. A comparison of aerial photographs indicate that the number of center pivot quarters owned by operators increased from a total of 143 to 179 between 1974 and 1975 (an increase of 25 percent in one year.) In the same year, the number of center pivot quarters owned by investors rose from 29 to 90 (an increase of 210 percent.) (See Table 10)

TABLE 9
NEW IRRIGATION WELL REGISTRATIONS, DUNDY COUNTY

YEAR	Operator- Owned	Investor-Owned				TOTAL
		Multiple/ Corporate	Absentee	Local Non-Farmer	Total	
1960	4	0	0	0	0	4
1961	6	0	2	0	2	8
1962	2	0	0	0	0	2
1963	0	0	1	0	1	1
1964	10	0	2	1	3	13
1965	13	0	3	0	3	16
1966	11	2	0	0	2	13
1967	7	1	1	0	2	9
1968	21	0	0	1	1	22
1969	26	5	1	0	6	32
1970	24	2	1	0	3	27
1971	41	2	1	0	3	44
1972	24	0	0	0	0	24
1973	13	3	1	0	4	17
1974	30	35	9	1	45	75
1975*	25	25	2	0	27	52
TOTAL	257	75	24	3	102	359

*First six months of 1975

TABLE 10
OWNERSHIP CHANGES OF IRRIGATED QUARTER SECTIONS, DUNDY COUNTY

<u>CLASS</u>	<u>1974 TOTAL</u>	<u>1975 TOTAL</u>	<u>PROPOSED FOR ELECTRICAL SERVICE</u>
Operator-Owned	143	179	6
Investor-Owned	29	90	68
Multiple/Corporate	25	79*	68
Absentee	4	11	0
Local Non-Farmer	0	0	0
TOTAL ¼-SECTIONS	172	269	74

*Six quarter sections were sold by a Multiple/Corporate owner (Ceres Land Co.) to an Operator-Owner (Carmel Land Co.) on Feb. 28, 1975, which we reflect here.

The growth of investor ownership caused the farm operators' share of the total number of pivot systems in the county to fall from 83 percent in 1974, to 67 percent in 1975. The percentage of systems owned by investors rose from 17 percent to 33 percent.

This trend can be expected to continue according to requests for electrical service for pivots made to the Southwest Public Power District. These requests indicate that most of the development which will need electrical service in the future is being planned by investor-owners. Other energy sources may be intended for use by operator-owners, however, and the electrical hookup requests should only be regarded as a statement of intent by investors to increase their activity. It does not necessarily reveal a lack of planned development by operator-owners.

Within the Investor class, almost all of the increase in center pivot development in 1975 took place in the Multiple/Corporate subclass. Of the 61 new pivots owned by investors in 1975, 60 were installed by three investor-owned firms. (See Table 11)

Ownership of irrigated land in Dundy County is even more highly concentrated than in Holt County. Much of the land is owned by a few people and a large number of owners hold very little of it. A large proportion of owners (92 percent) have less than four quarter sections of center pivot irrigated land. On the other end of the scale four percent of owners, who have more than four quarter sections each, hold 32 percent of the land. The largest owner of irrigated lands in the County, Cornhusker Farms owns 18 percent of the pivots.

TABLE 11
IRRIGATED QUARTER SECTIONS OWNED BY MULTIPLE/CORPORATE INVESTORS, DUNDY COUNTY

<u>NAME</u>	<u>1974 TOTAL</u>	<u>NEWLY-OPERATING IN 1975</u>	<u>1975 TOTAL</u>
Allard Corporation	3	17	20
Cornhusker Farms	13	36	49
Decatur Dolson	0	7	7
Expro, Incorporated	3	0	3

Who Are the Investors in Dundy County?

The bulk of the investor capital involved in irrigation development in Dundy County has been introduced there in the past two years. Most of this investment has entered the county through investment organizations which makes establishing the identity of the investors difficult.

It is apparent however, that most of the investors who provide the capital for the four companies which have generated most of the growth in pivot irrigation in the recent years in Dundy County are non-Nebraskans. Unlike Holt County, in which the source of most investments is identifiable, we have found the source of capital surging into Dundy County more difficult to trace.

Two of the four companies, Allard and Expro, are Nebraska corporations. Allard was incorporated only in 1975 and has yet to file an Occupation Tax Report with the Secretary of State. It was incorporated by a Nebraska attorney undoubtedly acting on behalf of another party. A Financing Statement filed in the Dundy County Courthouse indicates that the company's mailing address is the office of a New York City law firm. Furthermore, its Articles of Incorporation indicate that the Directors of the corporation must be elected by shareholders, and include other provisions which imply a complex organization which is not necessarily limited to a small number of closely related shareholders.

The other Nebraska corporation, Expro, has owned three pivots in Dundy County for a number of years. It is an Omaha-based company whose Board of Directors includes realtors and investment company executives. However, it does not appear to be involved in the recent surge of investment in the county.

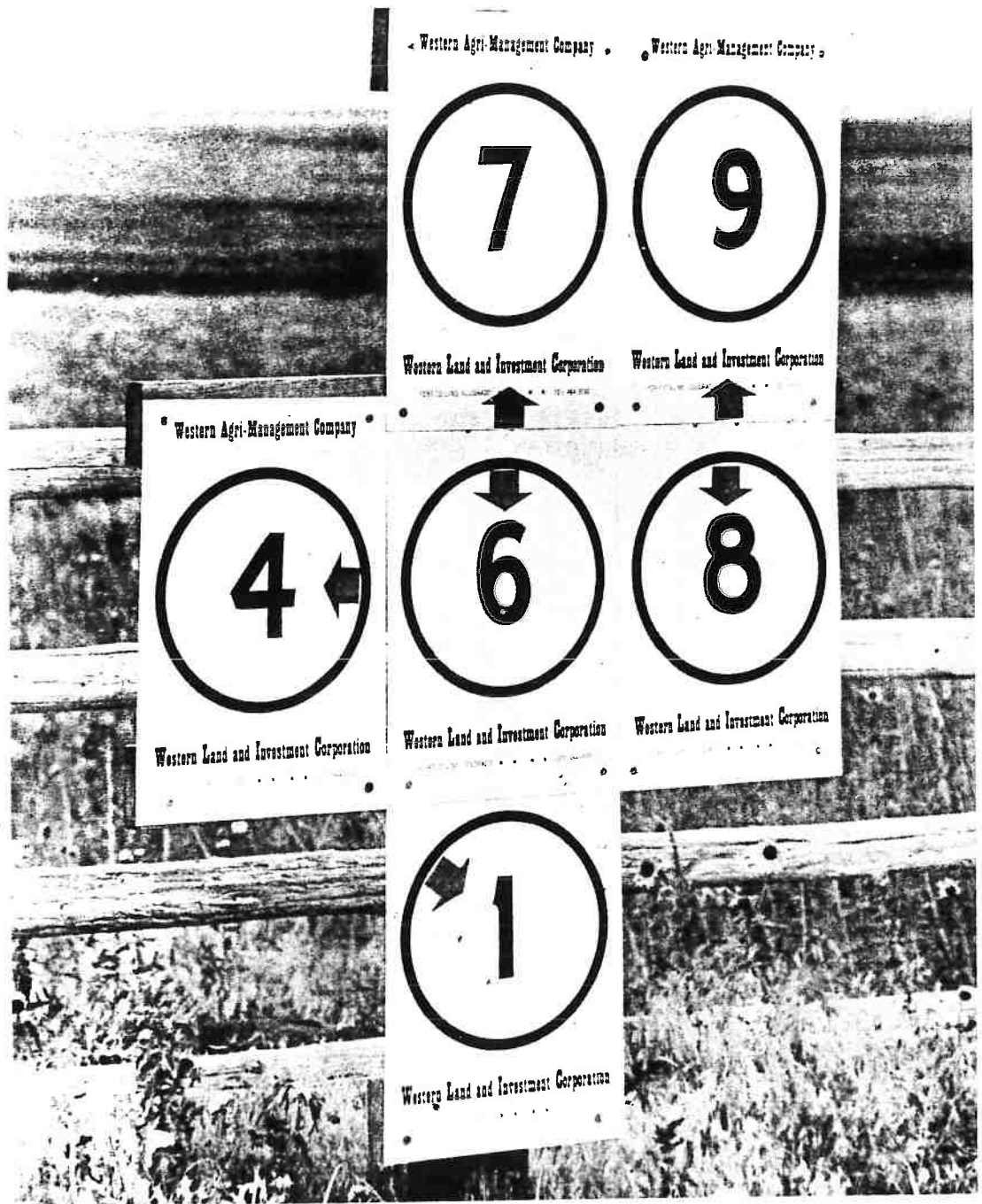
A third company is incorporated, but not in Nebraska. Dolson Outdoor Advertising is a Delaware corporation based in Decatur, Illinois. Presumably its principal business is outdoor advertising.

The fourth company, and the largest in terms of irrigated quarters, is Cornhusker Farms. Cornhusker is a partnership of three brothers: J. Charles, Raymond E., and William Q. Jaeger, who operate out of Leoti, Kansas. The Jaeger brothers have a farm implement business in Leoti. At the time data were collected for this report, title to Nebraska real estate owned by the group was held by Jaeger Brothers partnership. Cornhusker Farms is the partnership under which the brothers operate the farm. Developments since these data were collected indicate major changes in the ownership and operation of this farm. (See pp. 43,44)

Who Operates Investor Owned Farms in Dundy County?

As indicated earlier, all of the absentee owners in Dundy County have conventional crop share or cash land leases with operating local farmers. Their preference for this system parallels the tendency of absentee owners in Holt County to deal with tenant farmers.

On the other hand, the Multiple/Corporate subclass in Dundy County favors either direct employment of farm managers and laborers or contracting with farm managers who hire workers. Only Expro



Which Way To My Farm? This sign, located in northwestern Dundy County, speaks eloquently of the dramatic changes in the nature of agriculture which are occurring there. The Colorado-based management company which operates these pivots and its affiliates, have successfully recruited investors nationwide for irrigation development in Nebraska and are today involved in over 12,000 acres of pivot irrigation in Dundy County. Many of these investors may never see their "farm."

engages an independent tenant farmer. Cornhusker has a full-time hired manager who maintains an office in Imperial, Nebraska, 20 miles north of the Dundy County farming operation. The manager and company employees oversee the farm, although field operations are conducted by a custom farm manager imported from Beatrice, Nebraska, who works on a fee-per-operation basis. Both Allard and Dolson Outdoor Advertising employ the services of a farm management company from Fort Collins, Colorado, Western Agri-Management, which hires its own farm supervisors and workers.

Thus, most of the investor-owned pivots (84 percent) are operated by hired labor of one kind or another, supervised by a salaried or fee-for-service manager. In fact, 28 percent of all pivots in the county and about two-thirds of the new pivots added in 1975 are farmed by "paycheck" employees.

The Latest in Irrigation Finance

Allard and Dolson Outdoor Advertising Corporation are tied to a sophisticated farm real estate development complex based in Fort Collins, Colorado. This complex has given life to an entirely new scheme for financing center pivot development. It is possibly the most significant development emerging in irrigation finance in Nebraska.

The heart of the complex is Western Land and Investment Corporation, a buyer-oriented real estate company, which advertises that it is "able to negotiate with the seller on behalf of the buyer toward agreement on the best possible price and terms for properties."¹⁴ It actively solicits investors and advertises regularly in the Wall Street Journal promising prospective investors that Western can find them "Farms That Earn Money." The advertisements go on to say that "by purchasing low cost land with underlying water, we are developing highly productive sprinkler irrigated farms at a realistic price..." (See Figure 5)

To say the least, Western has been successful in Dundy County. It has arranged the acquisition by investors of nearly 7,000 acres of undeveloped range land from three ranches in the past two years. Twenty-seven quarters (4,320 acres) are now under pivots on these properties, 20 owned by the Allard Corporation and seven by Dolson Outdoor Advertising. The remaining undeveloped quarters are owned by Western or by one of its several affiliated real estate corporations, or by one of the investor-owned limited partnerships which Western has organized to buy and develop land for irrigation.

Western promotional literature says that its principals are "former eastern businessmen and investors who are now owners and operators of ranches and farms in the United States and Mexico."¹⁵ Its president is Karl Schakel, a mechanical engineering graduate from

THE REAL ESTATE CORNER

FARMS/RANCHES/ACREAGE

FARMS THAT EARN MONEY



You should consider an investment in a well managed, productive, irrigated farm which, after a reasonable down payment, will provide the following benefits:

1. Pay off its debt from its production.
2. Produce additional productive cash flow above the debt service.
3. Be operated through our management service without your time involvement.
4. Provide perhaps the best of all hedges against inflation and financial adversity.

By purchasing low cost land with underlying water we are developing highly productive sprinkler irrigated farms at a realistic price which makes all of the above possible. Write or call for folder "To: Prospective Farm Owners" for background information and detailed financial analysis based on our current experience.

**Western Land and
Investment Corp.**

P.O. Box 449
FORT COLLINS, COLO. 80522
Phone: (303) 484-0500
Karl Schakel—Pete Schakel

FIGURE 5 WESTERN LAND AND INVESTMENT CORPORATION, INVESTOR SOLICITATION

Purdue University and formerly President of Kett Corporation, a weapons system research and development company, and of Dextra Corporation, a sugar refiner, food processor and candy manufacturer. According to Western literature he is owner and operator of 85,000 acres of ranch and farm land in the United States and Mexico.

Western's promotional literature appeals to investors on the basis of sound long range return on investment. It points out that the

world food situation and the recent performance of the stock market encourage investment in agribusiness. It tells prospective farm owners that a maximum return with minimum risk can best be achieved by purchasing property which has these characteristics:

1. cheap to irrigate
2. low cost land ordinarily used for grazing
3. low cost source of water
4. soil satisfactory for a number of crops
5. suitable for low labor irrigation and low cost farming ("minimum tillage farming on land under rotating sprinkler irrigation systems is the ultimate in low cost...all of our farm properties are in areas ideally suited to these methods")
6. must be areas where these systems are new and thus in early stage of development

The final scenario: "A typical unit will be created by purchasing a large dry land ranch or one which has a small amount of irrigated land, **but** which has abundant supplies of underground water which local laws allow us to use."¹⁶

Western has successfully located such properties in Colorado, Kansas, and Wyoming, as well as Nebraska. Dundy County fills the bill nicely.

In Dundy County, the services provided to investors by Western and its several affiliated companies include the acquisition of property, the development of land for irrigation and the actual management of the irrigated farms.

Western executives are happy to join with other investors as part owners, and have participated as investors in the acquisition and development of irrigated lands in Dundy County which were subsequently resold to other investors. The special financing tool used in this process is the limited partnership, and its use to speculate in the preliminary stages of irrigation development is Western's special contribution to the irrigation finance world.

Because limited partnerships appeal to wealthy, tax-avoidance investors, they have long been used to muster large amounts of capital for risky short-term ventures such as oil explorations or Broadway plays. They were introduced to agriculture through the cattle feeding partnerships in the mid-1960s and are active in cattle feeding and the egg industry today. Their use in financing irrigation in Dundy County is a new development.

A limited partnership is a business organization consisting of two or more partners, usually many more than two, one of whom is a general partner, and the rest of whom are limited partners.

The general partner is the center of the organization, responsible for management of the partnership's business and for attending to the interests of the various limited partners. The general partner is legally liable for the actions of the partnership, and is financially responsible to creditors in the event that the partnership goes bankrupt.

The limited partners are simply investors, responsible for providing the bulk of the investment capital in the partnership. Their principal advantage is that their liability for partnership losses is limited to the amount they invest. If the partnership suffers losses in excess of the amount invested by the limited partners, the general partner is legally liable. Limited partners therefore have no say in the management of the partnership's affairs. In fact, if they do intervene in the management of the partnership, they can be held liable with the general partner.

The limited partnership has one major advantage which is particularly attractive to high-income investors. Unlike most limited liability investments, the limited partnership is taxed so that the tax benefits pass directly to the investor, that is to the limited partners. Thus, capital gain and cash accounting, and other tax benefits available to the farming partnership can be applied to lessen the tax on the non-farm income of the limited partners. This is extremely important to high-income investors canvassing the tax laws for a shelter.

Moreover, the potential limited partner may be attracted to such investments by what some economists call "schmaltz." Schmaltz is the psychological benefit experienced by some investors who identify with glamorous industries or who like to get in on the ground floor of a daring new investment before others do.¹⁷ This presumably adds excitement as well as profit to their lives. It is fun to be a farmer, if the risk is limited and someone else drives the tractor. Many limited partners may only see their farm in images of amber waves of grain.

The general partner perhaps has a more realistic view of the business of farming. The advantages of the limited partnership to the irrigation promoter scrambling to raise the capital for a big irrigation project are apparent. By selling "interests" in the project to a number of limited partner-investors, the general partner receives unrestricted management control over a large capital fund. A good deal of time is spent organizing the partnership (limited partnerships are subject to heavy federal securities regulation) and recruiting investors, and occasionally the limited partners must be reassured or otherwise coddled. But, many of these "management services" provided by the general partner are reimbursable. In fact, a big part of the reward for the sharp general partner is the many management and brokerage fees that can be collected from the "worry-free" limited partners.

The challenge is to know how to set it up, and where to find the well-healed investors who can be interested in buying into a worry free "farm that earns money." Western Land and Investment Company knows how to do both. For example, in Dundy County a limited partnership known as Nebraska Grain and Livestock Company was organized to purchase a 4,450 acre ranch. The partnership consists of nine limited partners whose investment ranges from \$25,000 to \$100,000. They are both individuals and corporations located in seven different states. (See Figure 6)

FIGURE 6
ROSTER OF PARTNERS, NEBRASKA GRAIN AND LIVESTOCK COMPANY

<u>NAME</u>	<u>CONTRIBUTION</u>	<u>INTEREST</u>	<u>ADDRESS</u>
Western Land and Associates, Limited General Partner	\$60,000	12%	P.O. Box 449 Fort Collins, Colorado 80522
F.B. Rooke & Sons Limited Partner	100,000	20%	P.O. Box 7 Woodsboro, Texas 78393
Margaret Heye Limited Partner	90,000	18%	P.O. Box 1399 Clearwater, Florida 33517
Betty Jane Sheridan Limited Partner	50,000	10%	9502 Lawndale Avenue Evanston, Illinois 60203
Peokeno Investment Company, Ltd. Limited Partner	50,000	10%	555 S. Flower Los Angeles, California 90071
James T. McLaughlin & Raymond L. McLaughlin, as tenants in common Limited Partner	50,000	10%	2430 Third Avenue Moline, Illinois 61265
Veda, Inc. Limited Partner	25,000	5%	Box 337 Long Lake, Minnesota 55356
Mrs. Justina W. McLean Limited Partner	25,000	5%	1408 Ridgewood Drive Columbia, Mississippi 39429
Gloria Walker Limited Partner	25,000	5%	P.O. Box 9407 Jackson, Mississippi 39206
STEW-MAC Agricultural Company Limited Partner	25,000	5%	P.O. Box 449 Fort Collins, Colorado 80522

Source: *Certificate of Limited Partnership, Dundy County Miscellaneous Records, Book 7, p. 71, filed August 23, 1974.*

The general partner in Nebraska Grain and Livestock Company is Western Land and Associates, Limited which is also a limited partnership consisting of three limited partners and one general partner, namely Karl Schakel. (See Figure 7)

FIGURE 7
ROSTER OF PARTNERS, WESTERN LAND AND ASSOCIATES, LIMITED

<u>NAME</u>	<u>INITIAL CONTRIBUTION</u>	<u>INTEREST</u>	<u>ADDRESS</u>
Karl Schakel General Partner	\$40,000	66 2/3%	P.O. Box 449 Fort Collins, Colorado 805
Wilhelm A. Biever Limited Partner	10,000	16 2/3%	Castor Timber & Vineer Co 1380 Riverside Drive New York, NY 10033
Michael P. O'Dell Limited Partner	7,000	11 2/3%	2612 Worthington Fort Collins, Colorado 805
Century Associates Limited Partner	3,000	5%	369 Lexington Avenue New York, NY 10017

Source: *Certificate of Limited Partnership, Dundy County Miscellaneous Records, Book 7, p. 66, filed August 23, 1974.*

Nebraska Grain and Livestock Company purchased the 4,450 acre ranch in June, 1974. In April, 1975, 3,370 acres of the ranch were sold to the Allard Company. The development for irrigation occurred under Nebraska Grain and Livestock ownership. The balance of the ranch is still held by the limited partnership, conceivably awaiting a prospective buyer for whom to develop it.

In addition to the use of the limited partnership, Western has accommodated investors using affiliated companies in two other Dundy County transactions.

In the first, Western Agriculture Land Corporation, a Karl Schakel company, was the first purchaser of a 1,360 acre Dundy County ranch in April, 1975. One day later, the ranch was sold to the Allard Company. Yet another of Schakel's Fort Collins companies, Medicine Bow Land and Cattle Company, was first purchaser of an 1,110 acre Dundy County ranch in December, 1974, which less than three months later was sold to Dolson Outdoor Advertising.

Part of the selling package offered to prospective buyers by Western Land and Investment Company is the services of its subsidiary company, Western Agri-Management. Western Agri-Management is the

Cadillac of worry-free farm management services available to the non-farm investor. It offers a wide range of services to clients, including overall development of land for pivot irrigation, pre-season planning, direction of farming operations, timely action to avert natural farming hazards, timely reports and financial records and overall fund management.

Western Agri-Management's services are offered on a contractual basis for a minimum fee plus a percentage of the operating profit. However, Western stipulates that it will only manage properties in areas where it has an established organization or where the client's farm is large enough to warrant a new management organization.

In explaining the range of options which clients have in selecting an operating arrangement for their farm, Western promotional literature says:

The most commonly used arrangement is a combination sharecrop and custom farming method under which the custom farmer becomes a partial sharecropper. A substantial portion of sharecropper/custom farmer's income is derived from and dependent on the level of crop production. This provides strong incentive for the man on the tractor and yet provides under our arrangements, three-fourths of the crop to the owner. In various special situations, other arrangements are made, such as sharecropping, direct lease out (particularly of pasture), or actual ownership of equipment and employment of direct employees where certain tax requirements of the owners may require it. In each particular situation we try to provide a method of farming which will best meet the total requirements of the owner. 18

The cluster of corporations in Fort Collins, Colorado, is able to participate in all aspects of irrigation development. It invests on its own account, organizes and manages the investments of others, speculates in land development and operates farms for client-investors. It has been responsible for the development of 27 pivots in Dundy County, 24 of them in 1975, all financed by investor capital.

Moreover, the Fort Collins group appears to be acquiring Dundy County properties faster than we can tally the growth. Although courthouse records have only partially recorded the transactions, one of the Jaeger brothers of Cornhusker Farms has informed us that the entire 23,000 acres in Dundy County belonging to their partnership, including the 49 quarter sections currently irrigated by pivots, have been sold to Karl Schakel. Some recently filed title transfers tend to support this report. For instance, on August 29, 1975, Jaeger

brothers sold to Imperial Service Corporation (a Nebraska corporation whose registered agent is an attorney based in Fort Collins, Colorado) some 1,200 irrigated acres. These 1,200 acres were immediately sold by Imperial to Nebraska Western Corporation, a Nebraska Corporation whose three incorporators' addresses are in Fort Collins, Colorado.

Also on August 29, 1975, Imperial bought from the Jaegers another 320 irrigated acres which were immediately sold to an Albany Company, another "Nebraska Corporation", which has not as of this writing filed incorporation papers in Nebraska.

Another 200 acre parcel was sold on the same day to Imperial by the Jaegers, but the expected secondary transaction has not yet been recorded.

Presumably, the balance of the Cornhusker Farms' holdings have, in fact, been transferred to Fort Collins-related companies. We expect that by the time this report is printed, its Dundy County data will be out of date. Both the extent of investor financing and the degree of concentration are understated by this report.

What Kind of Soils Are Being Developed in Dundy County?

When native grass pasture and rangeland are cultivated and brought into irrigated crop production, as is currently happening in Dundy County, short and long range effects occur which may or may not be easy to detect. One of the most obvious and immediate impacts is upon the soil which is irrigated. The newness of most of this development prohibits an analysis of the long range effects on the soil.

The soils in parts of Dundy County respond to fertilizer and water, but are extremely susceptible to wind erosion and blowing, making the management of these irrigation systems critical. This section of the report will inventory and analyze the soils of Dundy County which are currently being brought under center pivot irrigation.

Using the Dundy County Soil Survey prepared in 1963 by the United States Soil Conservation Service, the location of every center pivot irrigation system was plotted on the soil maps. The locations were color coded by year of installation. These sites were individually inventoried by soil type. With every site in the county inventoried, analysis was made of the soils irrigated with center pivot systems by year and by ownership class.

Sandhills make up more than one-third of the county, and they are prominent throughout the western half of the county north of the Republican River. The Valentine soil association is the name the United States Soil Conservation Services gives the soil of the sandhills. Elsewhere in the county, loamy soils occur along the Republican



University of Nebraska Cooperative Extension Service

Parched Brown of Failure. This pivot was placed on soil which failed to resist erosion, as evidenced by the white splotches and dark scars. The tendency in Dundy County has been to risk irrigation of delicate, Class VI soils, and by 1975, 39 per cent of the irrigated acres in the county were of this type soil. Over one-half of these acres are owned by non-farm investors. Moreover, fully 84 per cent of the acres in Dundy County for which future electrical service for irrigation has been requested is Class VI soil, and virtually all of these requests have come from non-farm investors.

River and its tributaries. Silty soils occur in the northeastern part of the county on a nearly level tableland which has been farmed for many years and has extensive gravity-type irrigation. The remainder of the county, primarily the central third running north to south, is a sand and silt mixture with intermittent sandhills.

The United States Soil Conservation Service has given every type of soil a capability classification. Although these classifications were not devised to apply to irrigated land, they indicate the suitability of a soil for agricultural use. All soils fall into one of eight capability classes. Class I has the fewest use limitations, Class VIII has the most. In general, the first four land capability classes are considered arable, that is, capable of producing crops

over a long period of time, if treated properly. The last four classes are not suited for crops, due to limitations such as erosion, wetness, bedrock, climate or other factors. Of Dundy County's 580,000 acres in farms, less than half (41 percent) is considered arable Class I-IV. (See Table 12)

TABLE 12
DUNDY COUNTY LAND CAPABILITY CLASSES

<u>CLASS</u>	<u>ACRES</u>	<u>PER CENT</u>
I	0	0
II	100,330	17
III	43,816	8
IV	98,742	16
V	4,924	1
VI	298,967	52
VII	33,531	6
VIII	0	0
	<u>580,310 Acres</u>	<u>100%</u>

Source: Nebraska Conservation Needs Inventory, 1969. pp 107-109

The main limitation of these soils is susceptibility to wind erosion, with 88 percent of all farm land acres in the county restricted to some degree for this reason. The quality of land being developed for irrigation is declining. (See Table 13) The land under center pivot irrigation in Dundy County in 1974 was 71 percent arable. (See Figure 8) The

TABLE 13
LAND CAPABILITY CLASSIFICATION OF
CENTER PIVOT IRRIGATED SOILS IN DUNDY COUNTY

	Class I	Class II	Class III	Class IV	Class V	Class VI	Class VII	Class VIII	Total
PRE-1975 ACRES									
Operator-owned	0	12,745	3,290	2,176	0	6,269	0	0	24,480
Investor-owned	0	352	0	1,074	0	1,614	0	0	3,040
TOTAL	0	13,097	3,290	3,250	0	7,883	0	0	27,520
NEWLY-IRRIGATED ACRES IN 1975									
Operator-owned	0	2,256	784	610	0	2,270	0	0	5,920
Investor-owned	0	426	220	2,528	0	6,426	0	0	9,600
TOTAL	0	2,682	1,004	3,138	0	8,696	0	0	15,520
ACRES PROPOSED FOR ELECTRICAL SERVICE									
Operator-owned	0	0	21	186	0	753	0	0	960
Investor-owned	0	29	23	1,683	0	9,145	0	0	10,880
TOTAL	0	29	44	1,869	0	9,898	0	0	11,840

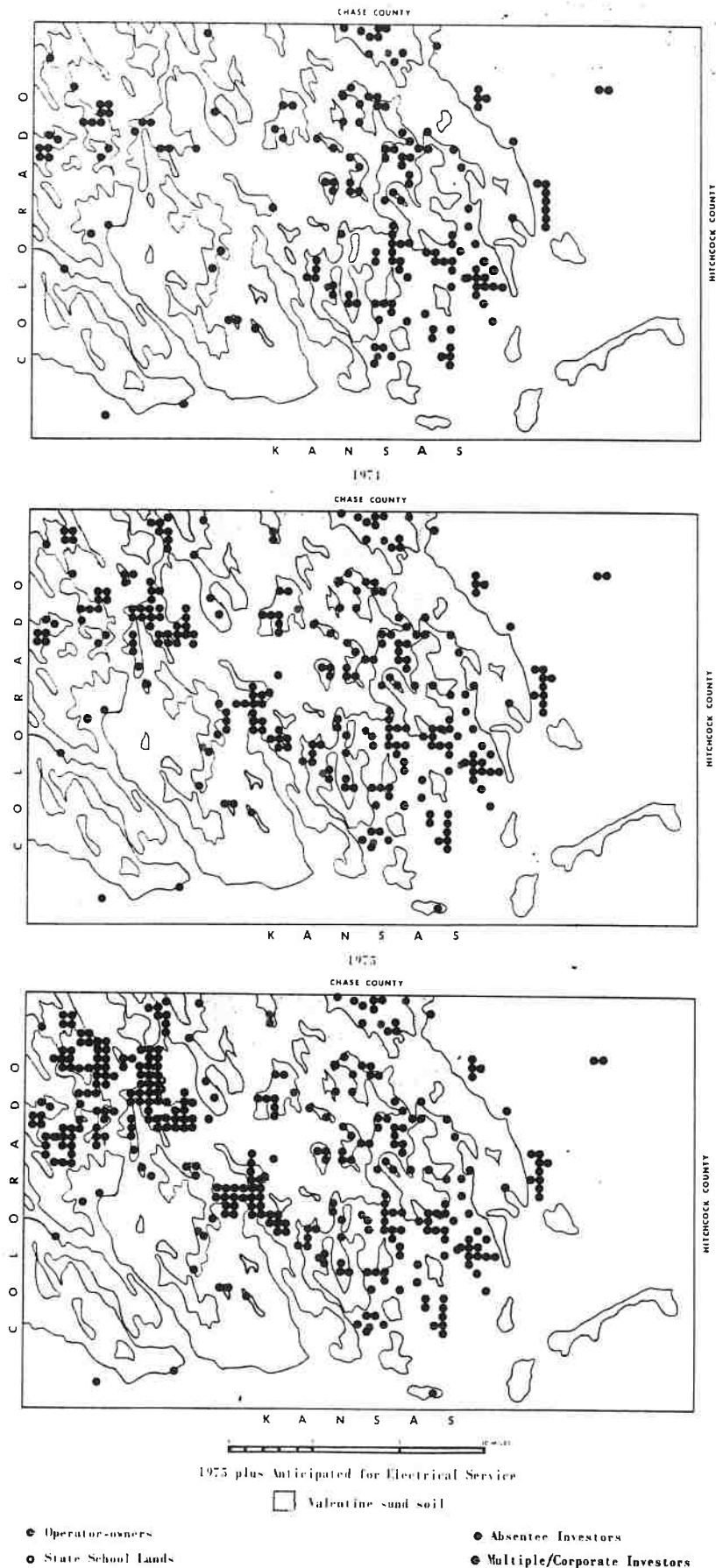


FIGURE 8
 LOCATION OF CENTER PIVOT SYSTEMS, DUNDY COUNTY, 1974,
 1975 AND ANTICIPATED FOR ELECTRICAL SERVICE

new acres developed for 1975 were only 44 percent arable, bringing the total acres under irrigation as of 1975 down to 61 percent arable. (See Figure 8) We get an idea of future development by considering requests for electrical hookups on file with the Southwest Public Power District. If these requests are fulfilled and the land is brought under irrigation, the county's total irrigated acres would be only 52 percent arable. (See Figure 8) The downward trend reflects a tendency toward development in the northwest corner of the county which is predominately sandhills.

There is a correlation between the quality of soils undergoing center pivot irrigation development and the class of ownership of these soils. The Investor class share of the non-arable land being irrigated increased from 27 percent in 1974, to 52 percent in 1975, and could go as high as 67 percent in the future if we consider the acres on file for electrical service. The proposed 68 pivot systems the Investor class is requesting electrical service for is only 16 percent arable.

By a large margin, it is the Valentine soil type which is undergoing current irrigation development. Soil scientists of the United States Soil Conservation Service describe this soil as follows:

The Valentine soils are suitable only for grass, trees, or wildlife because they are low in fertility, are droughty, and blow severely when disturbed....It is the most extensive soil in the county....Most of the soil is used for pasture. Some areas were once cultivated, and the surface layer was then slightly pitted and shifted back and forth by the windWind erosion is a serious hazard.¹⁹

SECTION 5
THE ROLE OF THE CUSTOM FARM MANAGER

We have already described the important role of custom farm managers in Holt and Dundy Counties. It may be appropriate to add a word about the overall nature of the custom farm management operation, especially as it is different from both the traditional professional farm management service and traditional custom work.

The traditional farm manager performs a very important function in the rural community. Typically, the farm manager serves as an agent of a non-farm landlord, such as a widow or an heir of a deceased farmer or a retired farmer. They also serve other kinds of absentee landlords. Their service is usually performed for a fixed percentage of the landlord's income from the farm. Therefore, if the landlord receives a share of the crop as land rent, the farm manager is assuming some of the risks involved in management of the farm.

However, farm managers traditionally have not been involved directly in day-to-day farming operations, although their management business keeps them close to the operator insofar as key management decisions are concerned. Their main function however, is to serve their landlord-client by negotiating a lease with a tenant farmer and by attending to the terms of that lease. Farm managers manage the assets of the owner more than the operation of the farm. Furthermore, the tenant farmer usually relies on the manager's client for only a portion of his farm land.

Custom farm work is the provision of individualized farm operations by farmers, farm suppliers, or specialized firms.²⁰ Custom farmers usually contract with a farm operator to perform a specific field operation such as wheat harvesting or alfalfa cutting, for a fixed fee. The custom farmer is frequently a farm neighbor who has specialized equipment, or a specialty company which travels between areas as the seasons dictate, such as wheat combine harvesters.

The custom farm manager is a business-like combination of the traditional farm manager and the custom work operator.

The custom farm manager actually operates farms, providing an entire package of farm services related to production, harvesting and marketing a crop.²¹ He is also a specialized operator who usually owns his equipment and hires a farm labor work force. He is usually paid on a fee basis--so much for each service performed or for each acre managed. Occasionally, this fixed-fee service is supplemented by a crop share arrangement such as that we have described used by Western Agri-Management. This crop share is an incentive for the custom farm manager to maximize production.

In some instances, a custom farm manager leases land from the owner under an unconventional crop share arrangement such as that which exists between Green Circles Farming Company and National Alfalfa Dehydrating and Milling Company. However, this is the exception rather than the rule.

The introduction of pivot technology to Nebraska agriculture has spawned the growth of the custom farm manager. By providing a complete management and operation package, including all non-land and non-irrigation capital, the farm manager is in a unique position to serve the non-farm investor who has as few as one or as many as 20 irrigated quarter sections.

In fact, many of the custom farm managers serve only investors who are willing to develop land with pivots. The investor who knows very little about farming and even less about irrigation, or who does not have the time to operate his farm because of other business pursuits, is an ideal client for the custom farm manager. A custom farm manager with such clients may provide a number of non-farming services, such as real estate brokering and income tax consultation.

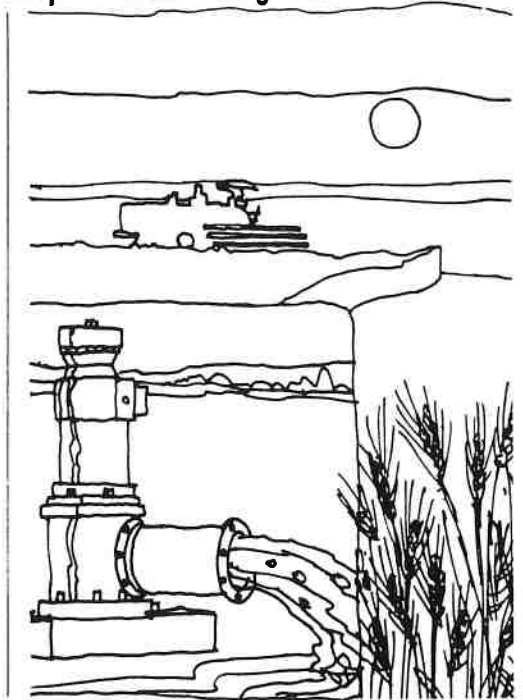
Not surprisingly, the custom farm manager who invests in machinery and who establishes an operation which is based on pivot irrigation is usually in the business of recruiting investors in order to expand his operation. Accordingly, most investors who employ a custom farm manager have made a conscious decision to invest in pivot irrigation development, and regard the custom farm manager as a professional consultant. Some custom managers serve primarily distant investors who are generally unfamiliar with farming; some serve mainly large corporate investors; some serve a mixture of investor types.

One well-known custom farm manager who serves mainly local non-farmers is Glenn Williams of Norfolk, Nebraska. Williams is the proprietor of Williams Management Company which actively recruits investors to develop pivot systems. Most of his investors have been Norfolk-area persons or Nebraska residents who are not primarily engaged in farming. His 1974 customers included a fertilizer dealer, irrigation equipment dealers, several bankers, a bank-owned subsidiary corporation, a life insurance salesman and a gasoline retailer. He also serves several non-local clients, including a New Jersey investor whom he claims to have made a millionaire.²² Williams Management Company hires 14 employees year-round, has grossed \$3.5 million for its clients, currently custom operates 63 pivot systems and owns \$400,000 worth of farm equipment.²³

A custom farm manager like Glenn Williams is obviously much more involved in managing his clients' farms than either the conventional custom worker or the traditional farm manager.

Custom farm management companies operate pivot systems throughout Nebraska. Their presence is neither mysterious nor surprising. Their rise is simply related to the growth of the investor-owner whose needs they are particularly suited to serve. We estimate that over 250 pivot systems in Nebraska are currently operated by custom farm managers of the type we have described.

To : Absentee Farm Owners
From : Western Agri-Management
Subject : Maximizing Profits



WESTERN AGRICULTURE COMPANY MANAGEMENT AND REPORTING SERVICES TO ABSENTEE OWNERS OF FARMS AND COMBINATION FARM-CATTLE OPERATIONS.

Absentee Profits. The goal of a new breed of custom farm managers appears to be maximizing profits for absentee farm owners. The custom manager is significantly different from the traditional farm manager who makes arrangements with a tenant farmer and otherwise manages a farm for widows, retired farmers, and non-farm heirs. The custom manager actually operates the farm with hired employees, providing an entire package of farm services on a fee basis. The custom farm manager is frequently in the business of recruiting absentee investors and brokering land purchases for them. Many of the custom farm managers in Nebraska specialize in center pivot irrigation development. In essence, this type of farm manager becomes the center of a heavily financed farming operation which has several absentee owners with a single central management structure.

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SECTION 6

CONCLUSIONS

The facts which we have discovered lead us to several conclusions about the impact of center pivot irrigation development on the ownership and control of productive resources in Nebraska.

First, irrigation development in the state is being financed by a variety of means, including conventional debt financing by farmers and equity financing by investors. Equity financing has played a major role throughout the history of pivot irrigation and investor involvement today is no less significant than it was at the outset. In fact, in Dundy County, the evidence is that investor financing has become the principal means of development, and that investment strategies have become more complex and sophisticated.

The data indicate that investor-owned farms account for approximately 30 percent of the pivot systems in the six county region including Antelope, Brown, Holt, Madison, Pierce and Rock (over 115,000 acres). Furthermore, we conclude that this percentage has generally held constant or grown over the 15 years which we have studied. Detailed analysis revealed that investor ownership has reached 35 percent in Holt County which is the most developed county and 33 percent in Dundy County which is one of the most rapidly developing counties.

Investors have used a variety of business organizational forms including sole proprietorships, partnerships and corporations. It is apparent that investor financing has become more sophisticated. In Holt County, which has the longest development history, investors have used a mixture of forms. Many of the early investors were simply uncomplicated risk-taking gamblers who saw this new irrigation technology as an opportunity to make a wise investment. Typically they bought land under their own name, hired farm managers or established a conventional cash rent or share crop arrangement with a tenant farmer. Occasionally, they used a simple small business corporation, presumably to limit their investment liability.

Although there were important exceptions to this (notably National Alfalfa Dehydrating and Milling Co., a publically-owned stock corporation), overall investment strategies in Holt County have not been very complicated.

However, the facts surrounding recent developments in Dundy County indicate a much more complex pattern of investor financing is emerging. The introduction of limited partnerships to Nebraska irrigation development constitutes a major shift in the nature and motives of investors. Limited partnerships are unique as financing tools because they allow disinterested investors the opportunity to invest a limited amount in a risky and expensive venture without accepting general liability. At the same time, the limited partner-

ship allows the investor to partake of such tax advantages as may be available to the operator-owner. One limited partnership has been responsible for the initial development for irrigation of 3,370 acres in Dundy County in the past two years. The Colorado real estate development company which organized this limited partnership is also involved in nearly 9,000 additional irrigated acres in Dundy County, all owned by investors and all acquired in the past two years.

The development of more complex investment strategies probably reflects a change in the general economics of irrigation. Initially, center pivot development was considered a highly risky business. Supply of water, capability of soils, fluctuations in the price of corn all made center pivots a speculative investment. Only the strong of heart, and more important, those who had some general knowledge about farming and irrigation dared to enter. Thus, most of the first absentee owners in Holt County were Nebraskans or individual investors who have close personal ties with irrigation developers in whom they have considerable confidence.

However, over the years pivot irrigation has proven itself to the general public and especially to the potential investor who knows very little about agriculture. This person is vaguely aware about the big increases in the price of corn and has been assured that irrigation takes the heartbreak out of the risky business of farming. He has also been told about land as a hedge against inflation and about the attractiveness of agricultural tax shelters. He has been told that Nebraska does not seriously regulate ground water pumping. He may even believe, as some have speculated, that the "big" money has already been made in pivot irrigation, that the early investors who capitalized on low price development were the big winners. This is no deterrent to the new investor. It simply raises his confidence in the overall performance of irrigation.

Likewise, the skyrocketing costs of pivot irrigation probably serve to boost rather than discourage investor financing. Not only are costs increasingly out of reach for the debt financed farmer, but they also allow for a greater proportion of the income from the farm to be paid to the investor. Crop share arrangements like those made by Western Agri-Management in Dundy County in which three-fourths of a corn crop is paid to the landlord are a clear indication of this.

We therefore conclude that increased costs of irrigation and wider acceptance of pivots are paving the way to more investor financing of irrigation in Nebraska.

As a result, the role of the hired manager will increase. Already their role appears to be growing dramatically. Managers are involved in providing services to a wider number of clients (as evidenced by client recruitment practices) and in providing a wider range of

services (as evidenced by the "packaging" services by custom farm managers.) Investors are solicited for irrigation development in Nebraska in much the same manner as investors are solicited by enterprising developers seeking financing for housing complexes, oil exploration ventures, and Broadway musicals. The farms which these investors own, typified by the Western Agri-Management Company operation in Dundy County and by the Williams Management Company in north central Nebraska, are manager-centered farms rather than investor-centered. This is particularly apparent in the limited partnership arrangement. In this case, management control shifts from the limited partner who must abandon all responsibility for the management of his investment, to the general partner, who organizes and manages the fund for a fee. In fact, farm managers who understand the investor whose special needs can be satisfied by pivot irrigation, and who know where to find such investors are, in reality, using these investors as a financial base for their own industrialized farming operation.

The data also lead us to conclude that the more complex the financial basis for investor development, the larger the farms are likely to be.

Individual investors, including absentee and local non-farmers, average about the same number of pivots per owner as operator-owners in Holt and Dundy Counties. By contrast, the group investors who utilize more complex business organizations in both counties have significantly larger irrigated farms than the operator-owners (on the average, five times larger in Holt County and 12 times larger in Dundy County.) Although many of the multiple/corporate investors have small developments, those with the most complex business organizations (National Alfalfa Dehydrating and Milling, and the Western Agri-Management complex) are exceptionally large.

The frequently expressed notion that these investors' involvement in irrigation development is limited to providing land and equipment capital for expanding farmers who haven't enough of their own resources to buy a pivot is not supported by our findings. Most of the land owned by investors in both Holt and Dundy Counties is farmed directly by their hired managers and employees or by custom farm managers who work for a fee, (73 percent in Holt County and 84 percent in Dundy County) not by the risk-taking entrepreneur which we commonly mean when we say "farmer." Investor-owned farms are managed principally by hired managers, not by independent farmers.

We have found also that as the suitable land in a given area is developed to its limit, there may be a tendency to extend existing operations on to delicate lands in the vicinity not necessarily suitable for irrigation. In Dundy County, which we analyzed for soils data, we found that existing development has nearly exhausted suitable soils in the western part of the county, but that ambitious plans to

develop delicate soils were nonetheless present. In fact, a considerable number of pivots have already been located on Class VI land in Dundy County. There is a very strong correlation between development of such soils and investor ownership and nearly all the requests for electrical service for future irrigation development on Class VI soils in Dundy County have been submitted by Investor-owned farms.

SECTION 7 IMPLICATIONS

The conclusions which we have reached in this report have broad implications for the social, political and economic life of rural Nebraska.

The beneficial implications of irrigation development have been given much play in Nebraska. We have acknowledged them in this report and we are mindful that they are significant. However, the "costs" of these benefits are rarely discussed publicly and it is our intent to open public discussion on some of the implications which may not be beneficial.

The first is that most of the economic benefit created by investor financing of irrigation will be realized by the investors and the managers and developers who service them. It has long been a fact in American agriculture that most of the economic return to farming is paid to the land owner. If the land owner is an operating farmer, this "return" is usually applied to the mortgage or otherwise consumed in paying debts, thereby building equity in the farm. Hence the old adage that "farmers live poor (because as farm operators their profit is small) and die rich (because they build up a lot of equity in land over the years)."

Likewise, if the land owner is an investor, the primary economic return goes to the investor. These people also like to die rich, of course. In fact, much of what is attractive about irrigation development to the potential investor is the sizable appreciation in the value of land which has been developed for irrigation, as well as the favorable tax treatment which this increase in wealth is given under the capital gain rules. Of course, some of this increase in land value is due to the investment itself and the increases in productivity which result. However, much of it is simply land value appreciation which is socially derived and which is a product of community pressure on a scarce resource.

These increases in land values have been especially large throughout the nation during the period in which pivots have been introduced to Nebraska. Throughout the 1960s and 1970s, these gains have been greater than the total net income farmers have received for farming. This has been true even during the recent upswing in farm income.²⁴

Moreover, these increases in national farm land values are real to the extent that they represent more than inflation, and Nebraska's contribution to them is largely related to the tremendous investment in irrigation which this report describes. To the extent that this investment has been made by farmers, the economic benefits have been realized locally. To the extent that these investments have

been made by absentee landlords and corporate investors, the primary benefits have been siphoned out of the local community. Again, we cite the custom farm manager who recently boasted to the Washington Post of having made a New Jersey investor a millionaire with center pivot systems in Nebraska.

Defenders of investors will defend their moral right to invest. This is undisputable. But we are not raising a moral question. We are asking an economic question about the distribution of benefits realized from the exploitation of Nebraska's productive resources. Our question is: Who really benefits most? If the exploitation becomes excessive and requires that restraint be exercised by the exploiter, what are the consequences of investor ownership?

The second implication of our findings which troubles us concerns control of Nebraska farming. The tremendous growth in irrigation development and the increase in land values which it has spurred in parts of Nebraska will ultimately contribute to the decline of the operator-owner. We quote Professor Harold Breimyer, University of Missouri agricultural economist:

When land values rise fast and conspicuously they become an attraction of their own. No longer is ownership of a farm seen as just a place of employment for a hard-sweating operator. Ownership is viewed as a ticket for further speculative gains. Although the operating farmer may still want to increase his ownership, he will be swamped by the large number of non-farm investors seeking the opportunity to invest for speculative profit. The overall effect of steadily large capital appreciation in farming will be to move land out of the hands of operating farmers.²⁵

We believe that the conditions surrounding center pivot irrigation development in Nebraska have a tendency in this direction. Although a sizable number of farmers have profitably invested in pivots already, we believe that the long-range impact of center pivot development as currently promoted in Nebraska, will be to shift economic control over that type of agriculture away from the "hardsweating" farmer.

Some people will argue that this state's water resources need to be developed and that investor capital from outside the state is necessary for this development. Even if only a small percentage of the benefits stay in Nebraska, they will enrich the lives of the people here more than if no development occurred. This is the argument of "progressive agriculture."

These are much the same arguments which were used to justify the acquisition of land and mineral resources in Appalachia by Northern and Eastern coal companies. They are reasonable arguments -- as long as the economics of irrigated corn are as favorable as they have been. However, we suspect that as in Appalachia, at the first turn of the economic formula, especially if water shortages occur, the investor will abandon "boom town" Nebraska in favor of better investments. We suspect that the average investor of the type recruited for limited partnerships is not committed to Nebraska beyond the depreciable life of a center pivot system. What has happened in Appalachia should not have to be retold here.

From the same set of concerns, we suspect that this type of short term investment has little or no incentive to conserve natural resources. This is particularly true where ownership is held by a group of non-Nebraska investors whose affairs are managed by persons who are paid a fee based on maximizing production and profit. With this set of motivations, it is not difficult to foresee excessive irrigation development and misuse of resources in the pursuit of short term economic gain. While the short term impact on the gross income of the state may be good, the ultimate effect of over-exploitation will be local economic hardship as well as environmental ruin. If planners' ambitions to irrigate 19 million acres in Nebraska are realized, these consequences will certainly be widespread. We believe that these tendencies are already present in Dundy County.

The delicate soils being developed in Dundy County are constantly threatened with wind erosion. When the weather cooperates and above average management practices are applied, as high as 150 bushels of corn per acre can be attained. But when weather conditions unfavorably coincide with field work, the soil will blow. In some cases it may be desirable to level the land somewhat to permit smooth rotation of the long center pivot arm. Some of this leveling, or "knobknocking" is occurring in northwest Dundy County, under investor financing. Dr. Darrell Watts, Irrigation Engineer at the University of Nebraska North Platte Experiment Station, claims some mistakes have been made in center pivot site selection in northwest Dundy County.²⁶ Under these circumstances, the question is not if, but how long before the blowing soil begins to have long range economic consequences for Dundy County. We suspect that there will be fewer investors there when it does.

The social and political consequences of absentee investor financing are also worrisome. Traditionally, rural Midwestern communities have placed a very high value on equality and independence and self-reliance. These values have shaped a social structure which is relatively free from class divisions.

This will change under the emerging pattern of ownership which we have described here. The classic urban-industrial division between ownership, management, and labor is already apparent in many of the

larger farms in Holt and Dundy County. Interestingly, the growing importance of the custom farm manager reflects the situation in major manufacturing corporations where management has emerged as the controlling group which holds sway over uninformed or unable groups of investors.

This may not be all bad. Large scale units heavily financed by nameless and faceless shareholders may have enough market power to achieve better farm income than has been achieved in the past. If workers on such farms are organized to bargain for a share of this increased income, they may have a higher level of living than they would as independent farmers. Of course, they will not be owners unless employee "profit sharing" plans are developed by these investor-owned farms. However as employees, they will probably be organized eventually into one of the national labor organizations.

The point of all this is that the adaptation of industrial organization to the farm would profoundly affect the social structure of rural communities.

Two studies have addressed this change. One, a classic and often quoted 1946 study known as the "Arvin and Dinuba" study was written by Dr. Walter Goldschmidt who was employed by the United States Department of Agriculture at the time. The study compared two communities in Southern California which were similar in every regard except that one was surrounded by small farms which were operator-owned and used relatively less hired labor than the large, mostly investor-owned farms which provided the economic base for the other community. The social differences in the two communities were remarkable. The "small-farm" community had more churchgoers, more civic organizations, more recreation, more schools and more school services, more public services, more newspapers, and more independent businesses. The study concluded that the differences "may properly be assigned confidently and overwhelmingly in the scale of farming factor."²⁷

A more recent study completed at the University of Missouri compared the social consequences of three types of agriculture: "family farm," "corporate integratee," (where the farm family owns the productive resources but contracts with an agribusiness firm to supply its inputs and sell its production), and "corporate farmhand" (where the farmer is an employee). With regard to the corporate farmhand versus the family farm, the study concluded that:

First, workers in corporate-farmhand structures are much less involved in the formal and political activities of the community than are workers in family farm structures. Secondly, owner-managers in the corporate-farmhand structures are much more involved in the formal and political aspects of the community than workers in the family farm

structure. Thirdly, the first two conclusions suggest rather clearly that the corporate-farmhand structure, relative to the family farm structure, begins to emphasize the two extremes with regard to community and political involvement. This type of agricultural structure suggests the development of two rather distinct classes for rural America which undermines the traditional American ideal of equality.²⁸(emphasis added)

That traditional ideal of equality has been the basis for our belief that democratic institutions depend on the widely dispersed ownership of land. In order to protect and defend our democratic institutions, this nation has consistently pursued public policies intended to nurture the free holder of land--the owner-operator. The Homestead Act of 1862 was designed to provide land title to "actual settlers" and it was intended to prevent the extension of slavery and plantation ownership to the West. The National Reclamation Act of 1902 was an extension of this purpose. It provided for publically financed irrigation water to arid regions of the West, but only to bona fide residents on the land, and only to 160 acres per owner.

The roots of this set of policies lay in the political beliefs of the nation's founders. Thomas Jefferson summed up the importance of the free land owner in a letter he wrote from France to James Madison on the eve of the French Revolution. In reflecting on the huge French estates which employed the "labouring husbandmen" Jefferson observed that: "The small land holders are the most precious part of a state."

Jefferson's generalization was not ill-founded. Historians have frequently noted the importance of land tenure systems to the political health and vitality of a nation. The applicability of these warnings to our time has been best expressed by Will and Ariel Durant in the Lessons of History:

...we may derive endless instruction from the economic analysis of the past. We observe that the invading barbarians found Rome weak because the agricultural population which had formerly supplied the legions with hardy and patriotic warriors fighting for land had been replaced by slaves laboring listlessly on vast farms owned by one man or a few. Today the inability of small farms to use the best machinery profitably is again forcing agriculture into large-scale production under capitalistic or communistic ownership. It was once said that 'civilization is a parasite on the man with the hoe,' but the man with the hoe no longer exists; he is now a 'hand' at the wheel of a tractor

13. C. L. William Haw, President's Report to Stockholders, 1975, National Alfalfa Dehydrating and Milling Company Annual Report, 1975.
14. Karl Schakel, President, Western Land and Investment Corporation, Western Land and Investment Corporation, p. 2.
15. Karl Schakel, President, Western Land and Investment Corporation, From: Western Land and Investment Corp., To: Potential Ranch Owners, p. 4.
16. Karl Schakel, President, Western Land and Investment Corporation, To: Prospective Farm Owners, From: Western Land and Investment Corp., p. 3.
17. Stephen F. Mathews and V. James Rhodes, The Use of Public Limited Partnership Financing in Agriculture for Income Tax Shelter, North Central Regional Research Publication, NC Project 117, Monograph 1, July 1975, p. 8.
18. Western Land and Investment Corporation, Western Agri-Management Company, To: Absentee Owners, From: Western Agri-Management, Subject: Maximizing Profits, p. 4.
19. Soil Survey of Dundy County, Nebraska, Soil Conservation Service, United States Department of Agriculture, 1963, pp. 69-70.
20. G. D. Irwin and J. B. Penn, Custom Farm Services in the United States: Status and Potentials, Economic Research Service, United States Department of Agriculture, March, 1975, p. 23.
21. Irwin and Penn, pp. 23-24.
22. Dan Morgan, "Family Farm Faces Threat in Nebraska," Washington Post, April 13, 1975, p. 1.
23. Dominick Costello, "Custom Farmer Glenn Williams Rules Over 100-Mile Norfolk Area Domain," Lincoln Sunday Journal and Star, July 20, 1975, p. 6B.
24. Harold F. Breimyer, "Where Money In Farming Comes From," Economic and Marketing Information for Missouri Agriculture, XVIII, September, 1975, pp. 2-3.
25. Breimyer, p. 3.
26. Darrell Watts, Irrigation Engineer, University of Nebraska, North Platte Experiment Station, telephone conversation with Donald Ralston, Co-Director, Center for Rural Affairs, September 10, 1975.

27. Dr. Walter R. Goldschmidt, Small Business and the Community: A Study in Central Valley of California on Effects of Scale of Farm Operations, in "Role of Giant Corporations," Select Committee on Small Business, United States Senate, part 3A, pp. 307, 308.
28. William D. Heffernan, "Sociological Dimensions of Agricultural Structures in the United States," Sociologia Ruralis, XII, (1972), p. 497.
29. Will and Ariel Durant, The Lessons of History, p. 54.

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BIBLIOGRAPHY

- Breimyer, Harold F. "Where Money In Farming Comes From." Economic and Marketing Information for Missouri Agriculture, XVIII, September, 1975.
- Costello, Dominick. "Custom Farmer Glenn Williams Rules Over 100 Mile Norfolk Area Domain." Lincoln Sunday Journal and Star, July 20, 1975, p. 6B.
- "Pivot Irrigation Boom Sweeps Northern Nebraska Counties." Lincoln Sunday Journal and Star, July 27, 1975, p. 6.
- Dundy County Miscellaneous Records. Office of the Dundy County Clerk, Benkleman, Nebraska.
- Durant, Will and Ariel. The Lessons of History, New York: Simon and Schuster, 1968.
- Goldschmidt, Walter R. Small Business and the Community: A Study in Central Valley of California on the Effects of the Scale of Farm Operations. Published in "Role of the Giant Corporations," Select Committee on Small Business, United States Senate, Part 3A, U.S. Government Printing Office, 1973.
- Heffernan, William D. "Sociological Dimensions of Agricultural Structures in the United States." Sociologia Ruralis, XII (1972), pp. 481-499.
- Irwin, G. D. and J. B. Penn. Custom Farm Services in the United States: Status and Potential. Economic Research Service, United States Department of Agriculture, March, 1975.
- Kramer, Eric, Associated Press. "Irrigation Taming Great Plains," Sioux City Journal, August 25, 1975, p. 10.
- Lamphear, Charles, and Theodore W. Roesler. Impact Analysis of Irrigated Agriculture on Nebraska's Economy, 1967-70. Nebraska Economic and Business Report Number 8, Lincoln: University of Nebraska, 1974.
- Mathews, Stephen F., and V. James Rhodes. The Use of Public Limited Partnership Financing in Agriculture for Income Tax Shelter. Madison: North Central Regional Research Publication 223, 1975.
- "Milling Chief Is Out In Atkinson." Omaha World Herald, February 8, 1974, p. 24.
- Morgan, Dan. "Family Farm Faces Threat in Nebraska," Washington Post, April 13, 1975, p. 1.

National Alfalfa Dehydrating and Milling Company. Annual Report.
Securities and Exchange Commission, 1975.

Nebraska Agricultural Statistics, Annual Report, 1973/Preliminary
1974. Nebraska Department of Agriculture.

Nebraska Conservation Needs Inventory, 1969. United States Department
of Agriculture, 1969.

"Nebraska Irrigation Exceeds That of Other States." The Farmer-
Stockman of the Midwest, July 21, 1975, p. 6.

Report on the Framework Study of Nebraska's State Water Plan.
Nebraska Soil and Water Conservation Commission, Publication
No. 101, 1971.

Schakel, Karl. President Western Land and Investment Corporation.
From: Western Land and Investment Corp., To: Potential
Ranch Owners. Fort Collins, Colorado. (no date).

-----, To: Prospective Farm Owners, From: Western Land and
Investment Corporation. Fort Collins, Colorado. (no date).

-----, Western Land and Investment Corporation. Fort Collins,
Colorado. (no date).

Sheffield, Leslie F. "Impact of Center Pivot Irrigation in Southwest
Nebraska," Nebraska Farm and Ranch Quarterly, Fall, 1970,
pp. 4-7.

-----, "The Cost of Center Pivot Irrigation Now," Irrigation Age,
January, 1975, pp. 12-15.

Soil Survey, Dundy County, Nebraska. Soil Conservation Service,
United States Department of Agriculture, Washington, D.C.,
1963.

"Water, Nebraska's Lifeline." Lincoln Sunday Journal and Star,
February 16, 1975, pp. 31, 32.

Western Land and Investment Corporation, Western Agri-Management
Company. To: Absentee Farm Owners, From: Western Agri-
Management, Subject: Maximizing Profits. Fort Collins,
Colorado. (no date).

APPENDIX
INVENTORY OF INVESTOR-OWNERS, HOLT COUNTY, 1975*

M U L T I P L E / C O R P O R A T E I N V E S T O R S

NAME	NUMBER OF IRRIGATED QUARTER SECTIONS
1. Agricultural Services, Inc. (Alda, Nebraska)	9
2. Bekins, Inc. (Omaha, Nebraska)	1
3. Brown Land Co. (Providence, Rhode Island)	24
4. Clearmont Land Co. (O'Neill, Nebraska)	5
5. Dowd Grain Co., Inc. (Aurora, Nebraska)	3
6. Downtown Realty Co. (Sioux City, Iowa)	6
7. Eagle Creek Land Co. (Columbus, Nebraska)	9
8. First Investment Co. (Kearney, Nebraska)	2
9. Fleming Realty & Insurance (Atkinson, Nebraska)	5
10. Holt Land, Inc. (Stuart, Nebraska)	2
11. Kirschbaum Farms, Inc. (Grand Island, Nebraska)	3
12. Koinzan Seed & Flying Service, Inc. (Elgin, Nebraska)	2
13. Krambeck Land & Cattle Co. (Gretna, Nebraska)	1
14. Lincoln Ag-Products Co., Inc. (Lincoln, Nebraska)	4
15. Marquette Grain Storage Co. (Marquette, Nebraska)	1
16. J.E. Meuret Grain Co., Inc. (Brunswick, Nebraska)	3
17. Miliron Ranch, Inc. (Atkinson, Nebraska)	2
18. Miller Seed Co., Inc. (Lincoln, Nebraska)	8
19. National Alfalfa Dehydrating & Milling Co. (Kansas City, Missouri)	127
20. Phoenix Investment Co. (Lincoln, Nebraska)	6
21. S & T Farm Service (Marquette, Nebraska)	2
22. Sun Valley Acres, Inc. (Columbus, Nebraska)	4
23. Gustav Thiezen Irrigation Co. (Aurora, Nebraska)	6
24. Triangle Curry Co. (unregistered)	1
25. Triangle Land Co. (Grand Island, Nebraska)	11
26. Troester Farms, Inc. (Hampton, Nebraska)	5
27. Watts Farms, Inc. (Valentine, Nebraska)	3
TOTAL	255

A B S E N T E E I N V E S T O R S

1. Amis, R.T. (Omaha, Nebraska)	1
2. Bele, Henry (Omaha, Nebraska)	1
3. Binder, Norma (Table Rock, Nebraska)	1
4. Boreson, Donald (Winner, South Dakota)	3
5. Bosselman, Charles (Grand Island, Nebraska)	2
6. Cary, Dale & Arlene (Amherst, Ohio)	3
7. Collins, Robert (Omaha, Nebraska)	1
8. Curley, Lyle	4
9. Daugherty, R.B. (Omaha, Nebraska)	4
10. Dowd, Colleen (Columbus, Nebraska)	1
11. Dowd, Don (Columbus, Nebraska)	1
12. Dowd, Leo (Columbus, Nebraska)	3
13. Fairbanks, Alice (Wood River, Nebraska)	1
14. Fairbanks, Lyle (Wood River, Nebraska)	2

*Classification according to definitions contained on p. 14

APPENDIX (continued)

A B S E N T E E I N V E S T O R S (continued)

NAME	NUMBER OF IRRIGATED QUARTER SECTIONS
15. Fink, Ross (Bloomfield, Colorado)	1
16. Fischer, John (Valley, Nebraska)	2
17. French, Merwyn, Jr. (Lincoln, Nebraska)	4
18. Goding, Al (Alliance, Nebraska)	2
19. Kirschbaum, James (Grand Island, Nebraska)	1
20. Larsen, Tom (Phoenix, Arizona)	2
21. Lingle, Harold (Long Beach, California)	5
22. Mack, Robert (Hampton, Virginia)	1
23. Miles, William (Los Angeles, California)	5
24. Mireau, Gus (Henderson, Nebraska)	1
25. Nuss, Victor (Sutton, Nebraska)	1
26. Rerucha, Leonard (David City, Nebraska)	2
27. Sandoz, Fritz (Lakeside, Nebraska)	4
28. Schmitz, James (Oklahoma City, Oklahoma)	1
29. Spittler, Julian (Norfolk, Nebraska)	3
30. Tracy, Helen (Grand Island, Nebraska)	1
31. Tracy, Howard (Grand Island, Nebraska)	3
32. Thiezen, Anna (Henderson, Nebraska)	8
33. Troester, Paul (Hampton, Nebraska)	1
34. Trowbridge, Albert (Columbus, Nebraska)	1
35. Trowbridge, Norman (Columbus, Nebraska)	1
36. Tucker, G.T. (Omaha, Nebraska)	1
37. Watson, Dr. D.P. (Grand Island, Nebraska)	1
38. Wilhelm, C.M. (Omaha, Nebraska)	2
39. Woodyard, Wyman (Grand Island, Nebraska)	3
40. Zima, Donald (David City, Nebraska)	1
TOTAL	86

L O C A L N O N - F A R M I N V E S T O R S

1. Fleming, Dean (Atkinson, Nebraska)	1
2. Froelich, William (O'Neill, Nebraska)	1
3. Seger, Paul & Karen (Atkinson, Nebraska)	10
4. Shonka, Ron (O'Neill, Nebraska)	1
TOTAL	13

APPENDIX
DIRECTORS AND OFFICERS, NATIONAL ALFALFA DEHYDRATING AND MILLING CO.

C.L. William Haw	Director, President and Chief Executive Officer, National Alfalfa Dehydrating and Milling Co., Kansas City, Missouri
Henry S. Faus	Director, NADM, President, Crown Financial Corporation, Philadelphia, Pennsylvania
Richard L. Krzyzanowski	Director, NADM, Secretary and General Counsel, Crown Cork & Seal Co., Inc. and Crown Financial Corporation, Philadelphia, Pennsylvania
John F. O'Neill	Director, NADM, President, O'Neill Bros., Inc. (wholesale cotton and waste), Philadelphia, Pennsylvania
Thomas A. Riley, Jr.	Director and Chairman of the Board, NADM, Partner, Lentz, Riley, Cantor, Kilgore & Massey (attorneys), Paoli, Pennsylvania
L.J. Schiller	Director and Executive Vice President, National Alfalfa Dehydrating and Milling Company, Oak Harbor, Ohio
Herman E. Seiferth	Director, NADM, Retired, Philadelphia, Pennsylvania
Carl L. Schweitzer	Vice President-Finance and Secretary, National Alfalfa Dehydrating and Milling Co.
George Polony	Vice President, National Alfalfa Dehydrating and Milling Company.
Lloyd M. Chatt	Vice President, National Alfalfa Dehydrating and Milling Company.
C. Lowell Creach	Vice President, National Alfalfa Dehydrating and Milling Company.
Ford H. Read	Treasurer, National Alfalfa Dehydrating and Milling Company

PRESIDENT'S REPORT

Dear Stockholder:

Last year I wrote my first report to the shareholders of National Alfalfa having been President of the Company for only a few weeks. At that time I said we would rebuild the Company around the strong asset base and our capable staff. Now, one very interesting year later, I am pleased to report that we have accomplished our goals of saving and rebuilding the Company.

Slightly more than one year ago we were a company suffering from illiquidity, unprofitability, lack of working capital, and an uncertain future. This letter will attempt to contrast our present position with that which existed a year ago.

Earnings for fiscal 1975 were \$3,004,166 compared to a loss of \$(4,925,406) a year ago.

Working capital at April 30, 1975 was \$602,419 compared to a working capital deficit of \$(3,625,309) a year ago.

At this time last year we were faced with seven lawsuits against the Company. Five of these suits have been settled during fiscal 1975. Only two suits remain and I believe that appropriate reserves have been established for continued litigation and possible settlement.

No lawsuit of any kind has resulted from operation of the Company during the past year.

Claims by other creditors totalled \$8,144,091 a year ago. All valid claims resulting from prior performance failures were paid in full during fiscal 1975. No additional claims arose during the past year.

The Company is aggressively pursuing the \$2,100,000 lawsuit against its former president, Charles Peterson, for losses incurred during fiscal 1974. We are pressing this matter in the U. S. District Court for the District of Kansas and hope that a trial date will be set soon.

The decision to discontinue cattle feeding operations was proven sound, as conditions in that industry continued to deteriorate during the year.

Company land under cultivation was increased approximately 40% during fiscal 1975 with no increase in general and administrative overhead.

We have had a good year. I believe that the Company is well positioned for fiscal 1975-76 with an expanded base, capable management and sound financing. We will continue to manage the Company with businesslike objectives of growth commensurate with the avoidance of major risks.

I appreciate the opportunity to have worked with your Company during these interesting times. Our entire staff shares my optimism and confidence in the role of your Company in American Agriculture.

Sincerely,



C. L. William Haw
President & Chief Executive Officer



