


4-1979

CHANGING FIELDS: AGRICULTURAL LAND USE CHANGES IN NEBRASKA 1925-1974

Donald A. Wilhite

University of Nebraska-Lincoln, dwilhite2@unl.edu

Follow this and additional works at: <http://digitalcommons.unl.edu/droughtfacpub>

 Part of the [Climate Commons](#), [Environmental Indicators and Impact Assessment Commons](#), [Environmental Monitoring Commons](#), [Hydrology Commons](#), [Other Earth Sciences Commons](#), and the [Water Resource Management Commons](#)

Wilhite, Donald A., "CHANGING FIELDS: AGRICULTURAL LAND USE CHANGES IN NEBRASKA 1925-1974" (1979).
Drought Mitigation Center Faculty Publications. 119.
<http://digitalcommons.unl.edu/droughtfacpub/119>

This Article is brought to you for free and open access by the Drought -- National Drought Mitigation Center at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Drought Mitigation Center Faculty Publications by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

CHANGING FIELDS

AGRICULTURAL LAND USE CHANGES IN NEBRASKA, 1925-1974



CHANGING FIELDS

AGRICULTURAL LAND USE CHANGES IN NEBRASKA
1925-1974

by
Donald A. Wilhite

Water Resources Management Specialist
Nebraska Water Resources Center
and
Assistant Professor
Center for Agricultural Meteorology
and Climatology



*Institute of Agriculture
and Natural Resources*

University of Nebraska-Lincoln



Published by the
Nebraska Water Resources Center
Institute of Agriculture and Natural Resources
University of Nebraska-Lincoln
April, 1979
OCP #2-79

The Nebraska Water Resources Center was established in November 1964 as a result of state and federal actions authorized by the Water Resources Research Act of 1964. The mission of the Center is to interpret the water "pulse" of Nebraska and the surrounding region. In this capacity, the staff coordinates, encourages, administers and conducts useful research on important water problems. The Center also disseminates information and conducts educational activities, again in response to the needs of Nebraskans.

TO WAYNE HALL, for his support and encouragement....

*Evening and the flat land,
Rich and somber and always silent;
The miles of fresh-plowed soil,
Heavy and black, full of strength and harshness;
The growing wheat, the growing weeds,
The toiling horses, the tired men;
The long, empty roads,
Sullen fires of sunset, fading,
The eternal, unresponsive sky.*

From "Prairie Spring"
by Willa Cather

ACKNOWLEDGMENTS

The author wishes to express his appreciation to the numerous persons at the University of Nebraska who assisted in the preparation of this report. Pat Dydball of the Biometrics and Information Systems Center and Carol Jefferson and Ken Livingston of the Computer Network aided in the computer programming and data analysis. Sheila Smith of the Department of Agricultural Engineering provided cartographic assistance in the preparation of the graphs.

Although the author accepts full responsibility for the contents of this publication, the following persons participated in its review: Ralph E. Neild, Department of Horticulture; Donald G. Hanway, Department of Agronomy; Deon D. Axthelm, Department of Agricultural Engineering; Philip A. Henderson, Department of Agricultural Economics; and Karen E. Stork, Nebraska Water Resources Center.

A special thanks to Jack Merritt and Karen Godkin of Merritt Public Relations and Advertising for their assistance with the layout, review and printing of this publication.

TABLE OF CONTENTS

FOREWORD	1
INTRODUCTION	3
STATE-WIDE AGRICULTURAL CHANGE: AN OVERVIEW	5
PATTERNS OF AGRICULTURAL LAND USE CHANGE	9
Selected Examples of County Land Use Changes	9
Maps of Total Cropland and Rangeland Acres	13-23
Maps of Principal Cultivated Crops	25-48
Dryland Corn	25
Irrigated Corn	31
Winter Wheat	35
Dryland Sorghum	41
Dryland Soybeans	45
CONCLUSION	49

FOREWORD

Changes in agricultural land use in Nebraska have occurred in response to many interrelated and interacting forces such as irrigation, new crop varieties, mechanization, synthetic fertilizers, weather patterns and economics. Research programs of the Institute of Agriculture and Natural Resources developed much of the technology which contributed to these changes in land use and resulted in higher yields reported in this publication. Educational programs of the Institute were instrumental in making that technology available to the farmers and ranchers of the state.

The efficient use of our land and water resources in the production of food, feed and forage is a concern to all of us. An understanding of what has happened and why can serve as a base for anticipating changes, which may be expected in the future. This publication documents in a pictorial fashion some of the changes which have occurred in agricultural land use and relates them to the major forces involved.

Martin A. Massengale
Vice Chancellor for
Agriculture and Natural Resources

INTRODUCTION

The series of graphs and maps which follow illustrate agricultural land use changes in Nebraska from 1925 to 1974. With these graphs and maps, the major agronomic crops of corn (dryland and irrigated), wheat, sorghum and soybeans are analyzed. The purpose of this analysis is to provide a pictorial history of Nebraska's ever-changing cropping system and, hopefully, to stimulate ideas and discussion with regard to trends and future directions.

The Nebraska Water Resources Center is deeply interested in both the past and the future of Nebraska's agriculture because of the demands which agriculture places on the state's water resources. An examination of the maps showing land use changes within counties across the state will reveal not only the ever-growing magnitude of this demand, but also its evolving spatial characteristics. In 1925 crop production in Nebraska was almost exclusively dryland, and corn was the primary crop. Although corn is still our primary crop, irrigation has greatly altered the nature of its geographic importance. Additionally, alterations in the pattern of wheat acreages and the introduction of sorghum and soybeans have modified and diversified Nebraska's crop production system.

From the above, one can conclude that Nebraska's water resources are being utilized far differently today than in the past. Because demands are increasing and our water resources finite, it is easy to understand the growing conflicts among users. The Water Resources Center hopes that the information presented in this publication will broaden our comprehension of the past and thereby assist in a better understanding of future issues and the conflicts which may confront us.

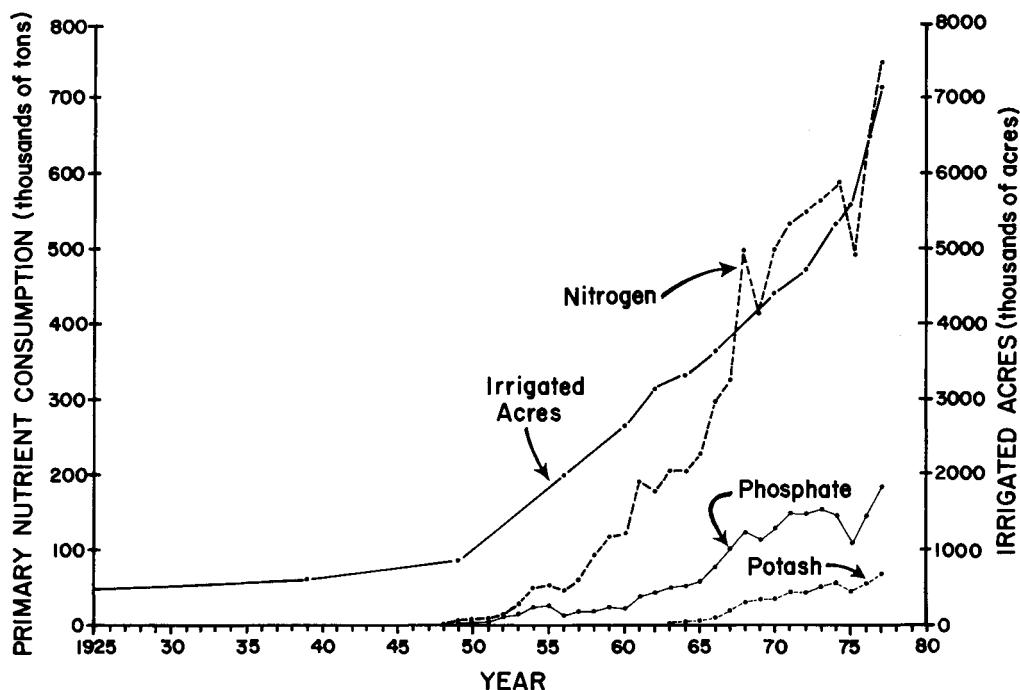
STATE-WIDE AGRICULTURAL CHANGE: AN OVERVIEW

Before we describe Nebraska's agricultural land use changes between 1925 and 1974, perhaps it would be beneficial to examine pertinent state-wide agriculturally related trends during the period. During the 50 years in question, four major developments occurred which significantly influenced agricultural land use change: the introduction of corn and sorghum hybrids, a revolution in mechanization, a spectacular growth in the utilization of fertilizers and the rapid spread of irrigation throughout the state. Graph 1 illustrates the trend of two of these developments—irrigation and primary nutrient consumption.

In 1950 total irrigated acreage in the state was less than one million acres, about 99 percent of which was surface

irrigated. In 1977 irrigated acreage exceeded 7.1 million, about 40 percent of which was irrigated by sprinklers. Presently 85 percent of the irrigation in Nebraska is from wells and the remaining 15 percent from streams and reservoirs. The technological innovation which spawned the growth of irrigated agriculture in Nebraska during the post-1965 era was the development of the center-pivot irrigation system. There are currently more than 15,000 center-pivots in Nebraska, and they account for roughly 80 percent of all land irrigated by sprinkler systems.

The trend in primary nutrient consumption, especially nitrogen, is closely related to irrigation expansion. As with irrigation growth, the bulk of the growth in primary nutrient consumption occurred in the post-1950 period. This is especially true for nitrogen, with consumption increasing from about 10,000 tons in 1950 to about 590,000 tons in



GRAPH 1—Primary Nutrient Consumption and Irrigated Acres in Nebraska. Source: U.S. Department of Agriculture and Paul Fischbach (Department of Agricultural Engineering, University of Nebraska-Lincoln)

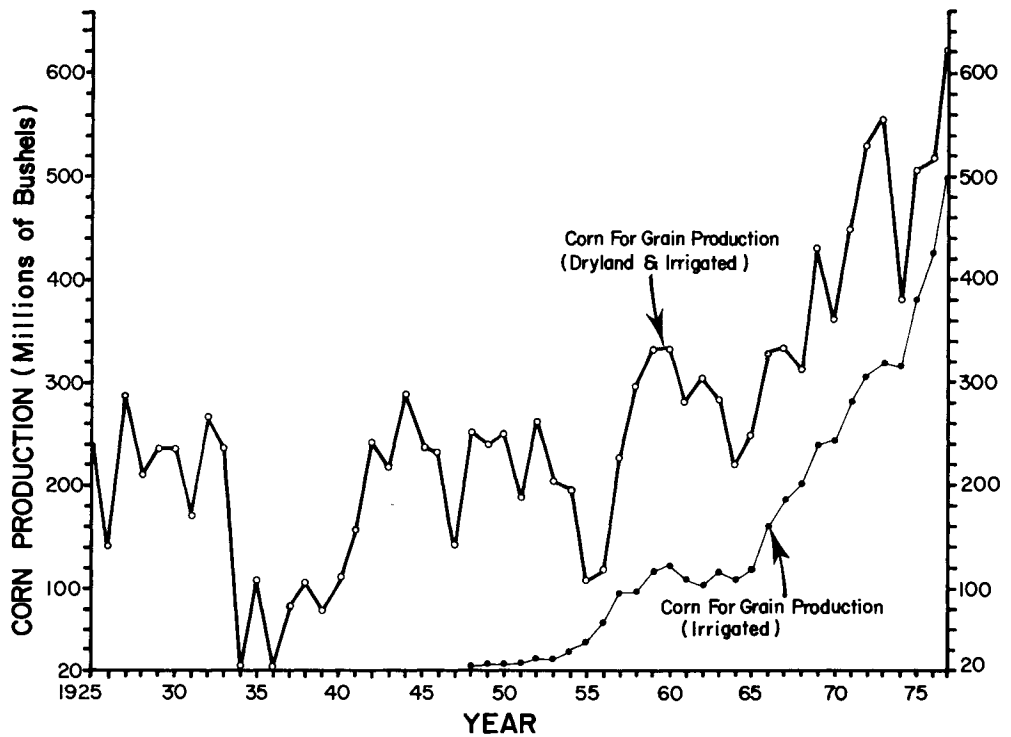
1974 and over 749,000 tons in 1977. Increased consumption of phosphate and potash has been less dramatic but is indicative of further alterations in cropping practices.

The impact of irrigation on corn production in Nebraska is illustrated in Graph 2. During the pre-1950 era, fluctuations in corn production were primarily in response to Nebraska's highly variable weather conditions. The drought years of the 1930s and 1950s are strikingly apparent. In the post-1950 period, irrigated corn acreages have increased to over four million acres, while dryland corn acres have declined to approximately two million acres. This expansion of irrigated corn acres has been a stabilizing factor in the yearly variability of corn production, and likewise the agricultural economy of the state. The influence of irrigated corn production on the state's total corn production is especially noticeable in dry years. For

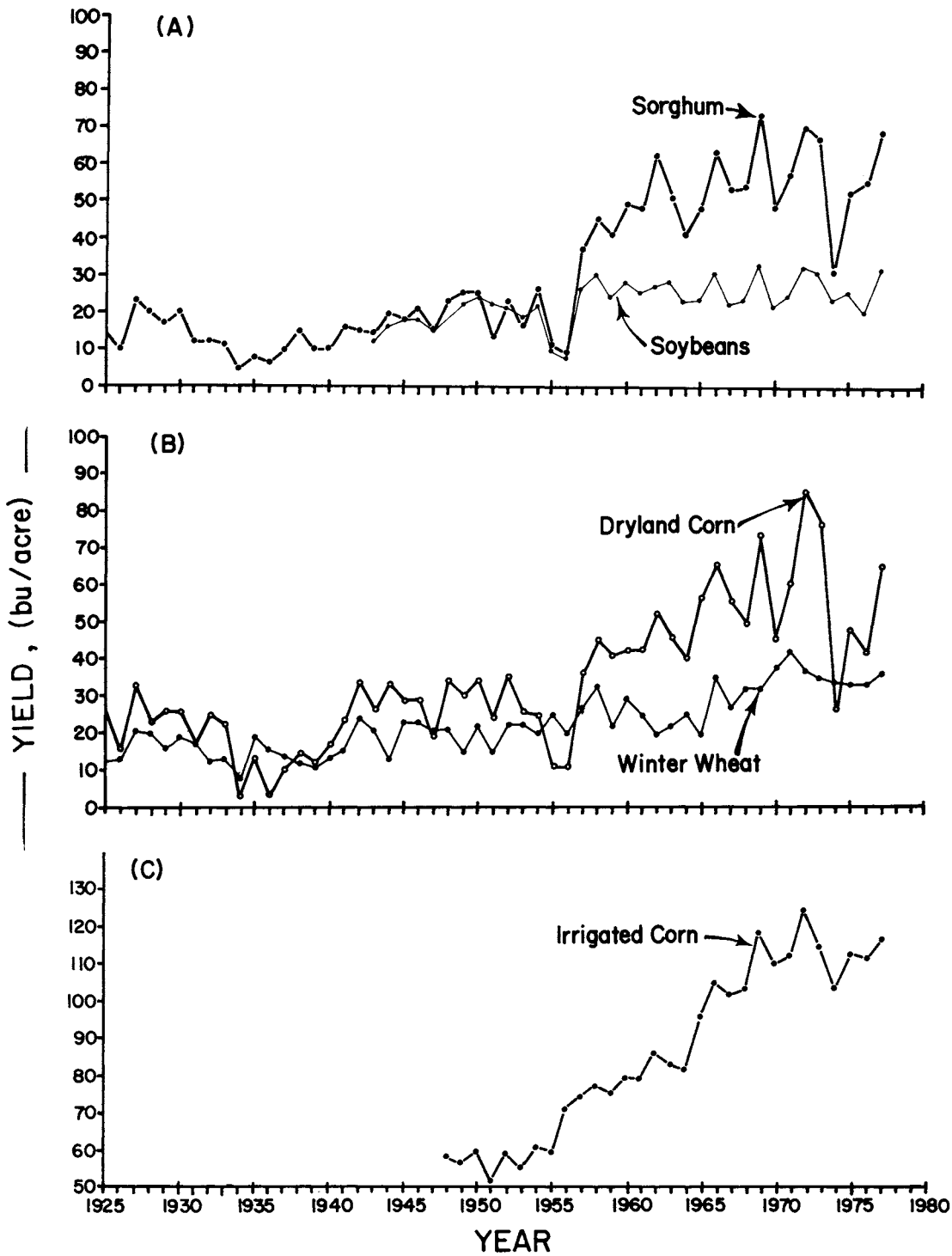
example, in 1974 irrigated corn production accounted for 54 percent of the corn for grain acreage; however, it accounted for 82 percent of the total corn for grain production.

Yield data for the major cultivated agronomic crops can best illustrate response to applications of technology. Graph 3 indicates that the impact of these technologies on yield became recognizable in the mid to late 1930s. The trend in irrigated corn yield has been especially spectacular. Average yields have increased from between 50-60 bushels/acre in the early 1950s to 110-120 bushels/acre in more recent years. Yield trends for dryland corn and sorghum, while less striking, nevertheless have been impressive. The trends of wheat and soybean yields have been less noticeable, although some increase can be identified.

Agricultural land use changes in Nebraska are summarized in Graph 4 for



GRAPH 2—Corn Production in Nebraska. Source: State-Federal Statistical Reporting Service, U.S.D.A.

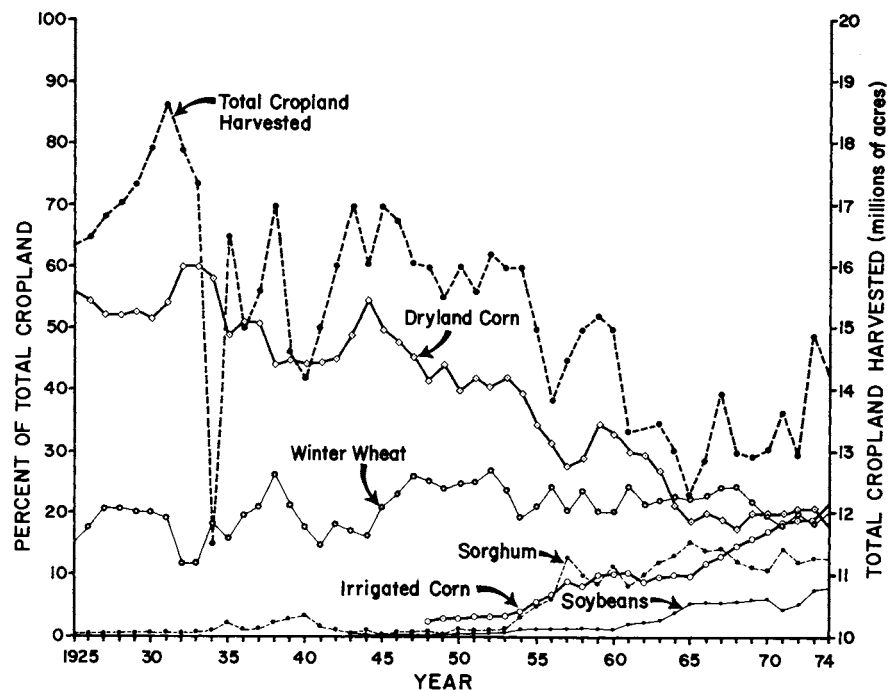


GRAPH 3—Crop Yields in Nebraska: (A) Sorghum and Soybeans; (B) Dryland Corn and Winter Wheat; (C) Irrigated Corn. Source: State-Federal Statistical Reporting Service, U.S.D.A.

the major cultivated crops as well as total cropland acres harvested. Data for each of the crops are expressed as a percentage of total cropland acres harvested. The convergence of the land use trends for each of the crops also illustrates today's greater agricultural diversification. In 1925 dryland corn was produced on approximately 55 percent of the cropland in the state. This figure declined to 18 percent by 1974. By contrast, wheat has remained stable during this same period, especially since the late 1950s. In 1974 wheat accounted for about 20 percent of the total cropland acres harvested. Irrigated corn, sorghum and soybeans constituted 21 percent, 13 percent and 8 percent, respectively, of the total cropland acres. Thus, corn (dryland and irrigated), wheat, sorghum and soybeans accounted for 80 percent of the total cropland acres harvested in Nebraska in 1974.

Graph 4 displays several other in-

teresting characteristics that are worthy of note. First, the trend of total cropland acres harvested in the state has declined from a peak of 18.6 million acres in 1931 to about 14.2 million acres in 1974. This decline reflects a response to government programs which gave farmers the incentive to set aside cropland. Events since 1972 have resulted in a large proportion of this cropland once again being cultivated. Figures available for 1977 indicate that approximately 16 million acres of total cropland were harvested. Second, the variability of total cropland acres harvested indicates the historical impact of weather on the state's agricultural productivity. This is most conspicuous in 1934 when severe drought resulted in only 11.5 million total cropland acres harvested, as compared with 17.3 million acres in 1933. Finally, irrigated corn, as a percentage of total cropland acres harvested, surpassed that of all other crops for the first time in 1974.



GRAPH 4—Agricultural Land Use Changes in Nebraska. Source: Compiled from data reported by the State-Federal Statistical Reporting Service, U.S.D.A.

PATTERNS OF AGRICULTURAL LAND USE CHANGE

The sequence of graphs and maps which follow focus on agricultural land use changes in Nebraska between 1925 and 1974. This graphic material is organized into three parts. First, land use data for four Nebraska counties graphically highlight the composite changes which have occurred for corn, wheat, sorghum and soybeans. Comparatively these graphs demonstrate the regional variability of land use changes in the state. Secondly, a series of maps, presented at 10-year intervals beginning in 1925, examine the historical patterns of total cropland acres harvested and rangeland acres in the state. Finally, a series of maps illustrate the historical patterns of corn (dryland and irrigated), wheat, sorghum and soybean acres harvested, expressed as a percentage of total cropland in each county. Data used in the production of the maps are available from the author upon request.

These data, presented as a percentage of total cropland acres harvested, remove the effect of county size in the different historical series. For example, in 1925 Cheyenne County and Deuel County in western Nebraska harvested 265,000 and 97,000 acres of crops, respectively. Their respective acreages of harvested dryland corn were 85,000 and 31,000. If these data were categorized on the basis of acreage, Cheyenne County would be depicted as a more important corn-growing county, whereas, in fact, the ratio of dryland corn to total cropland acres harvested was the same—32 percent in both instances. Therefore, a more valid picture of primary growing areas is obtained when the acreages of individual crops are expressed as a per-

centage of total cropland acres harvested.

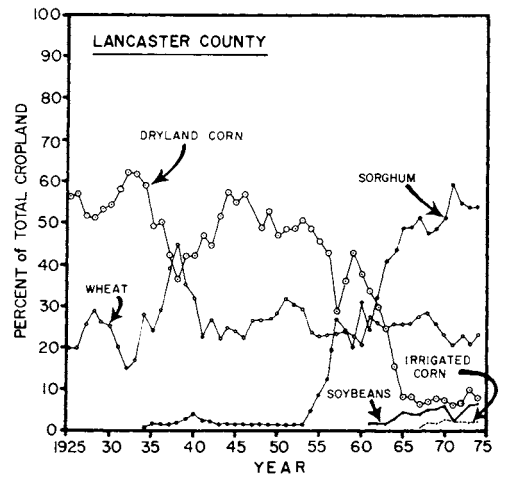
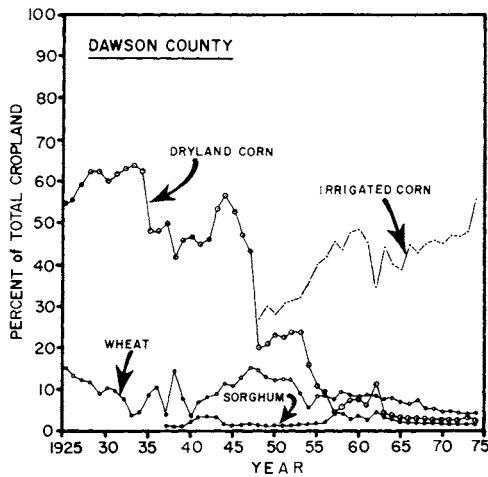
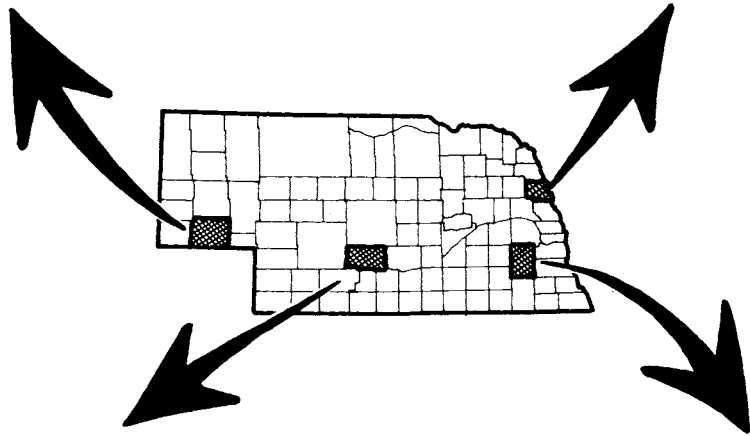
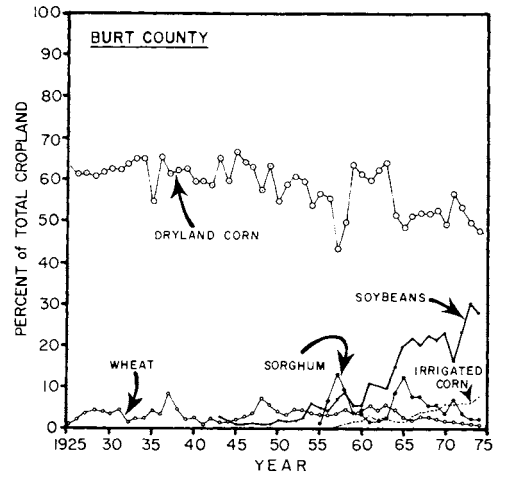
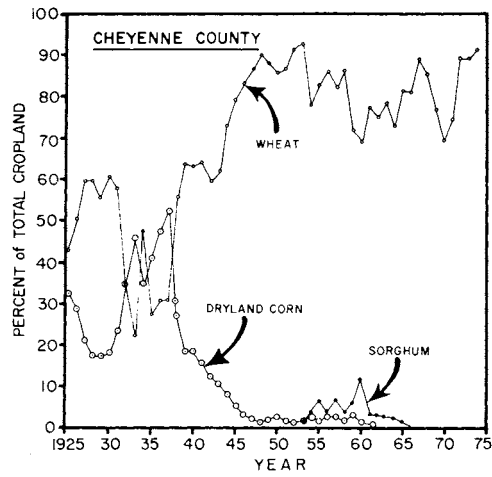
One difficulty inherent in this method of presentation is that it illustrates the primary uses of cropland in the counties rather than the quantity of cropland devoted to specific crops. Therefore, counties with a small proportion of total land area in cropland, such as rangeland counties, may be grouped with primarily farming counties. The 1925 map for dryland corn illustrates this point. Almost without exception, dryland corn was harvested from over 60 percent of the cropland in each of the Sand Hills counties. However, by nature, these counties have rather limited acreages of cropland available. For this reason, the series of maps of total cropland harvested and rangeland acres should be used in conjunction with the maps for cultivated crops.

The percent of total cropland acres harvested for the various cultivated crops varies greatly throughout Nebraska. For comparative purposes, five statistical intervals were chosen to illustrate the pattern for each of the crops. The actual intervals utilized to construct these maps best illustrate the distribution of county percentage values and also differentiate between major and minor counties for each of the crops in terms of acres harvested.

Selected Examples of County Land Use Changes

Environmental differences in Nebraska have resulted in the evolution of regional differences in cropping systems throughout the state. This becomes apparent as patterns of change are examined in greater detail via the series of land use maps. Data from Cheyenne, Dawson, Burt and Lancaster Counties graphically portray in Graph 5 the various cropping systems that have developed.

Cheyenne County is located in western Nebraska, a region characterized by low annual precipitation (17 inches) and a



GRAPH 5—County Land Use Changes in Nebraska. Source: Compiled from data reported by the State-Federal Statistical Reporting Service, U.S.D.A.

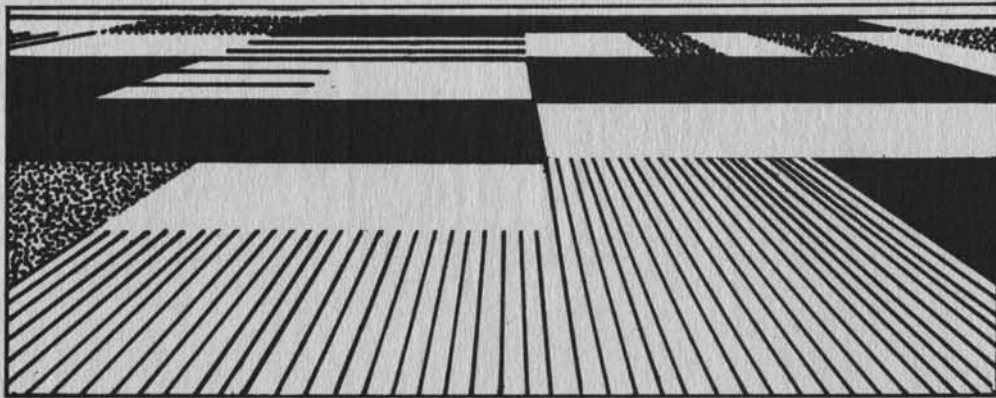
short freeze-free season (130 days). During the period of study, land use changes have mainly represented an interplay between dryland corn and wheat. In 1925 these two crops accounted for 75 percent of the acres harvested in the county. Since that time, dryland corn acreages have become negligible while wheat acreages now account for over 90 percent of the acres harvested. Nearly all of the wheat grown is produced under a fallow cropping system.

Dawson County, adjacent to the Platte River in central Nebraska, annually averages 22 inches of precipitation. The freeze-free season is approximately 150 days. Corn has continued to be the major crop in this county during the past 50 years, although a significant shift from dryland to irrigated has occurred. 1948 was the first year dryland and irrigated corn acreages were reported separately by the State-Federal Statistical Reporting Service. Irrigated acres represented 26 percent of the total cropland harvested at that time. In 1974 irrigated corn comprised 55 percent of the cropland harvested. Dryland corn, sorghum and wheat acreages are negligible.

Lancaster County, in southeastern Ne-

braska, annually averages about 29 inches of precipitation. The freeze-free season averages 175 days. During the 1920s and 1930s, dryland corn and wheat were the primary crops, accounting for about 75 percent of the cropland acres harvested. Since the mid-1950s, dryland corn has been replaced by sorghum as the major crop. Wheat acreage has remained almost constant, averaging between 20-25 percent of the cropland acres harvested. In the past decade, there has been a slight expansion of irrigated corn. Corn, wheat, sorghum and soybeans accounted for about 90 percent of the acres harvested in the county in 1974.

Burt County, in northeast Nebraska, records an average annual precipitation of 28 inches and a freeze-free season of about 160 days. Dryland corn has remained the dominant crop during the entire period of study, although acreages declined slightly to 47 percent of the cropland acres harvested in 1974. Soybean acreage has shown a substantial increase in the past 15 years, accounting for 27 percent of the cropland acres harvested in 1974. Corn, soybeans, wheat and sorghum accounted for 83 percent of the acres harvested in the county in 1974.



TOTAL CROPLAND

The following series of six maps present patterns of change in total cropland acres harvested in Nebraska between 1925 and 1974. Total cropland is defined as the total acres harvested for corn, sorghum, soybeans, alfalfa, winter wheat, barley, oats, rye, potatoes, dry beans and sugar beets.

These maps indicate that cropland acres have been concentrated in south central and eastern Nebraska throughout the 50-year period. During this time, there has been a gradual decline in total acres harvested, most notably in the

south central and eastern portion of the state (see Graph 4). The most rapid decline occurred between 1935 and 1945 and, again, from 1955 to 1965.

Holt County represents an interesting example of how the application of irrigation technology has influenced land use changes in recent years. Cropland in Holt County decreased considerably from 1925 to 1955 in response to the earlier failure of dryland farming attempts in the area and its conversion to range and/or meadow lands. However, introduction of the center-pivot irrigation system in the mid-1960s reversed this trend and resulted in renewed cultivation efforts. Center-pivot systems in Holt County increased from about 700 in 1972 to 1,562 in 1977.

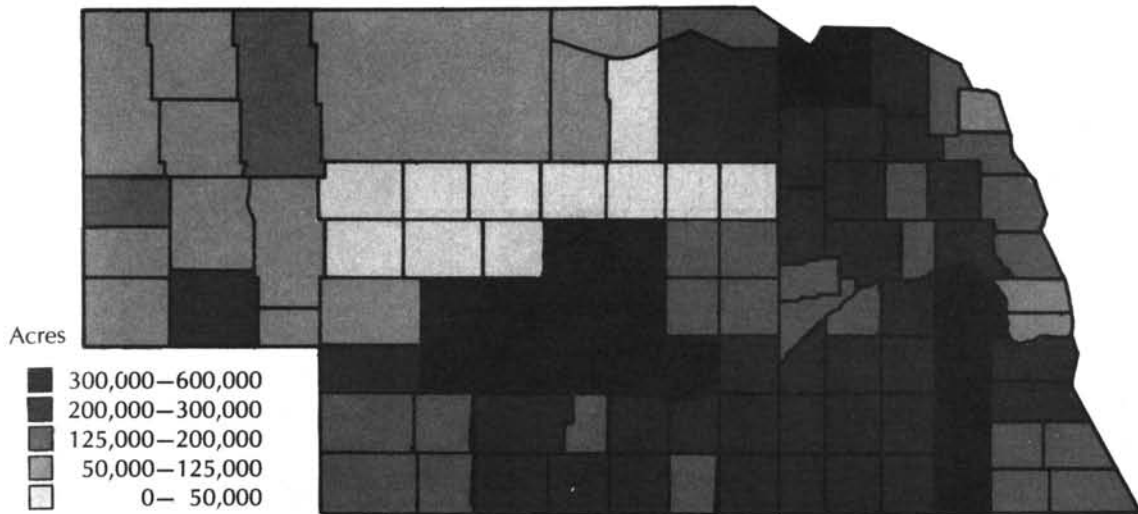


FIGURE 1 TOTAL CROPLAND ACRES HARVESTED, 1925

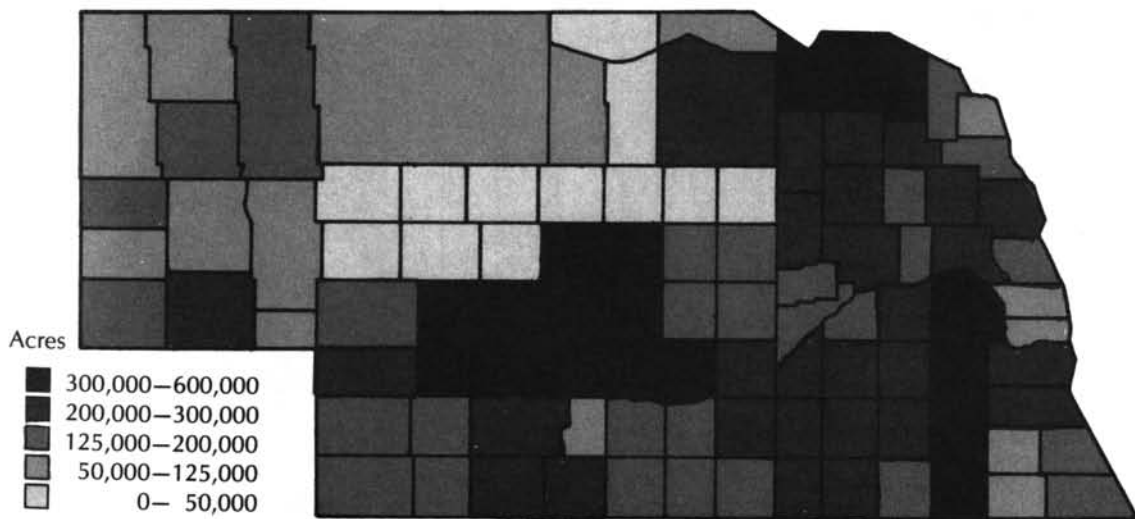


FIGURE 2 TOTAL CROPLAND ACRES HARVESTED, 1935

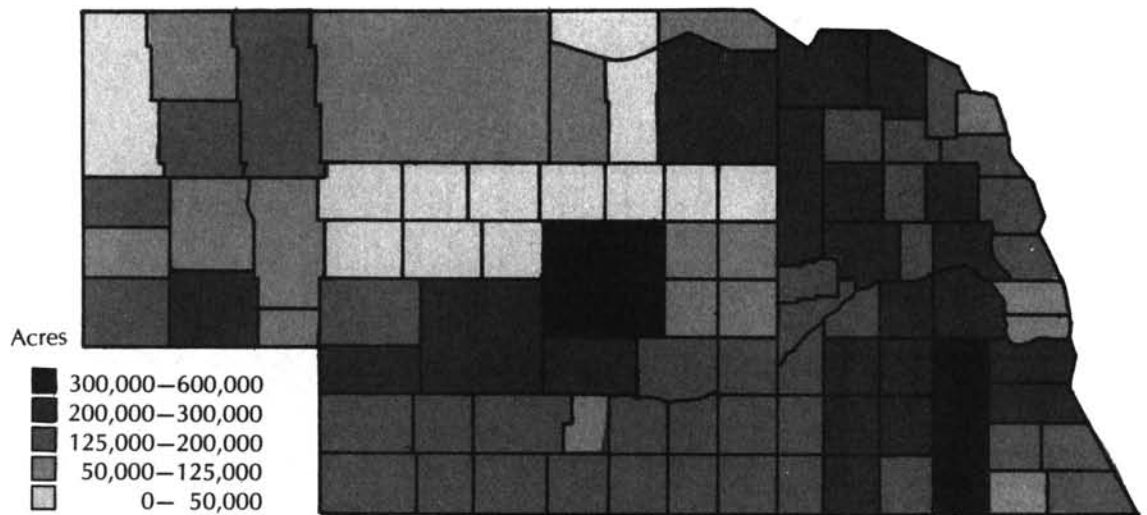


FIGURE 3 TOTAL CROPLAND ACRES HARVESTED, 1945

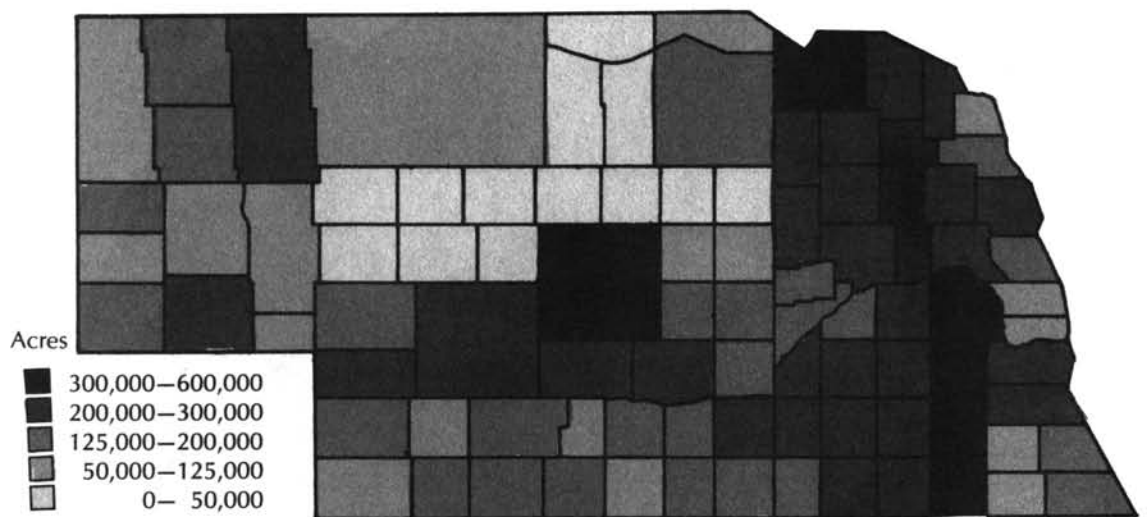


FIGURE 4 TOTAL CROPLAND ACRES HARVESTED, 1955



FIGURE 5 TOTAL CROPLAND ACRES HARVESTED, 1965

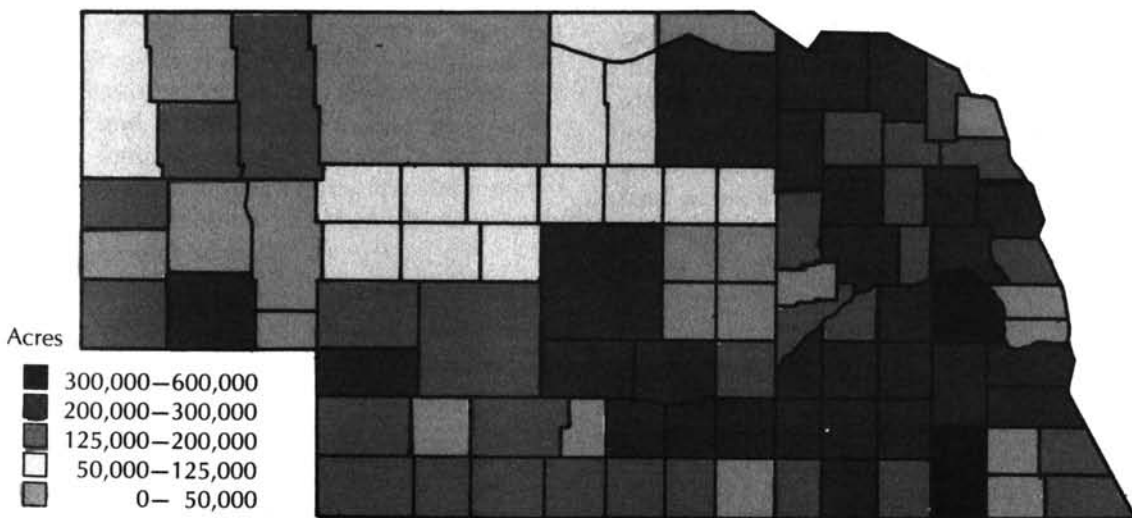


FIGURE 6 TOTAL CROPLAND ACRES HARVESTED, 1974



RANGELAND

Data for rangeland acres were obtained from the U.S. Department of Agriculture's *Agricultural Census* beginning in 1924. Data are published at five-year intervals. The "all other land" classification included in the Census is a "catch-all" category that is taken to represent rangeland acres. In 1974 it was defined as all other land not otherwise itemized and included pastureland and rangeland, house lots, barn lots, ponds, roads, wasteland, etc. During the study period this definition has been altered slightly several times.

Generally, the trend of rangeland over the past 50 years has been for acreages to increase and decrease on about a 20-year cycle. An apparent expansion of rangeland acres occurred between 1925 and 1935, 1945 and 1954, and 1964 and 1974. If one examines rangeland acreage changes in connection with the alterations in its definition during the past 50 years, it is apparent that much of the perceived increase and decrease is the result of the differing criteria which were used to define rangeland. For example, the apparent expansion of rangeland acres from 1964 to 1974 can be partially attributed to the inclusion of house lots, barn lots, ponds, roads and wasteland in the definition.

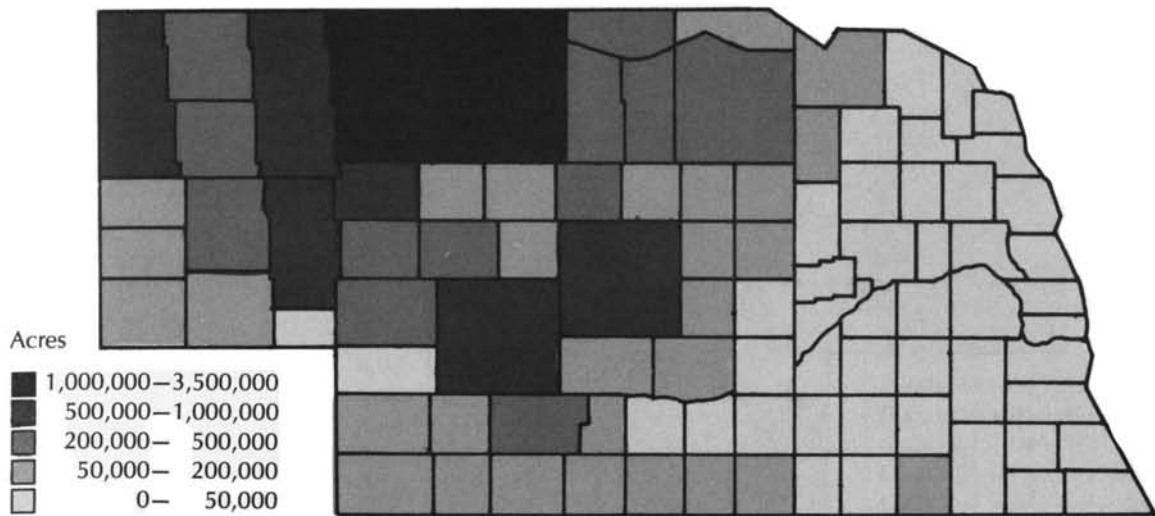


FIGURE 7 RANGELAND ACRES, 1925



FIGURE 8 RANGELAND ACRES, 1935

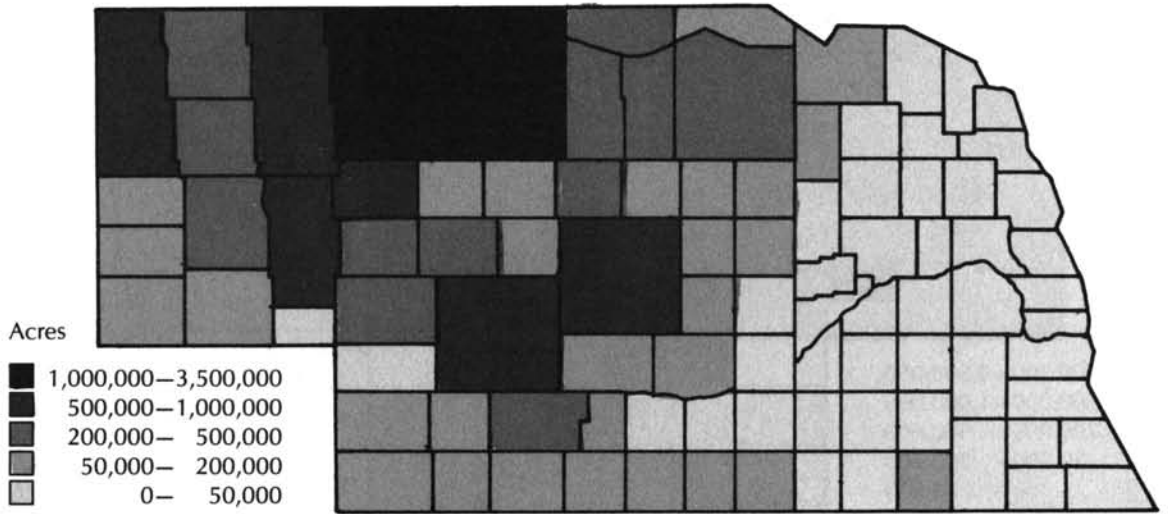


FIGURE 9 RANGELAND ACRES, 1945

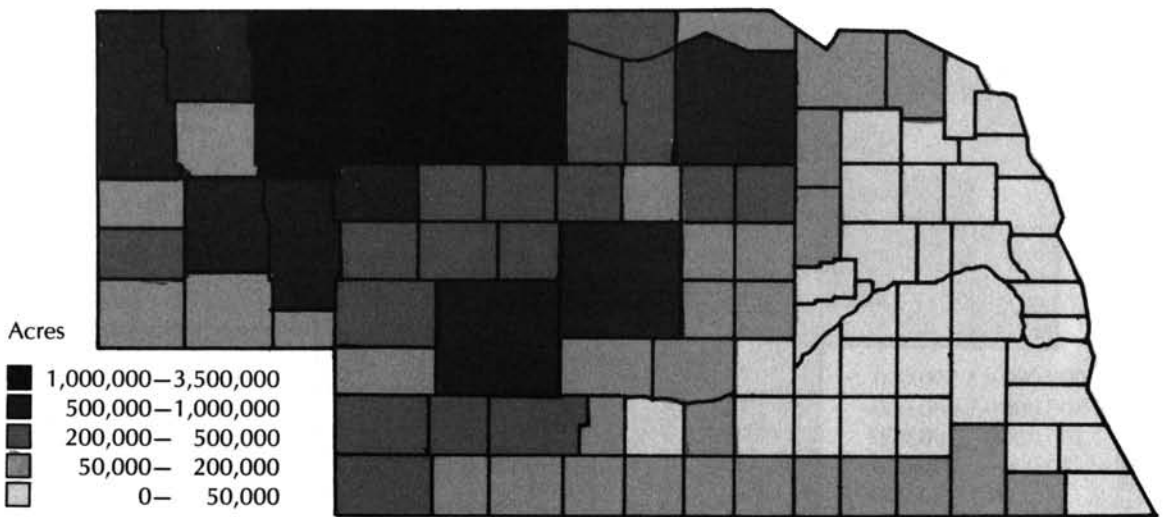


FIGURE 10 RANGELAND ACRES, 1954



FIGURE 11 RANGELAND ACRES, 1964

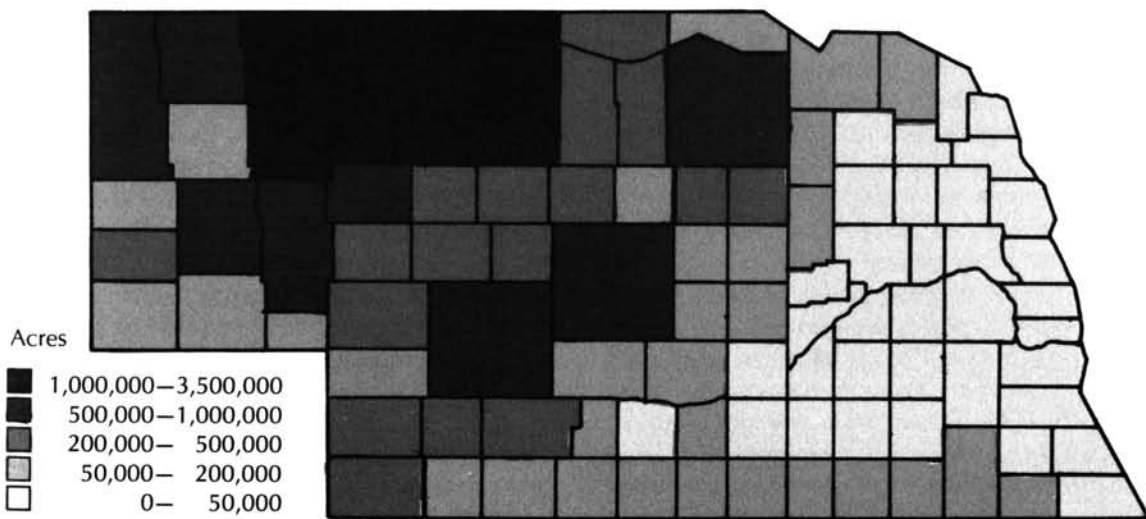
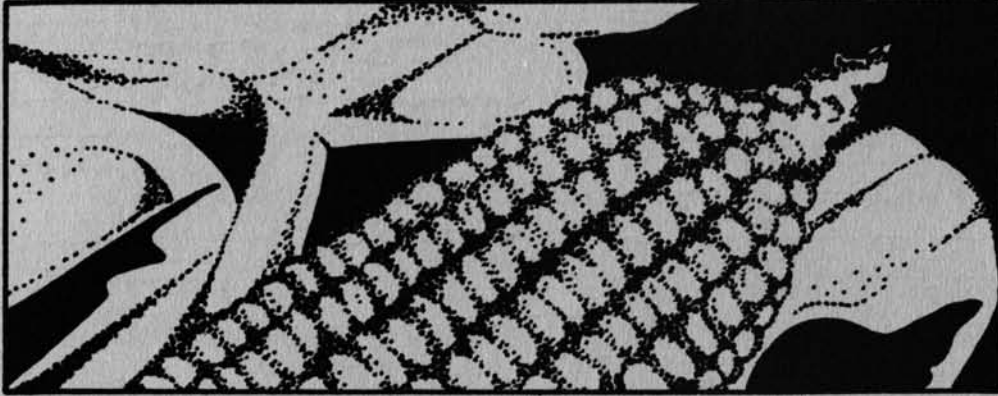


FIGURE 12 RANGELAND ACRES, 1974



DRYLAND CORN

The changes in dryland corn acreages in Nebraska reveal an interesting pattern. In 1925 dryland corn acres were relatively uniformly distributed across the state, except for a portion of the Panhandle. Today, however, dryland corn acres are concentrated primarily in northeastern and extreme southeastern Nebraska. This changing pattern has resulted from a complex interplay of climatic, agronomic and other factors.

The dryland corn map for 1925 shows the Sand Hills of north central Nebraska as a region with greater than 60 percent of its total cropland devoted to dryland corn. One must remember that very little cropland, in proportion to total area, is actually available in the Sand Hills, and this map illustrates only that most of the available cropland in this early period was planted to dryland corn. Most of the cropland in this region has now shifted to irrigated corn and alfalfa.

The maps of dryland corn portray a rapidly receding line of production in the post-1945 era. By 1955 the primary growing area had become concentrated in the eastern one-third of the state. Much of the apparent decline in prominence of dryland corn along the Platte River in central Nebraska between 1945 and 1955 can be attributed to changes in methods of reporting corn acreage data by the State-Federal Statistical Reporting Service, U.S. Department of Agriculture. In 1948 dryland and irrigated corn acreage data were reported separately for the first time, thus placing the importance of irrigation along the central Platte in proper perspective.

The recession of dryland acreages has continued with northeastern and extreme southeastern Nebraska representing the primary growing area in 1974. A band of corn-growing counties of lesser importance extends from northeastern Nebraska towards the southwestern corner of the state.

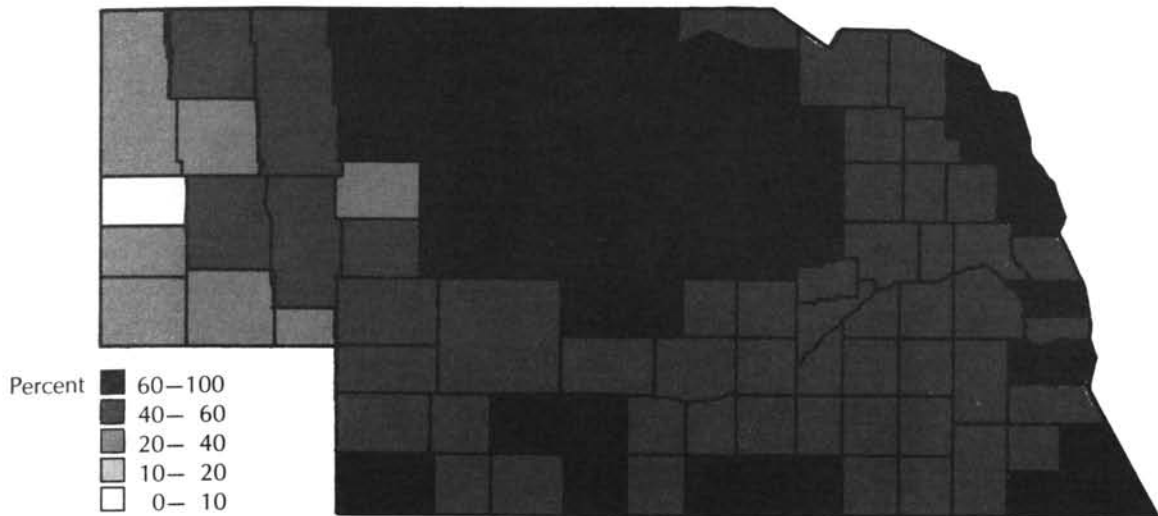


FIGURE 13 DRYLAND CORN, 1925
(Expressed as a Percentage of Total Cropland Acres Harvested)

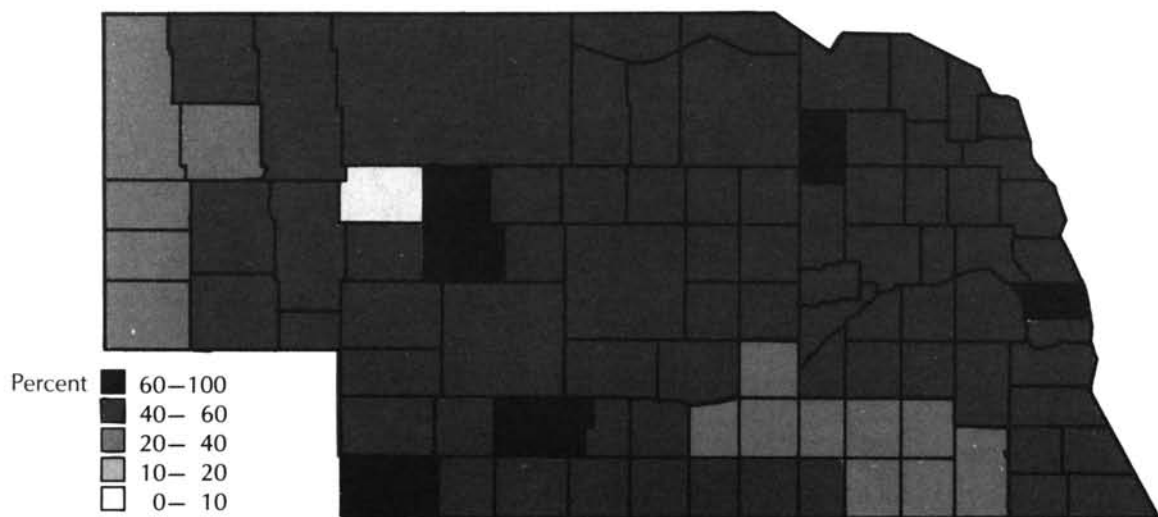


FIGURE 14 DRYLAND CORN, 1935
(Expressed as a Percentage of Total Cropland Acres Harvested)



FIGURE 15 DRYLAND CORN, 1945
(Expressed as a Percentage of Total Cropland Acres Harvested)

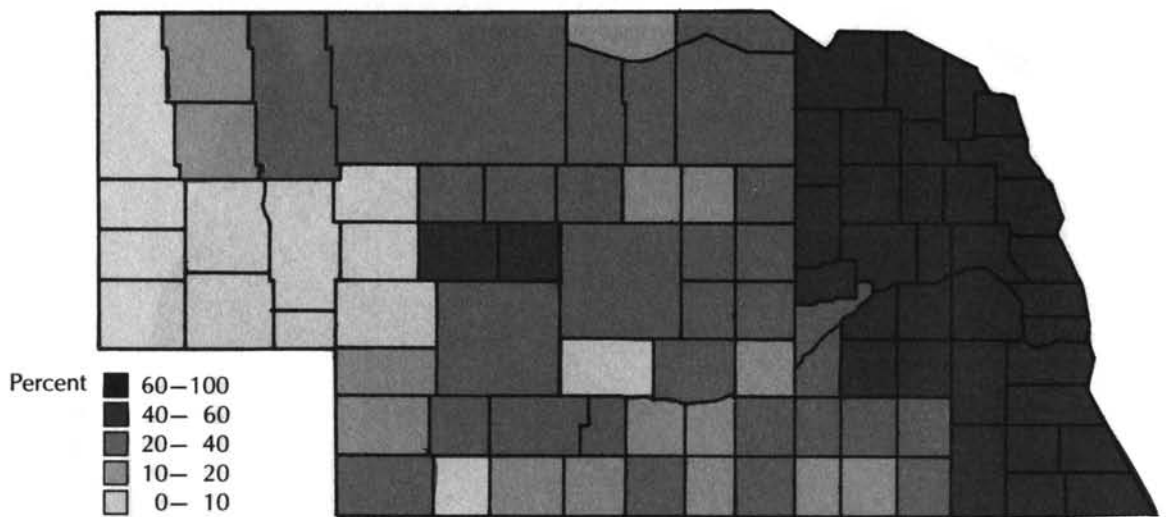


FIGURE 16 DRYLAND CORN, 1955
(Expressed as a Percentage of Total Cropland Acres Harvested)



FIGURE 17 DRYLAND CORN, 1965
(Expressed as a Percentage of Total Cropland Acres Harvested)

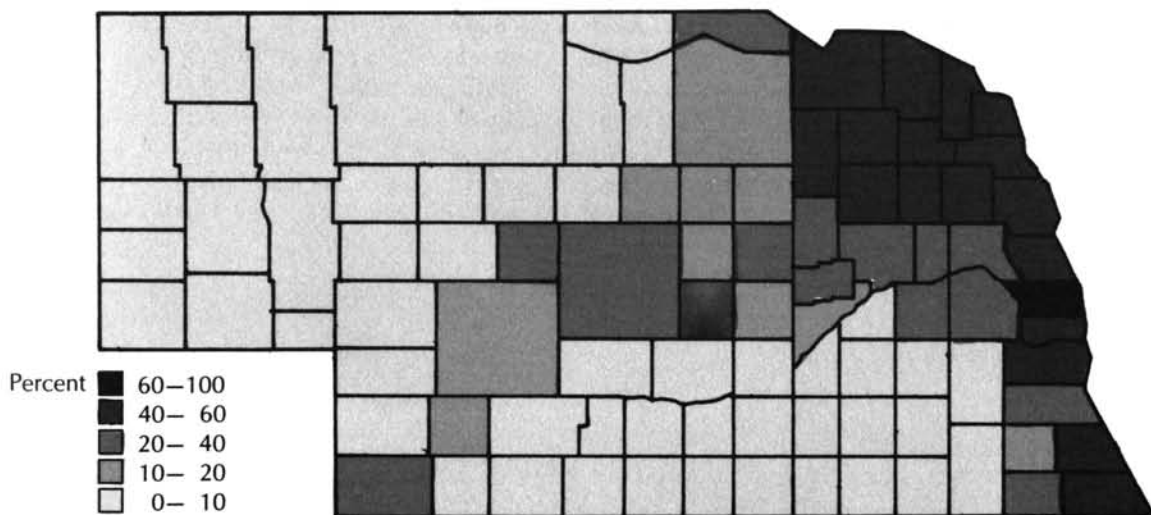
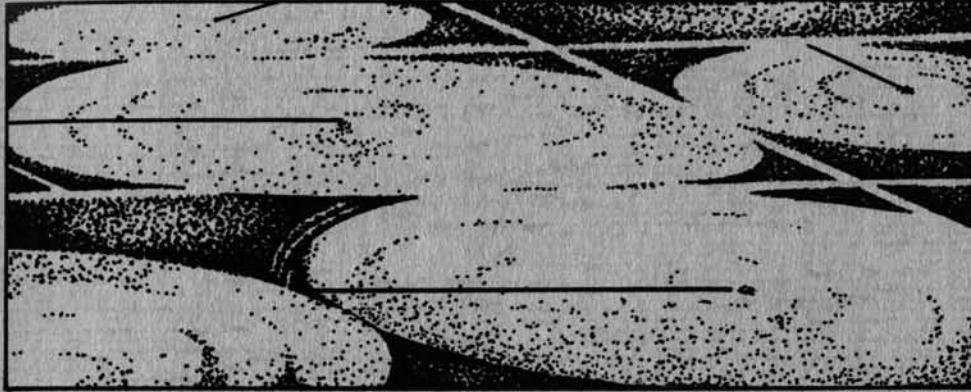


FIGURE 18 DRYLAND CORN, 1974
(Expressed as a Percentage of Total Cropland Acres Harvested)



IRRIGATED CORN

In 1955 irrigated corn acreages were concentrated primarily along the Platte River in central Nebraska and along the North Platte River in Scotts Bluff and Morrill Counties. Garfield and Valley Counties also display some irrigation development in association with the North and Middle Loup Projects. By 1965 there had been further expansion of acres irrigated with surface water along the Platte River and its tributaries. Also by this time, the impact of the center-pivot irrigation system on north

central and south central Nebraska had become apparent, as evidenced by the expansion of acreages. The primary areas for irrigated corn in 1965 were Hall and Merrick Counties, with 40 to 60 percent of their cropland devoted to irrigated corn.

By 1974 the center-pivot system had resulted in a major expansion of irrigated corn acres throughout north central Nebraska as well as towards the southwest and eastern portions of the state. Over 60 percent of the cropland of Hall, Merrick, Hamilton, Phelps, Brown, Rock and Holt Counties was devoted to irrigated corn.

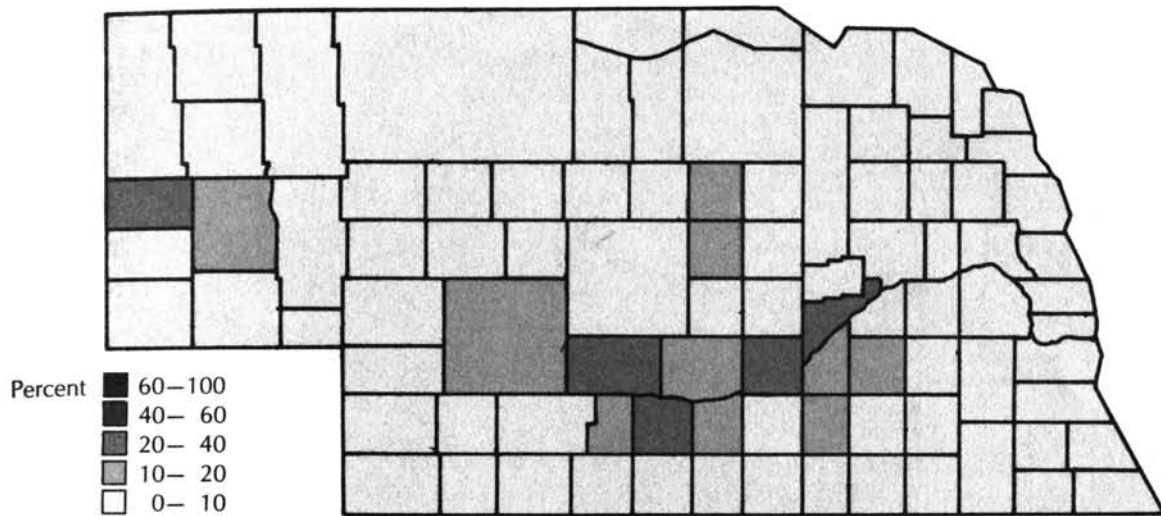


FIGURE 19 IRRIGATED CORN, 1955
(Expressed as a Percentage of Total Cropland Acres Harvested)

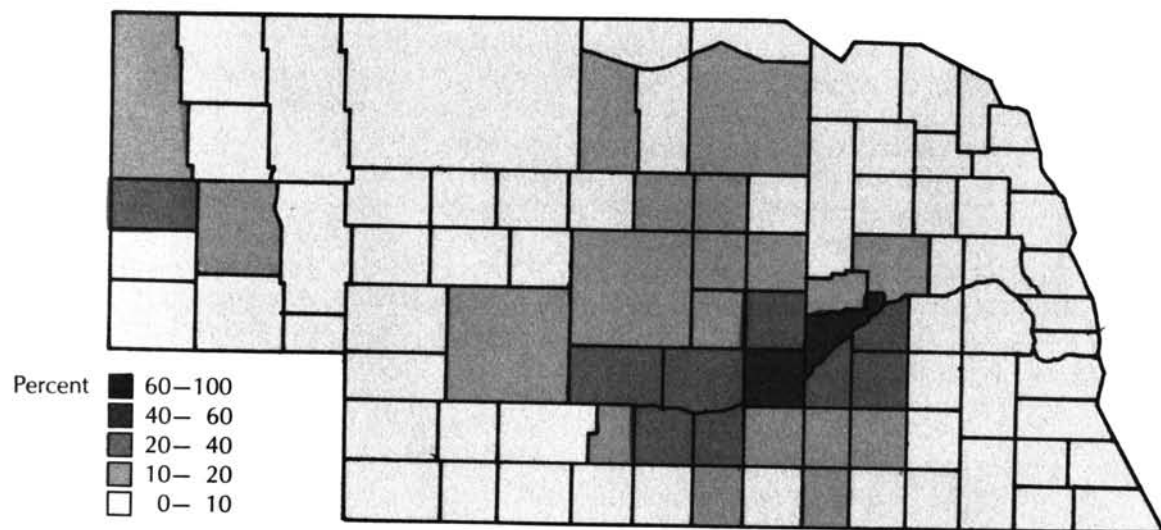


FIGURE 20 IRRIGATED CORN, 1965
(Expressed as a Percentage of Total Cropland Acres Harvested)



FIGURE 21 IRRIGATED CORN, 1974
 (Expressed as a Percentage of Total Cropland Acres Harvested)



WINTER WHEAT

Winter wheat in Nebraska has been concentrated in the Panhandle and the southern half of the rest of the state. This pattern remained basically unchanged from 1925 to 1974, with the expansion of wheat acreages into the Panhandle and southeastern portions of Nebraska. Gains in southeastern Nebraska were especially noticeable from 1925 to 1935. Expansion of wheat acreages in the Panhandle and the southwest was most apparent from 1945 to 1955.

The pattern of wheat production has not changed substantially in recent years. However, wheat acreages have increased, especially in the southwestern and Panhandle portions of the state. For example, in Cheyenne, Kimball, Banner,

and Deuel Counties over 75 percent of the cropland is devoted to winter wheat. For Cheyenne, Kimball, and Deuel Counties this value exceeds 90 percent.

Winter wheat in Nebraska is grown under both continuous and fallow cropping practices. The distribution of these cropping practices for 1974 is also illustrated in this series of maps. Continuous wheat is concentrated in southeastern Nebraska and along the Kansas border in the south central part of the state. Saline, Jefferson and Thayer Counties each have between 20-25 percent of their cropland devoted to winter wheat under a continuous cropping practice.

The distribution of wheat grown under fallow practices is much more extensive than that just described for continuous wheat. Concentrations are primarily in the Panhandle and southwestern portions of the state, although the distribution of this cropping practice extends into southeastern Nebraska.

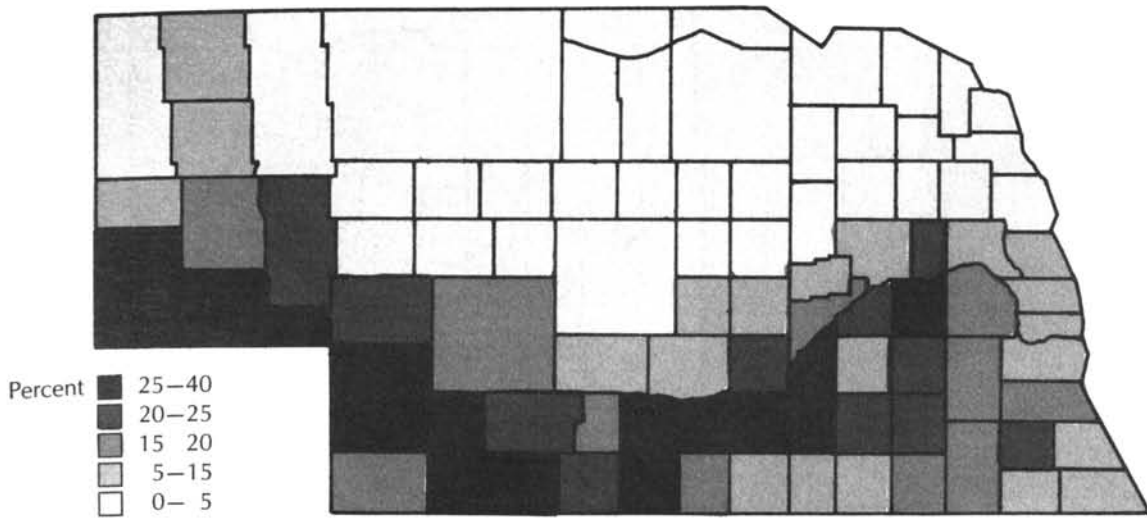


FIGURE 22 WINTER WHEAT, 1925
(Expressed as a Percentage of Total Cropland Acres Harvested)

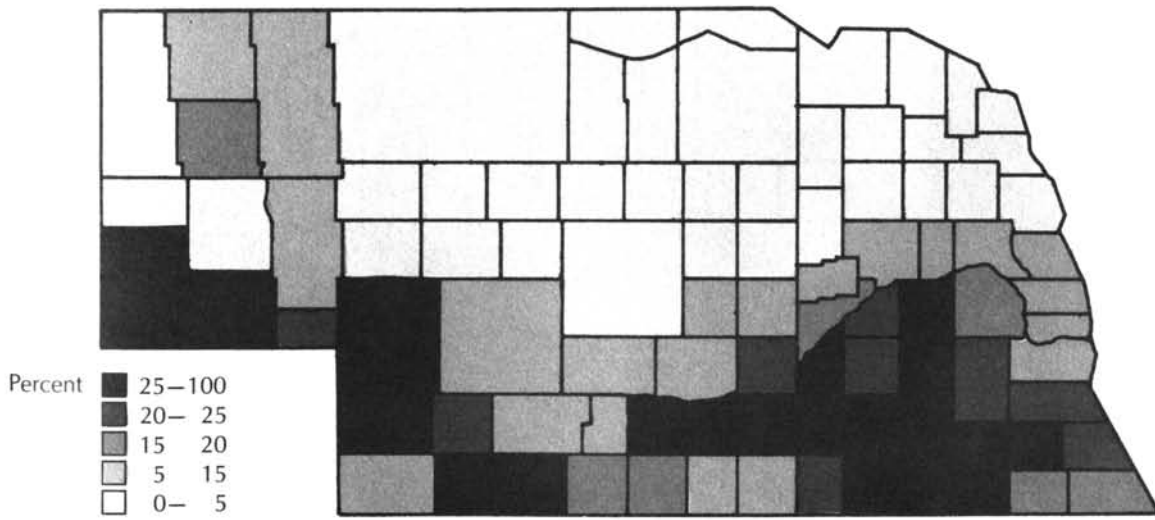


FIGURE 23 WINTER WHEAT, 1935
(Expressed as a Percentage of Total Cropland Acres Harvested)

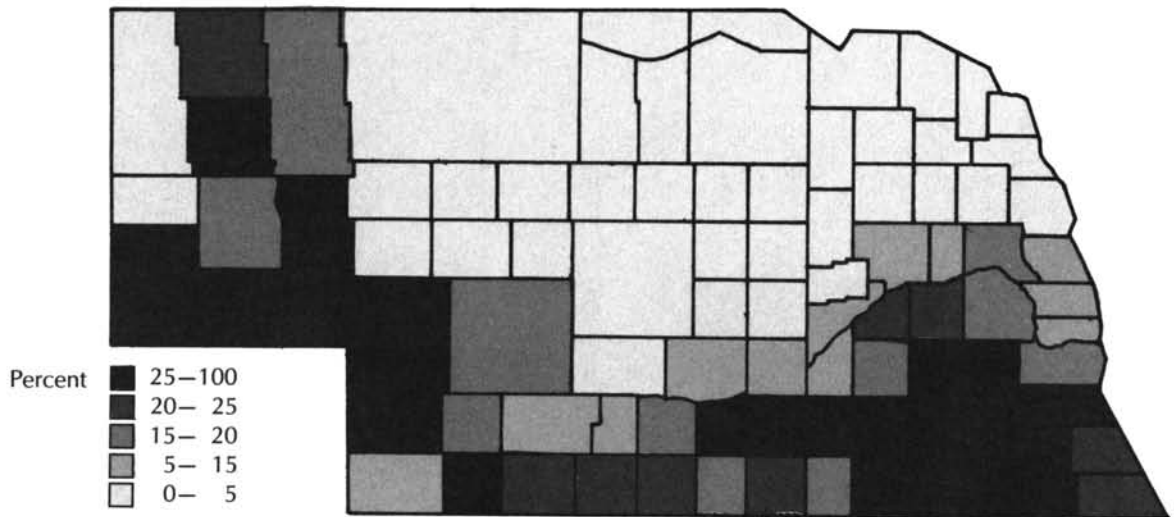


FIGURE 24 WINTER WHEAT, 1945
(Expressed as a Percentage of Total Cropland Acres Harvested)



FIGURE 25 WINTER WHEAT, 1955
(Expressed as a Percentage of Total Cropland Acres Harvested)

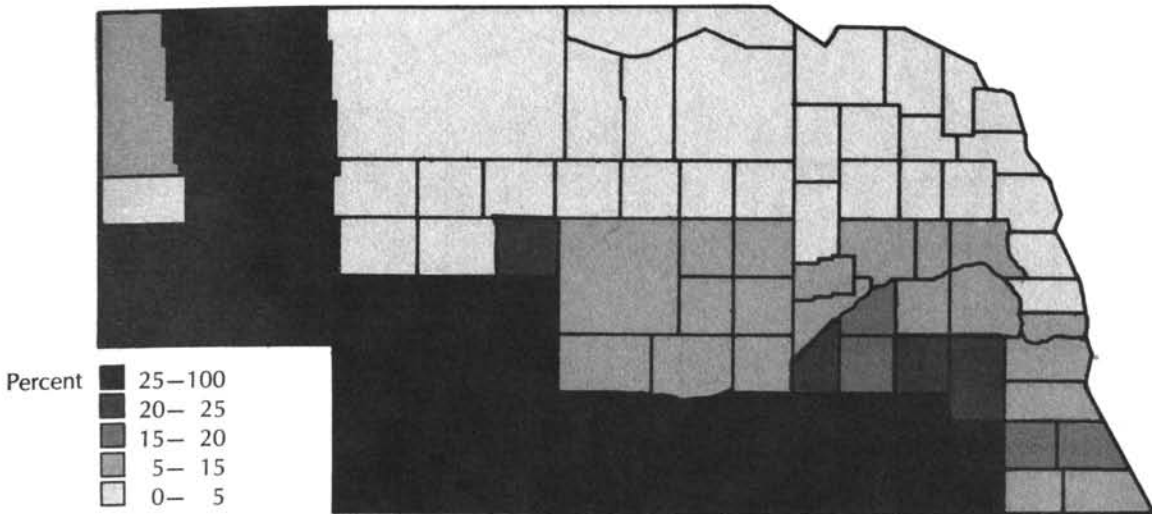


FIGURE 26 WINTER WHEAT, 1965
 (Expressed as a Percentage of Total Cropland Acres Harvested)

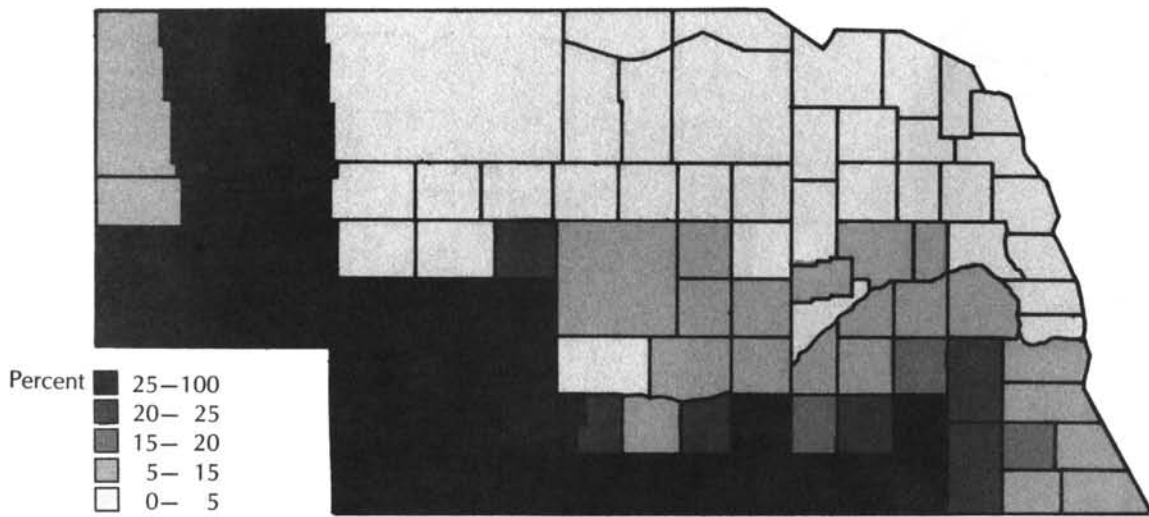


FIGURE 27 WINTER WHEAT, 1974
 (Expressed as a Percentage of Total Cropland Acres Harvested)

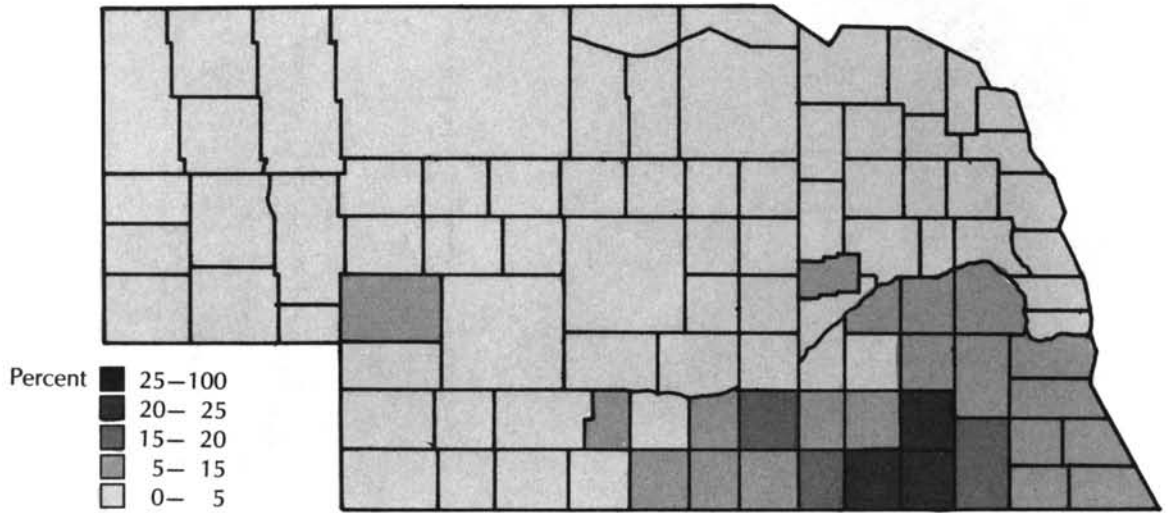


FIGURE 28 CONTINUOUS WINTER WHEAT, 1974
(Expressed as a Percentage of Total Cropland Acres Harvested)

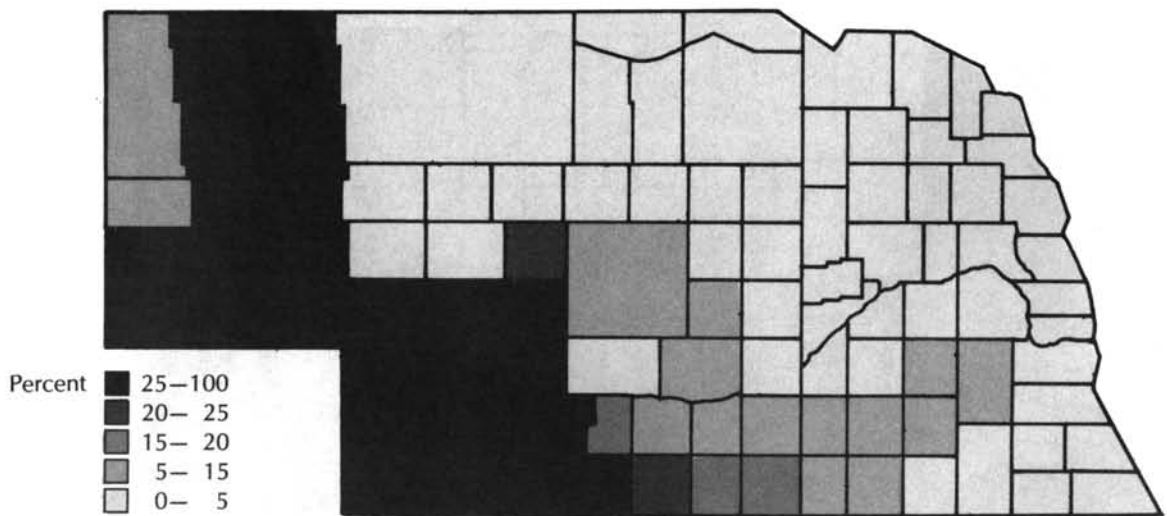


FIGURE 29 FALLOW WINTER WHEAT, 1974
(Expressed as a Percentage of Total Cropland Acres Harvested)



DRYLAND SORGHUM

Although dryland grain sorghum was grown in parts of Nebraska in the mid-1930s, it never really gained spatial importance until the mid-1950s. During the 1950s the distribution of dryland sorghum was limited to the southwestern and south central portions of the state. In subsequent years, this distribution spread so that by 1965 sorghum had become a prominent crop in southeastern Nebras-

ka and also north of the Platte River in the east central part of the state. In 1965 the percentage of cropland devoted to dryland sorghum in Lancaster County (50 percent) exceeded that of all other counties in the state.

By 1974 acreages had receded north of the Platte River and also in the southwestern corner of the state. Sorghum has continued to gain in popularity in southeastern Nebraska. At present, Lancaster, Gage, Jefferson, Nuckolls and Pawnee Counties all have between 40 and 60 percent of their cropland devoted to dryland sorghum.

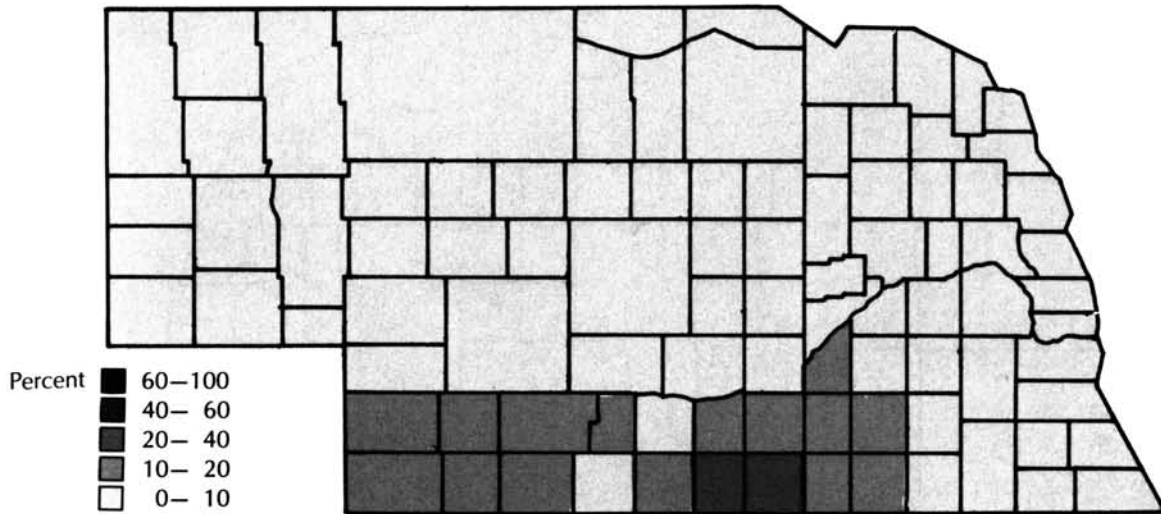


FIGURE 30 DRYLAND SORGHUM, 1955
 (Expressed as a Percentage of Total Cropland Acres Harvested)



FIGURE 31 DRYLAND SORGHUM, 1965
 (Expressed as a Percentage of Total Cropland Acres Harvested)

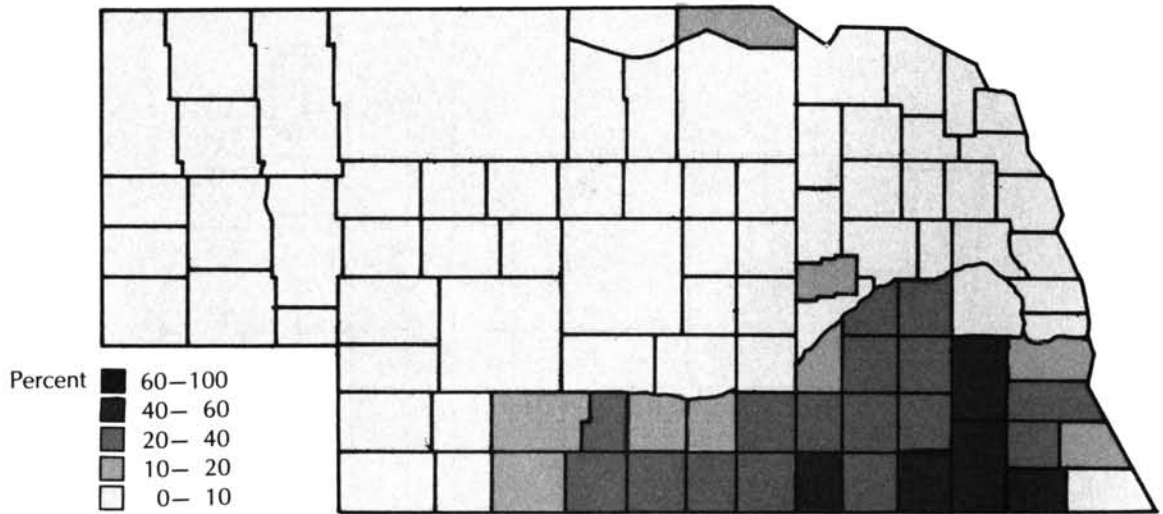
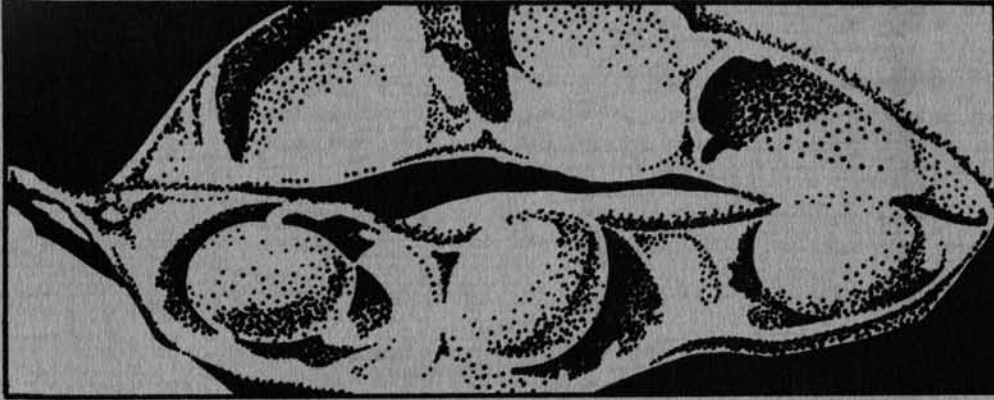


FIGURE 32 DRYLAND SORGHUM, 1974
 (Expressed as a Percentage of Total Cropland Acres Harvested)



DRYLAND SOYBEANS

Soybeans have recently become an important factor in Nebraska's cropping system. In 1955 the distribution of dryland soybean acreage was concentrated in three counties in east central Nebraska—Washington, Dodge and Saunders. In 1965 these counties continued to lead in the percent of cropland devoted to soybeans, but the distribution had spread to most of the previously defined dryland corn counties of eastern Nebraska. Between 15 and 20 percent of the cropland in Dakota, Thurston, Burt, Sarpy, Cass

and Otoe Counties was devoted to dryland soybeans. Counties of secondary importance extended to the north and south along the Missouri River

The distributional pattern illustrated in 1974 duplicated almost exactly that previously discussed for 1965. However in addition to Washington, Dodge and Saunders Counties, the primary growing area had expanded to include Burt, Cuming, Sarpy, Nemaha and Richardson Counties. In these eight counties between 25 and 40 percent of the total cropland acres harvested was devoted to soybeans. In addition, soybeans were harvested from between 20 and 25 percent of the total cropland in Cass, Douglas, Colfax, Madison, Thurston and Wayne Counties.

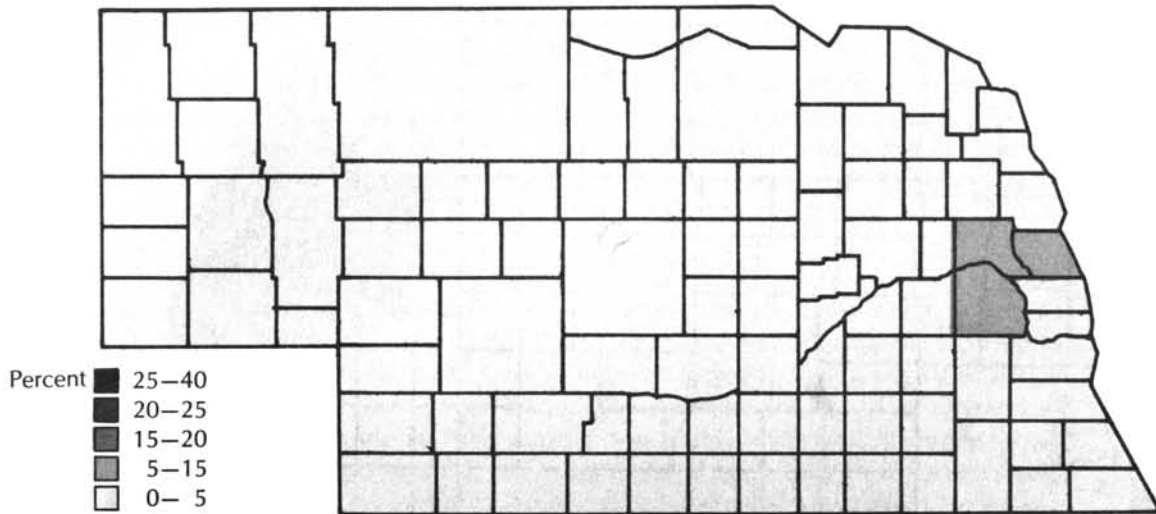


FIGURE 33 DRYLAND SOYBEANS, 1955
(Expressed as a Percentage of Total Cropland Acres Harvested)

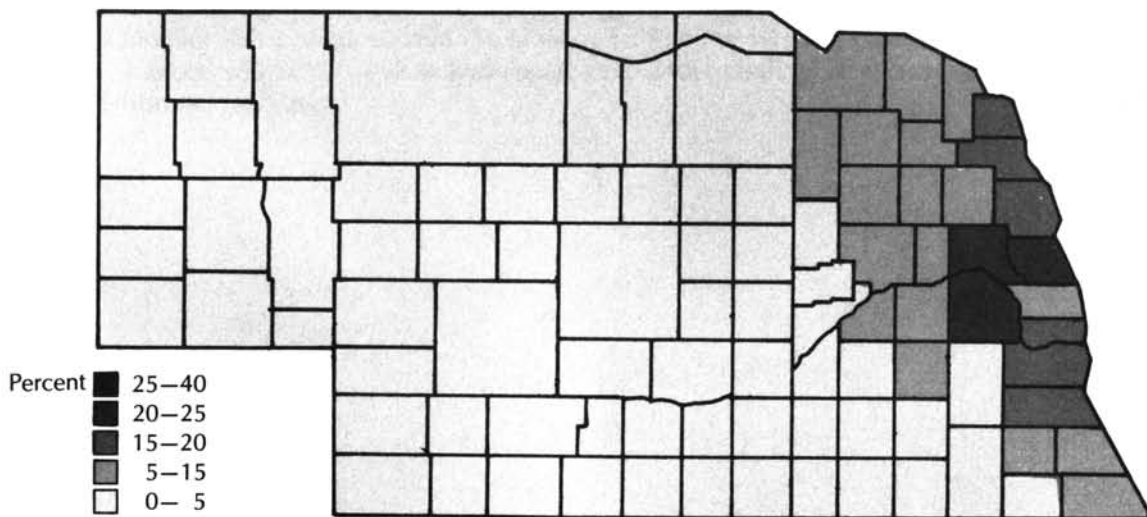


FIGURE 34 DRYLAND SOYBEANS, 1965
(Expressed as a Percentage of Total Cropland Acres Harvested)

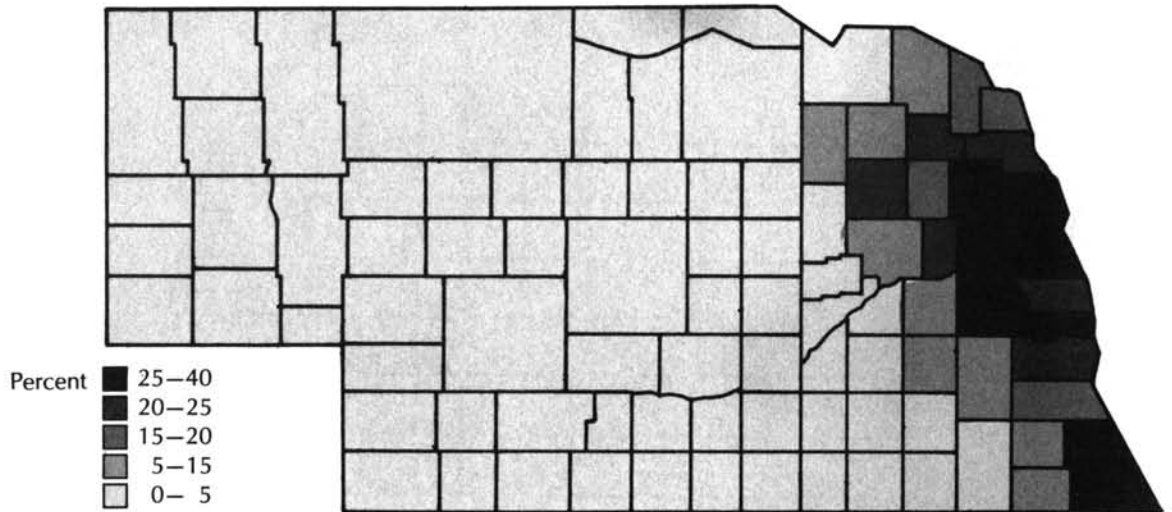


FIGURE 35 DRYLAND SOYBEANS, 1974
 (Expressed as a Percentage of Total Cropland Acres Harvested)

CONCLUSION

The preceding discussion and maps have demonstrated that agricultural land use changes in Nebraska have displayed interesting temporal and spatial characteristics during the period from 1925 to 1974. Dryland corn acreages declined significantly, compared to wheat acreages, which have remained remarkably stable. The void has been filled by the expansion of irrigated corn acreages and the introduction of sorghum and soybeans.

During the period from 1925 to 1974, a more complex agricultural cropping system evolved from the simple corn and wheat system of the 1920s and 1930s. Dryland corn acreages, once relatively uniformly distributed throughout the state, are now concentrated primarily in eastern Nebraska. Irrigated corn has replaced dryland corn in the central, north central and southwestern part of Nebraska. Dryland sorghum and dryland soybeans have gained considerably in importance during the past two decades. Dryland sorghum is concentrated in southeastern and south central counties while dryland soybeans are associated primarily with eastern Nebraska.

Examination of the temporal and spatial characteristics of agricultural land use in Nebraska shows that changes have resulted primarily from the development and application of new technology and in response to federal conservation programs. The primary technological influences on this change in Nebraska have been the development of corn and sorghum hybrids, synthetic fertilizers, irrigation technology and mechanization. Future land use changes will continue to reflect both the impact of technology and response to federal programs. It is important that we continue to monitor this change so that decisions regarding the utilization of our natural resources will occur with a knowledge and understanding of current, as well as historic, land use.

