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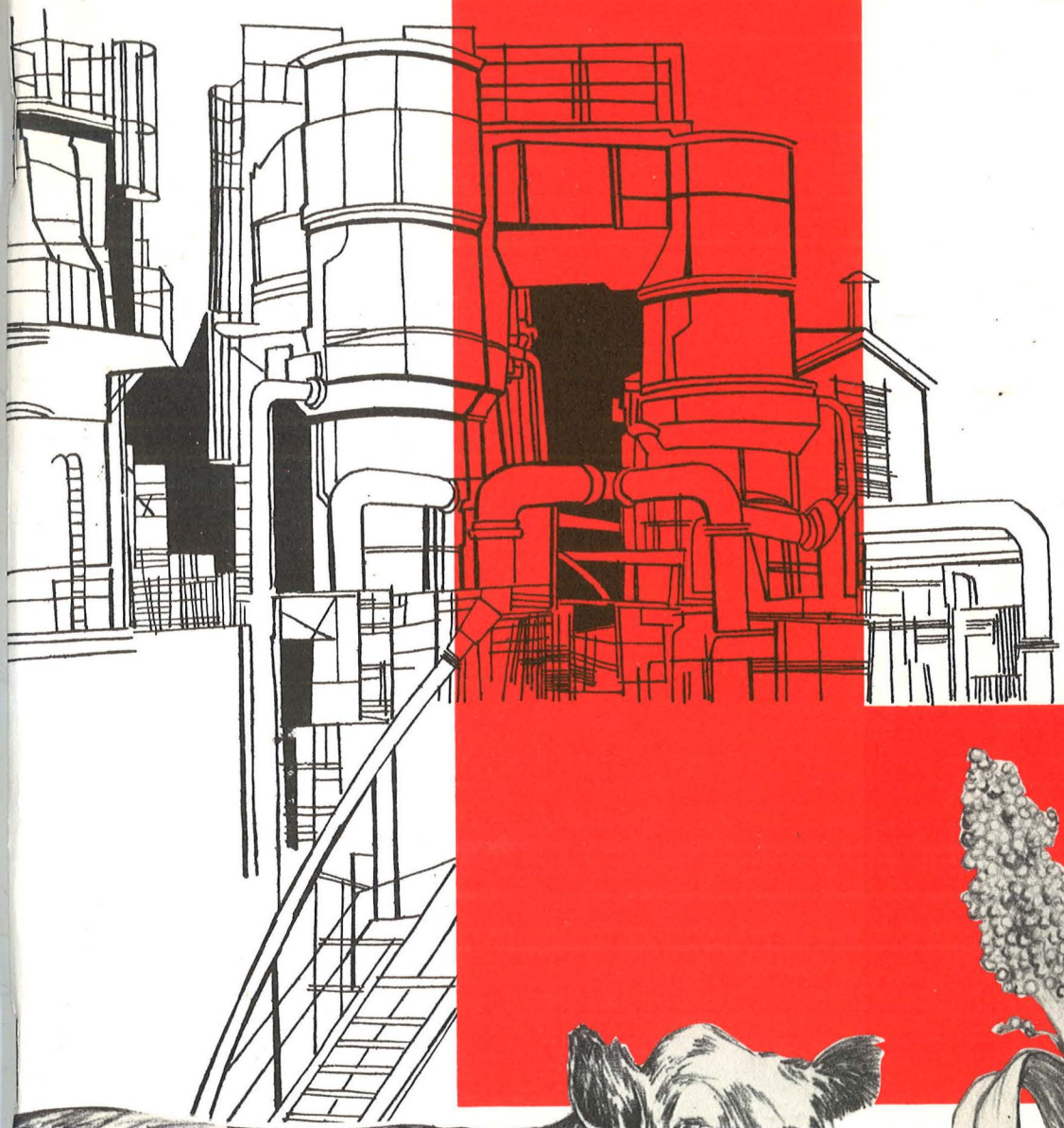
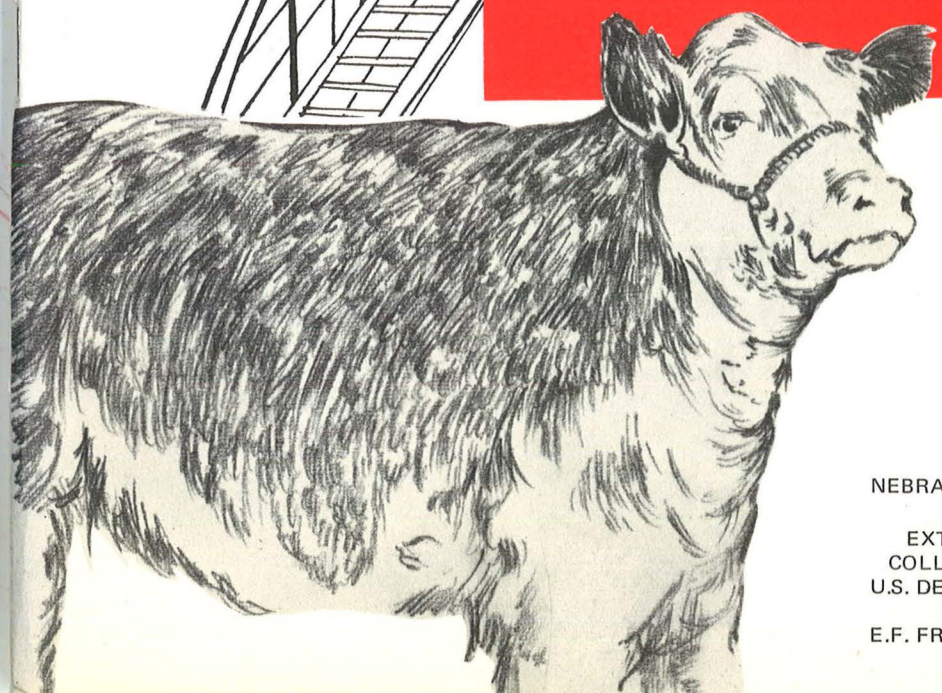
Opportunities for Beef Feeding in Nebraska

A PROSPECTUS





NEBRASKA DEPARTMENT OF ECONOMIC DEVELOPMENT
and
EXTENSION SERVICE UNIVERSITY OF NEBRASKA
COLLEGE OF AGRICULTURE COOPERATING WITH THE
U.S. DEPARTMENT OF AGRICULTURE AND THE COLLEGE
OF HOME ECONOMICS
E.F. FROLIK, DEAN J.L. ADAMS, DIRECTOR

OPPORTUNITIES FOR BEEF FEEDING IN NEBRASKA

- A Prospectus -

by Stanley D. Farlin
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University of Nebraska
South Central Station

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and
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Economic Development

October 1971

FOREWORD

This report was undertaken as a joint project of the University of Nebraska, Cooperative Extension Service, and the Nebraska Department of Economic Development, Division of Industrial Research and Information Services.

Major areas covered in the report include:

- A characterization of the present status of Nebraska's cattle feeding industry;

- A survey of resources available for use in expanding Nebraska's cattle feeding industry;

- Identification of the potential for growth during the next decade; and

- Opportunities for investing in the continuing development of Nebraska's beef feeding industry.

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SECTION I

SUMMARY

Growth in Nebraska cattle feeding has almost doubled the rate of growth nationally during the past few years. Nebraska cattle feeders marketed 3,563,000 grain-fed cattle for slaughter in 1970.

Nebraska cattle feeders have led the other major feeding states in the addition of lots with a lone-time capacity of 1,000 head or more during the period 1963-1970. In 1970, more than one-half of the cattle fed for slaughter in Nebraska were marketed from lots having a one-time capacity of 1,000 head or more.

Forty-five of the total 85 meat-packing plants in Nebraska are major facilities. In both 1969 and 1970, Nebraska led the nation in total cattle slaughtered. Over 12 percent of the total cattle slaughtered in the 48 states occurred in Nebraska in 1970. Kill capacity (per 8-hour shift) in Nebraska plants is approximately 5,400,000 head per year.

Nebraska ranks fourth among states in calf production; yet produces only about one-half of the calves fed in Nebraska. Nebraska's central location in the United States allows it to compete favorably for feeder cattle in the major calf-producing areas of the south, southeast, and northwest.

Nebraska's climate is well suited for cattle feeding. The State is situated below the extremely cold belt and above the excessively warm belt. Top performance can be obtained in open lots with a minimum of shaping.

A 25-30 percent increase in United States beef demand is projected for 1980--equivalent to approximately 13,000,000 head of cattle. Nebraska has the natural resources for supplying nearly half of this demand.

Of the record 555,000,000 bushels of Nebraska feed grains produced in 1969, only 294,494,000 bushels were fed to livestock. Expansion of the Nebraska cattle-feeding industry to utilize surplus feed grains offers many opportunities for investors. A possible doubling of cattle feeding in Nebraska over the next decade, when computed for 155 new lots of 10,000 head one-time capacity, will require annual expenditures of $264,120,000 for feed, $18,912,000 for variable costs, and $697,500,000 for cattle purchases. Nearly $66,650,000 of capital investment would be needed for lots and equipment to increase yearly feedlot capacity by 3,500,000 head.

Major sources of capital available to cattle feeding enterprises include commercial banks, production credit associations, warehouse receipts, bankers acceptances, life insurance companies, individuals, and the Small Business Administration. Others include feeding clubs, public sale of stock by feedlots, cooperative feedlots, Federal Land Bank, and Farmers Home Administration.

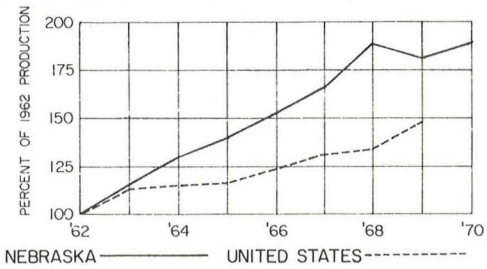
SECTION II

NEBRASKA'S CATTLE FEEDING INDUSTRY

The increased participation of the Nebraska cattle feeding industry in supplying a growing consumer demand for beef has resulted in substantial growth in the number of cattle fed for slaughter over the past two decades. In 1970, Nebraska was second only to Iowa in the number of fed cattle marketed. Nebraska grain fed cattle which were marketed for slaughter in 1970 totaled 3,563,000 head.

Recent trends in the number of cattle fed for slaughter in Nebraska and in the United States are indicative of the increasing importance of the Nebraska cattle feeding industry in supplying the growing consumer demand for beef and veal. During the period 1963 through 1969, growth in the number of cattle fed for slaughter in Nebraska was almost double the rate of growth nationally.

Figure 1 CATTLE FED FOR SLAUGHTER, NEBRASKA AND THE UNITED STATES, 1962 THROUGH 1970.



Also demonstrated by the recent expansion of the Nebraska cattle feeding industry is the importance of the industry to the State's economy. In 1970, receipts from the marketing of slaughter cattle and calves accounted for approximately 53 percent of total receipts from farm marketings in the State.

Characteristics of Nebraska Feedlots

Expanding feedlot capacity from a decreasing number of feedlots has accompanied the growth in the number of cattle fed in Nebraska during the period 1964-1970. Due to the substantial capital requirement for plant and equipment in specialized feeding operations, the industry trend has been toward larger and more efficient operations.

Tables 1 and 2 show the trends in the number and size of Nebraska feedlots. While the total number of feedlots in the State has declined, the number of lots with a capacity of 1,000 head or more is increasing.

Table 1

Number and Size of Nebraska Feedlots, Selected Years, 1964-1970.

Feedlot Capacity (number of head)	1964	1966	1968	1970
Under 1,000[a/]	22,654	21,988	21,215	18,400
1,000 - 1,999	212	238	270	295
2,000 - 3,999	70	90	113	126
4,000 - 7,999	32	48	57	63
8,000 - 15,999	16	11	15	20
16,000 and Over	--	5	8	10
Total Feedlots	22,984	22,380	21,678	18,914

a/ Feedlots under 1,000 head capacity are those in use during the annual feeding season. The number of fed cattle produced is subject to fluctuations in farm feeding, depending on feed grain production and prices and supplies of feeder cattle.

Source: State - Federal Division of Agricultural Statistics, USDA - Nebraska Department of Agriculture, January 1971.

Nebraska cattle feeders have led the other major producing states in the addition of lots with a one-time capacity of 1,000 head or more during the 1964-1970 period. The addition of 184 of these lots in Nebraska was substantially higher than the 120 added in Iowa, which ranked second among the states included in Table 2.

Table 2

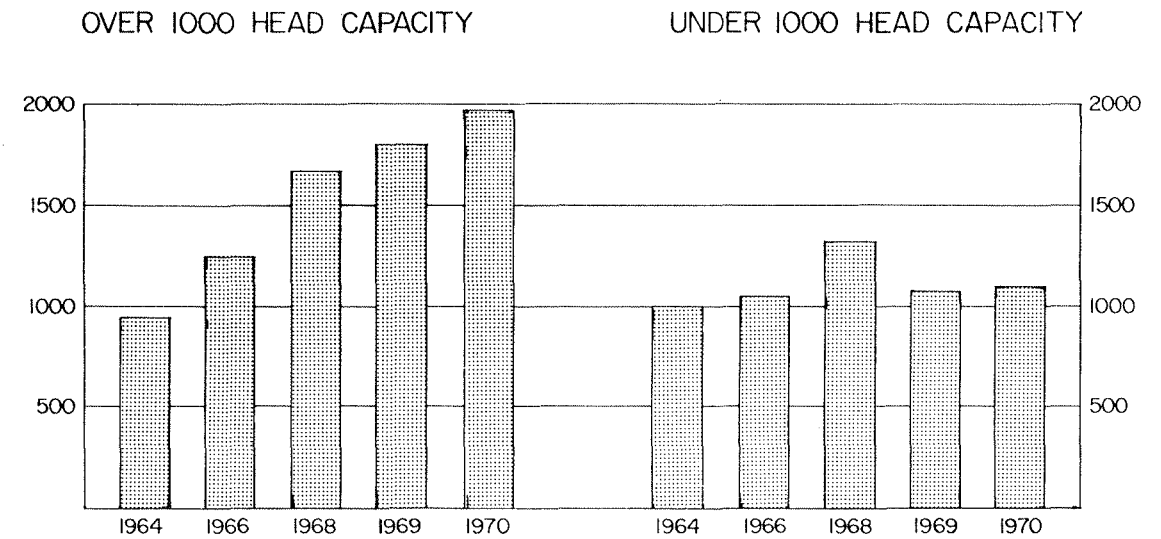
Change in Number of Lots with a Capacity of 1,000 Head or More

State	1964	1970	Increase 1964-70
Nebraska	330	514	184
Iowa	51	171	120
Colorado	83	184	101
Kansas	59	132	73
Texas	234	306	72
California	323	272	-51
Arizona	82	53	-29

Source: State - Federal Division of Agricultural Statistics, USDA-Nebraska Department of Agriculture, January 1971.

In 1969, for the first time, more than half of the cattle fed for slaughter in Nebraska were marketed from lots having a capacity of 1,000 head or more. The trends in fed cattle marketings by size of lots are shown in Figure 2. As illustrated by the figure, while the number of fed cattle marketed from lots of over one thousand head capacity has experienced substantial growth since 1964, the growth in marketings from the smaller lots, while more moderate, has generally been upward.

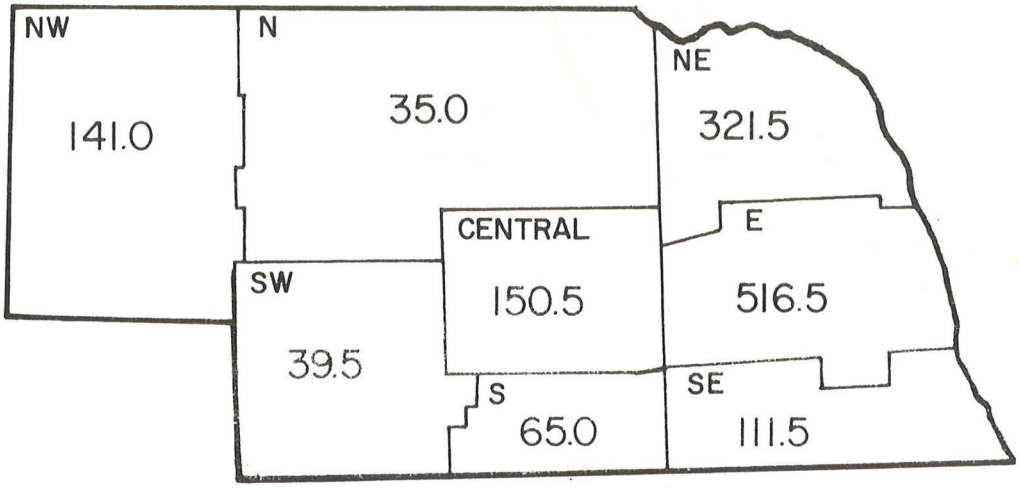
Figure 2
NEBRASKA FED CATTLE MARKETINGS
BY FEEDLOT SIZE



SOURCE: WESTERN LIVESTOCK MARKETING INFORMATION PROJECT

Maximum one-time capacity of Nebraska feedlots capable of feeding 1,000 head or more at one time was 1,380,000 cattle as of January 1, 1971 (Figure 3). Production of nearly two-million head of fed cattle by these lots in 1970 represents only an approximate 65 percent annual utilization.

Figure 3 MAXIMUM ONE-TIME CAPACITY OF LARGE FEEDLOTS IN NEBRASKA
January 1, 1971 (Thousands of Head)



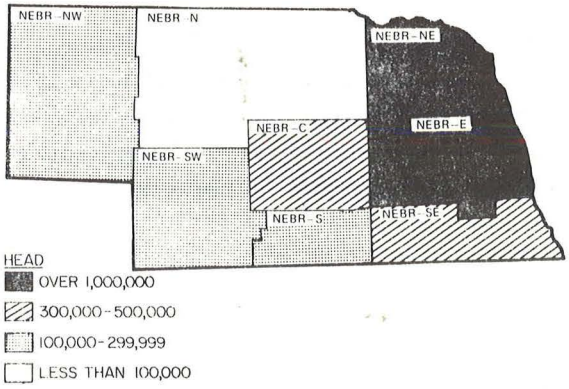
STATE TOTAL CAPACITY: 1,380.5

SOURCE: NEBRASKA DEPARTMENT OF AGRICULTURE

The Geographic Distribution of the Cattle Feeding Industry

The cattle feeding industry is widespread throughout Nebraska; however, the heaviest concentration of cattle feeding occurs in the northeastern portion of the State (Figure 4).

Figure 4 CATTLE PLACED ON GRAIN FEED, NEBRASKA CROP REPORTING DISTRICTS, 1970



The largest percentage increase in cattle feeding during the 1964-1970 period occurred in the North Crop Reporting District (Table 3), where irrigation development has resulted in an increased availability of feed grains for cattle feeding. The largest actual increases in the number of cattle fed occurred in the East and Northeast Crop Reporting Districts.

Table 3

Number of Cattle Fed in Nebraska Crop Reporting Districts, 1964 and 1970.

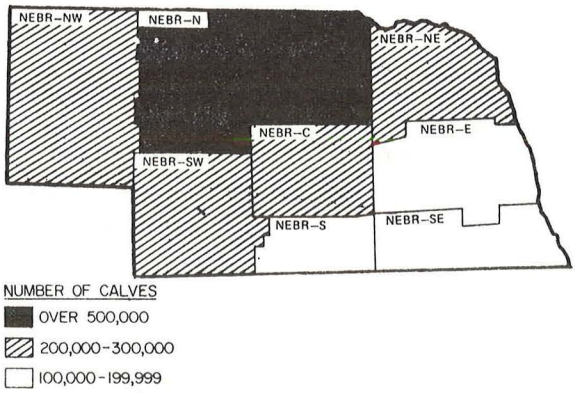
Crop Reporting District	1964	1970	Percent Increase	Percent of Total 1964	Percent of Total 1970
Northeast	702,900	1,000,300	42.3	28.8	28.1
East	717,000	1,114,800	55.5	29.4	31.4
Southeast	254,800	397,700	56.1	10.4	11.2
Central	293,000	439,400	50.0	12.0	12.4
South	153,500	193,100	25.8	6.3	5.4
North	48,500	88,800	83.1	2.0	2.5
Southwest	97,500	109,100	11.9	4.0	3.1
Northwest	173,800	210,800	21.3	7.1	5.9
NEBRASKA	2,441,000	3,554,000	45.6	100.0	100.0

Source: State - Federal Division of Agricultural Statistics, USDA - Nebraska Department of Agriculture, State Agricultural Data, 1970, Preliminary Report.

Feeder Replacement Supply

Nebraska's 1968 calf crop ranked fourth among the fifty states; however, approximately half of its feeder replacement supply originates in other states. In 1970, calves produced in Nebraska numbered 1,981,000, whereas 3,554,000 head of cattle were fed for slaughter. Figure 5 shows the distribution of calf production by Nebraska Crop Reporting District for 1970.

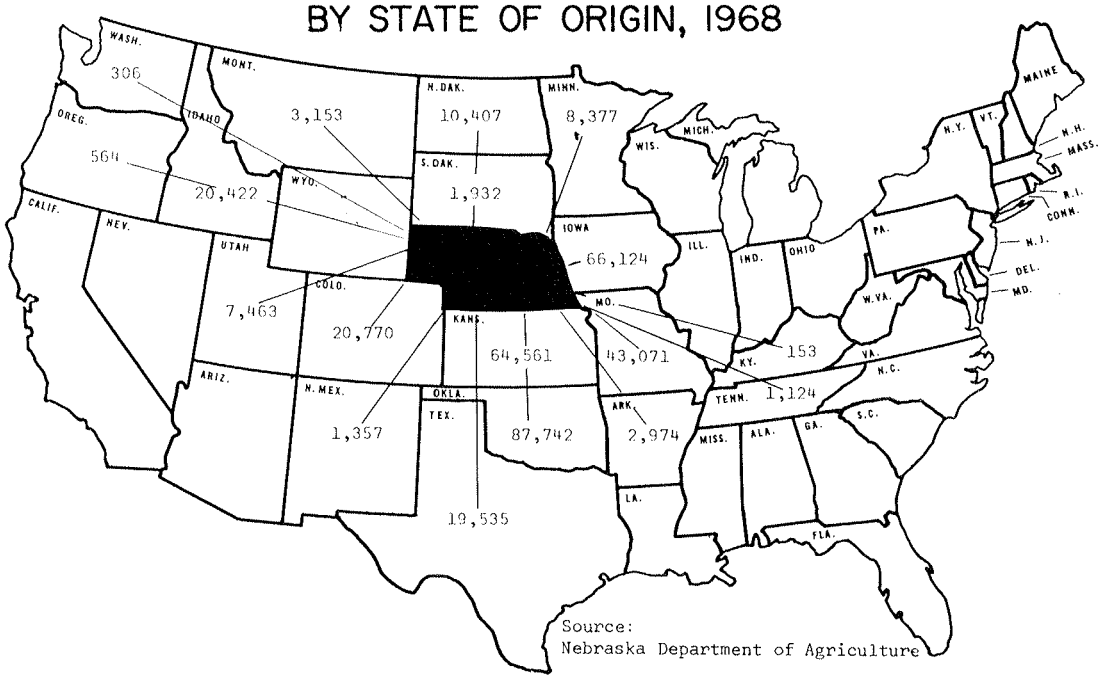
Figure 5 NEBRASKA CALF CROP BY CROP REPORTING DISTRICTS, 1970.



Inshipments of cattle and calves into Nebraska in 1970 totaled 1,964,000 head, with one-fourth of these coming into the State through public stockyards and three-fourths being shipped directly from other states.

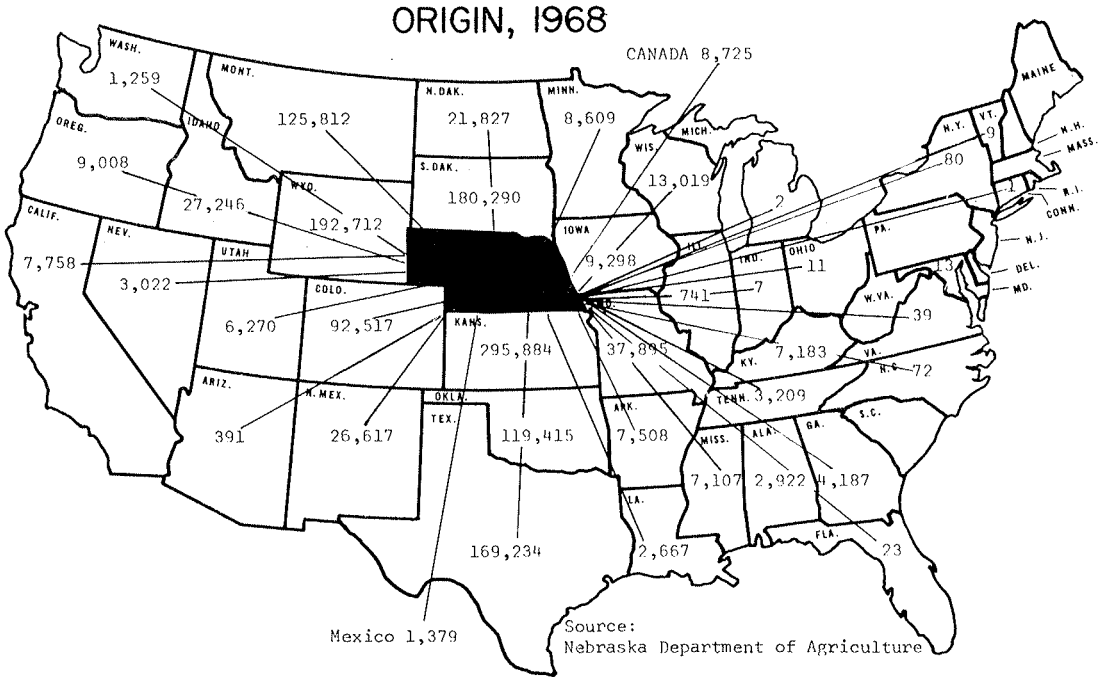
Figure 6 shows inshipments of stocker, feeder, and breeding cattle from public stockyards by state of origin for 1968. In addition to receipts from markets located in other states, the Omaha Public Stockyards shipped 112,334 cattle and calves into Nebraska for feeding and breeding. The 1968 total from all public stockyards amounted to 473,000 head.

Figure 6 NEBRASKA: INSHIPMENTS OF STOCKER, FEEDER, AND BREEDING CATTLE AND CALVES FROM PUBLIC STOCK YARDS BY STATE OF ORIGIN, 1968



Direct inshipments of stocker, feeder, and breeding cattle and calves originate mainly in the Plains and Western States (Figure 7). The most important sources of direct inshipments of stockers and feeders are Kansas, Texas and the range sections of Montana, Wyoming, and South Dakota. Inshipments shown originating in Wisconsin are dairy stock. Total direct imports from all states, Canada, and Mexico amounted to 1,393,968 head in 1968.

Figure 7 NEBRASKA: DIRECT INSHIPMENTS OF STOCKER, FEEDER, AND BREEDING CATTLE AND CALVES BY STATE OF ORIGIN, 1968



Although Nebraska is a feeder replacement deficit area, it should be noted that the State is at no real disadvantage in relation to other leading cattle feeding states. The supply of feeder cattle in the Southern Plains States available for importation into Nebraska has been reduced due to the rapid expansion of cattle feeding in those areas in the last few years. An unfavorable outlook on long-range water supply in some areas of the high plains region may cause expansion to slow down and a reduction in feeding may be necessary in the future if cutbacks in irrigation programs occur. The resulting impact of such developments on the Nebraska cattle feeding industry would assure a continuing source of feeder replacement cattle.

Nebraska's central location places the State in a relatively favorable geographic position to compete for feeder cattle from the states to the north and northwest as well as from the southeastern states where the production of feeder calves is constantly increasing. Table 4 shows approximate road mileage between Lincoln, Nebraska and selected points representing sources of feeder cattle.

Table 4

Distances to Selected Sources of Feeder Cattle

Selected Locations	Approximate Road Miles from Lincoln Nebraska
Amarillo, Texas	587
Baton Rouge, Louisiana	1,000
Billings, Montana	825
Cheyenne, Wyoming	450
Dodge City, Kansas	342
Jackson, Mississippi	850
Little Rock, Arkansas	600
Minot, North Dakota	600
Rapid City, South Dakota	513
Springfield, Missouri	400
Tulsa, Oklahoma	375

Overall, being a feeder replacement deficit area does not severely limit continued growth of the cattle feeding industry in the state. Transportation costs are a relatively small percentage of total costs, and feeders will continue to move cattle long distances if they can improve the potential for profit in this way.

As cattle feeding increases it will create a corresponding demand for feeder cattle. Nebraska has the resources necessary to become nearly self-sufficient in feeder-calf production in the future. Full utilization of present crop residues could support a substantial increase in feeder-calf production. Development of irrigation in the sandhills area, which will increase the efficiency and production capability of existing cow-calf producers, will also be important for increased calf production in Nebraska. Current development in these areas indicates that increased production of calves will probably occur near the range country before it will in areas of surplus crop residues. Estimates indicate that irrigation in those areas of Nebraska can increase feeder calf production by two million head.

It is desirable to keep supply and demand of feeder cattle in balance on a nation-wide scale, so that all components of the beef cattle industry can prosper. It is also highly desirable to exploit Nebraska's competitive advantages. Nebraska can and should capture a larger percentage of the national growth in feeder calf production than it has in the past. Achieving this will reduce the feeder calf deficit and strengthen Nebraska's competitive position for cattle feeding.

Industry Outlook

Based on projections of per capita beef consumption and U. S. population growth, 1980 beef consumption in the United States is expected to increase to approximately 137 percent of its 1968 level. Production of slaughter cattle and calves in the United States will have to increase by approximately 13,000,000 head to meet this growing consumer demand.

The Nebraska cattle feeding industry will have the capability to contribute over half of the increased production needed to supply the 1980 consumption demand. For example, in 1969 only 53 percent of Nebraska's feed grain supply was fed in the State. Surplus supplies of feed grains, excellent supplies of water and other factors give Nebraska a competitive advantage over many of the other cattle producing states.

SECTION III

WHY FEED IN NEBRASKA?

Nebraska has traditionally been a leading cattle feeding State. However, tradition cannot dictate when the realities of the market must be dealt with in buying, feeding, and selling livestock. This section of the prospectus discusses the major physical and economic factors related to opportunities for expansion of the cattle feeding industry in Nebraska.

Feed Grain Availability

Possibly the single most important asset that Nebraska has for the cattle feeder is an abundant supply of feed grains. Feed cost represents approximately 65-70 percent of the total cost of feeder cattle. Of the total feed costs incurred, up to 80 percent may be charged to feed grains. The advantage of lower feed grain prices in areas of surplus are much more important to cattle feeders than lower supplement or roughage costs.

Table 5

Average Prices Received by Farmers for Selected Feed Items.[a/]

	Nebraska	Okla.	Texas	Colo.	Calif.
			--Dollars--		
Corn (per bu.)	1.14	1.27	1.32	1.22	1.44
Sorghum (per bu.)	.95	1.05	1.04	1.03	1.29
Sorghum Forage (per ton)	10.43	18.50	23.00	17.33	20.67
Hay (per ton)	20.90	23.50	24.60	26.10	27.60

a/ Five year average, 1966-1970; except Sorghum Forage --a three year average, 1966-1968.

Source: U.S. Department of Agriculture, Agricultural Statistics, and unpublished material from the Statistical Reporting Service.

The costs of feed grains and roughage contained in Table 5 emphasize the advantage that Nebraska has over other major cattle feeding states which do not possess a large surplus of feed grains. A factor contributing to the advantage of lower feed

grain prices in areas of surplus is the relative cost of transporting cattle or feed. Approximately four times as much weight is involved in transporting feed to a source of feeder cattle as in hauling cattle to a source of feed.

The amount of feed grain exported from Nebraska emphasizes the potential that Nebraska has for expanding its beef cattle feeding industry. Of the record crop produced in 1969, only 53 percent of the feed grain supply was fed in Nebraska. The 260,506,000 bushels of surplus feed grains produced in Nebraska in 1969 represents a feed supply sufficiently large, if fed to yearling cattle, to finish an additional 5.3 million head.

Table 6

Feed Grain Surplus in Nebraska and the Number of Cattle Necessary to Utilize Surplus by Crop Reporting District.

Crop Reporting District	Surplus Feedgrains[a/] (bu.)	Number of Additional Cattle to Use Surplus[b/]	Percent Increase From 1970 Production
Northeast	14,809,000	296,180	29.6
East	97,059,000	1,941,180	174.1
Southeast	66,910,000	1,338,200	336.4
Central	30,235,000	604,700	137.6
South	41,374,000	827,480	428.5
North	327,000	6,540	7.4
Southwest	14,821,000	296,420	271.7
Northwest	- 5,029,000	--	--
NEBRASKA	260,506,000	5,310,700	149.4

a/ Wheat production not included.
b/ 1969 crop and 1970 animal data were used to calculate surplus, assuming all surplus feed grains were available to cattle feeding and each animal consumes 50 bu.

Source: State - Federal Division of Agricultural Statistics, USDA - Nebraska Department of Agriculture, Nebraska Feed Grains, 1965-1969.

Only 53 percent of the State's feed grain production was utilized for livestock feeds in Nebraska in 1970. Most areas of Nebraska produced a surplus of feed grains. Table 7 indicates that the southern part of the State is utilizing well below 50 percent of its feed grain supply.

This feed grain surplus would be even larger if wheat, which is being fed in increasing amounts, had been included as a feed grain. The 1970 Nebraska wheat crop totaled 97,204,000 bushels and a record-breaking crop is being harvested in 1971. Wheat does indeed represent an additional feed resource and if all of Nebraska's crop were channeled into feeding, an additional 2 million yearling cattle could be finished.

It is evident that Nebraska is presently producing more than enough feed grains to feed out twice as many cattle as it did in 1970. Table 7 lists the 1969 feed grain production and rate of utilization for livestock feeding in the eight crop reporting districts of the State.

Table 7

Feed Grain Production and Utilization Rate by Crop Reporting District

Crop Reporting District	1969 Feed Grain Production[a] (Bushels)	Livestock Utilization Rate[b] (Percent)
Northeast	103,733,000	85
East	175,884,000	44
Southeast	106,005,000	36
Central	64,272,000	52
South	57,109,000	27
North	13,537,000	97
Southwest	25,912,000	42
Northwest	9,087,000	155
NEBRASKA	555,540,000	53

a/ Feed Grain Production shown as bushels of corn equivalents. Wheat production is not included.
b/ Percent used for livestock feeding.

Source: State - Federal Division of Agricultural Statistics, USDA - Nebraska Department of Agriculture, Nebraska Feed Grains, 1965-1969.

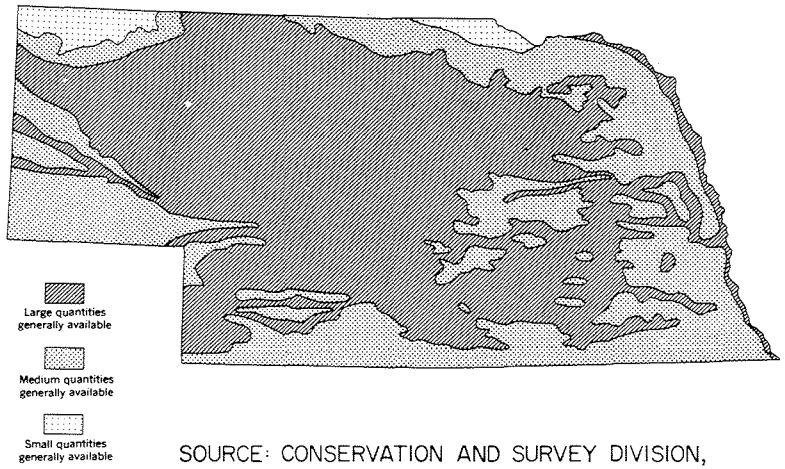
A Plentiful Supply of Water

A plentiful supply of water will assure Nebraska of future grain supplies for expanding its beef feeding industry. While a dependable supply of good quality water makes possible high levels of grain production and the current surplus of feed grains, water is also very critical to feedlots where large numbers of cattle are confined.

Nebraska's water resources consist of large quantities of both surface and ground water. The average annual streamflow into the State is about one million acre-feet, whereas the average annual outflow is about seven million acre-feet. Average annual precipitation is 86 million acre-feet. Nearly two billion acre-feet of ground water are stored beneath the State.

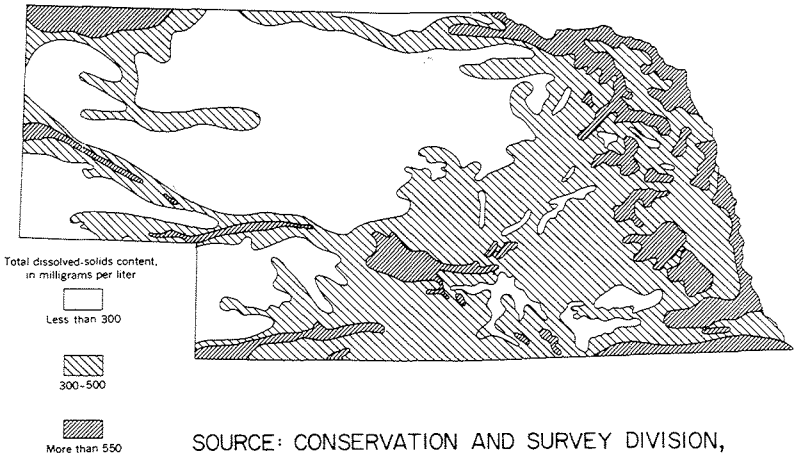
More than half of Nebraska's land area is underlain with aquifer capable of yielding more than 300 gallons per minute (g.p.m.) to wells. Yields ranging from 1,500 to 2,500 g.p.m. are or can be obtained in many places. Throughout much of the remainder of the State, yields greater than 20 g.p.m. can be obtained. In Figures 8

Figure 8 AVAILABILITY OF GROUND WATER



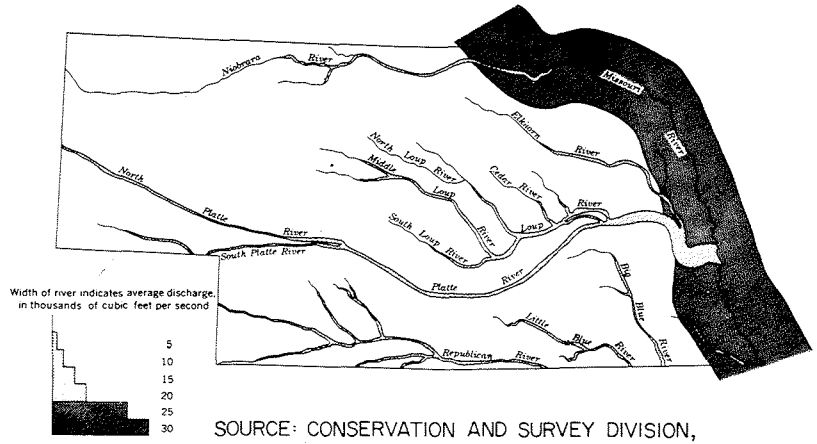
SOURCE: CONSERVATION AND SURVEY DIVISION, UNIVERSITY OF NEBRASKA

Figure 9 GROUND WATER QUALITY



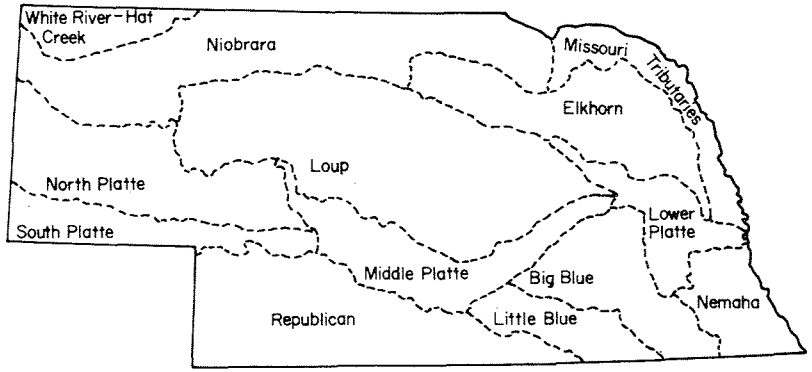
SOURCE: CONSERVATION AND SURVEY DIVISION, UNIVERSITY OF NEBRASKA

Figure 10 AVERAGE DISCHARGE OF PRINCIPAL RIVERS



SOURCE: CONSERVATION AND SURVEY DIVISION, UNIVERSITY OF NEBRASKA

Figure 11 NEBRASKA RIVER BASINS



and 9 the availability and quality of ground water in Nebraska are shown. The average discharge of the principal rivers in the State is depicted in Figure 10.

Nebraska presently has 3,730,000 acres under irrigation in the 13 river basins throughout the State. Ground water is the major source of water for irrigation in Nebraska, accounting for over 70 percent of total irrigation development as of January, 1970 (Table 8 and Figure 11).

Projecting the current development rate of new irrigation, Nebraska will have nearly six million acres under irrigation by 1980, nearly twice the current number of irrigated acres. A total of 7,015,000 acres which are highly suited for irrigation exist in Nebraska. (Table 9.) In addition, 4,310,000 acres are moderately suitable for irrigation and an additional 7,871,000 acres could, with major improvement, be developed for irrigation.

Table 8

Estimate of Existing Irrigation Development (January, 1970)

River Basin	Area Irrigated in Acres		
	Surface Water	Ground Water	Total [a]
White R. - Hat Cr.	26,600	1,400	28,000
Niobrara	59,700	95,300	155,000
Missouri Tribs.	6,000	17,000	23,000
North Platte	364,600	33,400	398,000
South Platte	34,300	53,700	88,000
Middle Platte	296,400	610,600	907,000
Loup	121,200	267,800	389,000
Elkhorn	20,400	134,600	155,000
Lower Platte	9,600	93,400	103,000
Republican	107,700	289,300	397,000
Little Blue	13,300	318,700	332,000
Big Blue	40,200	701,800	742,000
Nemaha	7,800	5,200	13,000
NEBRASKA	1,107,800	2,622,200	3,730,000

a/Total irrigated acreage may be to high in some basins because of conjunctive ground-surface water use on the same lands.

Source: Nebraska Soil and Water Conservation Commission, State Water Plan Publication Number 101, Report on The Framework Study.

Table 9

Suitability of Lands for Irrigation

	Area (1,000 Acres)				
	Suitability Type[a]				
	A	B	C	D	Total
White River - Hat Creek	42	60	117	7	226
Niobrara	585	597	781	220	2,183
Missouri Tribs.	198	173	371	54	796
North Platte	343	363	453	103	1,262
South Platte	387	354	422	58	1,221
Middle Platte	821	163	295	125	1,404
Loup	647	369	634	349	1,999
Elkhorn	757	484	804	266	2,311
Lower Platte	306	275	496	68	1,145
Republican	967	626	821	112	2,526
Little Blue	649	147	216	18	1,030
Big Blue	1,148	335	468	35	2,006
Nemaha	165	344	542	36	1,087
NEBRASKA	7,015	4,310	6,420	1,451	19,196

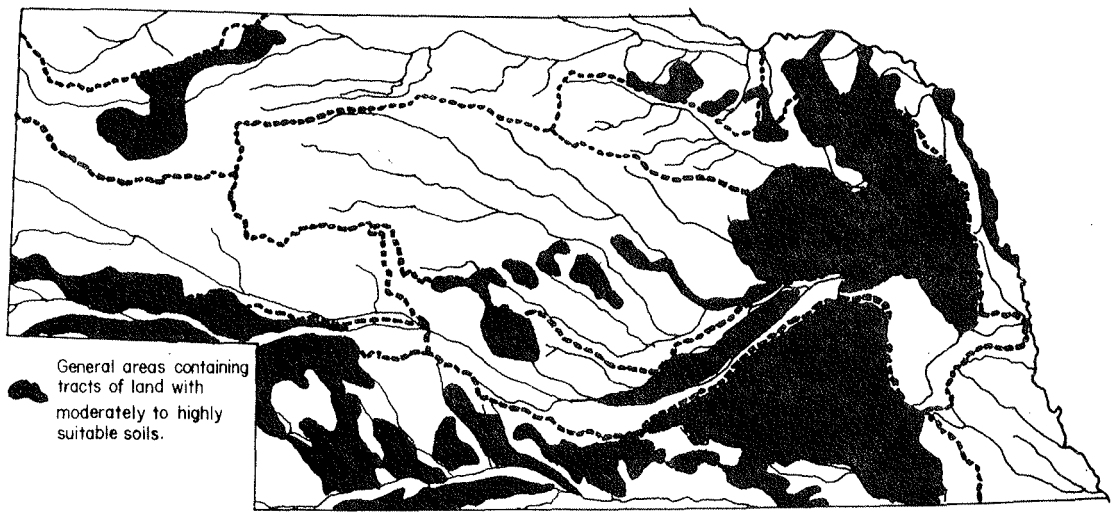
a/ Legend

A - Highly suited
B - Moderately suited
C - Limited suitability
D - Not irrigable in present condition. Possible irrigation with major improvements.

Source: Nebraska Soil and Water Conservation Commission, State Water Plan Publication Number 101, Report on the Framework Study.

Areas of present and future irrigation development are shown in Figure 12. Large tracts of land suitable for future irrigation development occur in eastern Nebraska's lower Elkhorn Basin, southern and western Nebraska's Big and Little Blue River Basins, the upper and central Republican River Basin and the North and South Platte River Basins. Figure 12 shows lands suitable for project irrigation development and Figure 13 shows projected ground water irrigation areas.

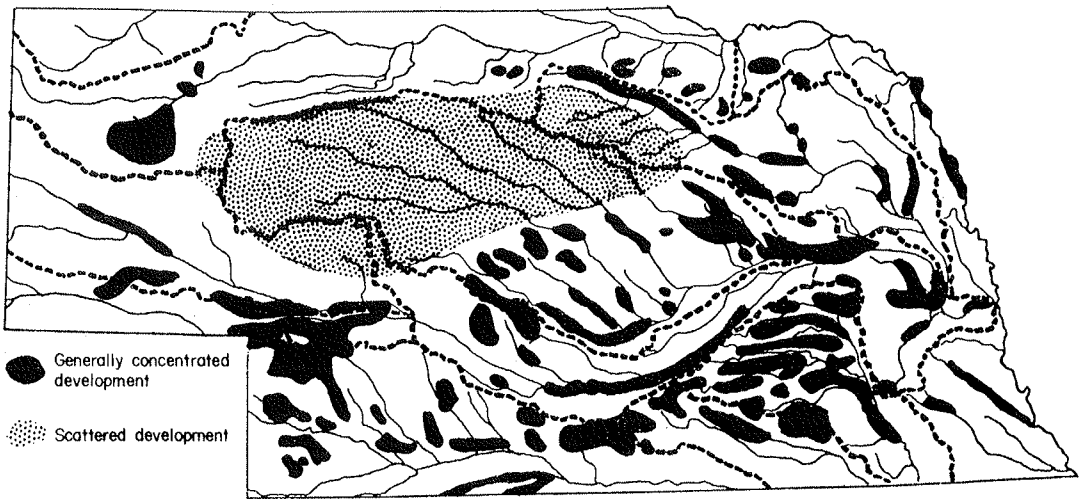
Figure 12 LANDS SUITABLE FOR PROJECT-TYPE IRRIGATION DEVELOPMENT



Note: Lands presently irrigated by surface water systems and lands requiring drainage or other major improvements are not shown.

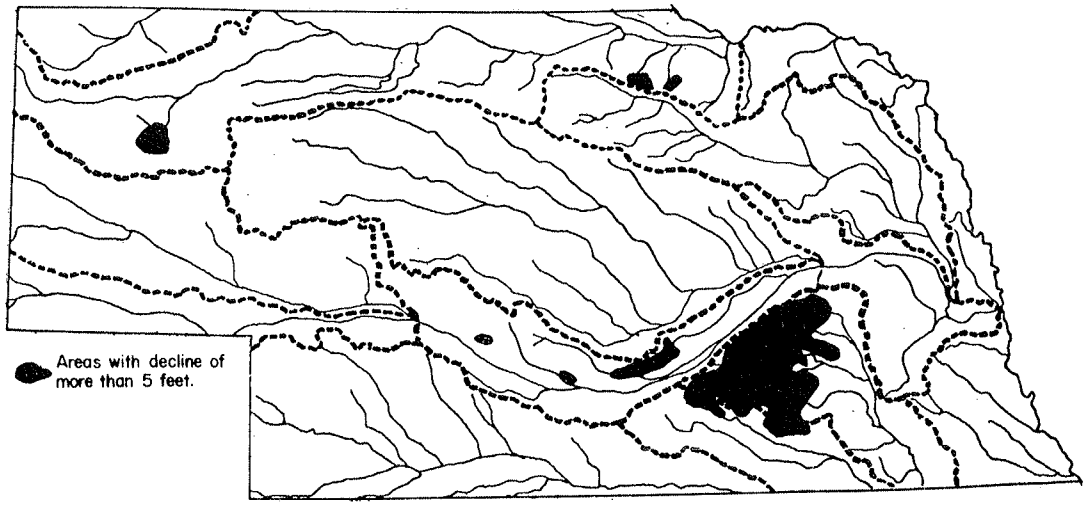
SOURCE: NEBRASKA SOIL AND WATER CONSERVATION COMMISSION

Figure 13 PROJECTED GROUND WATER IRRIGATION AREAS



SOURCE: NEBRASKA SOIL AND WATER CONSERVATION COMMISSION

Figure 14 AREAS OF GROUND WATER LEVEL DECLINE, 1946-1969

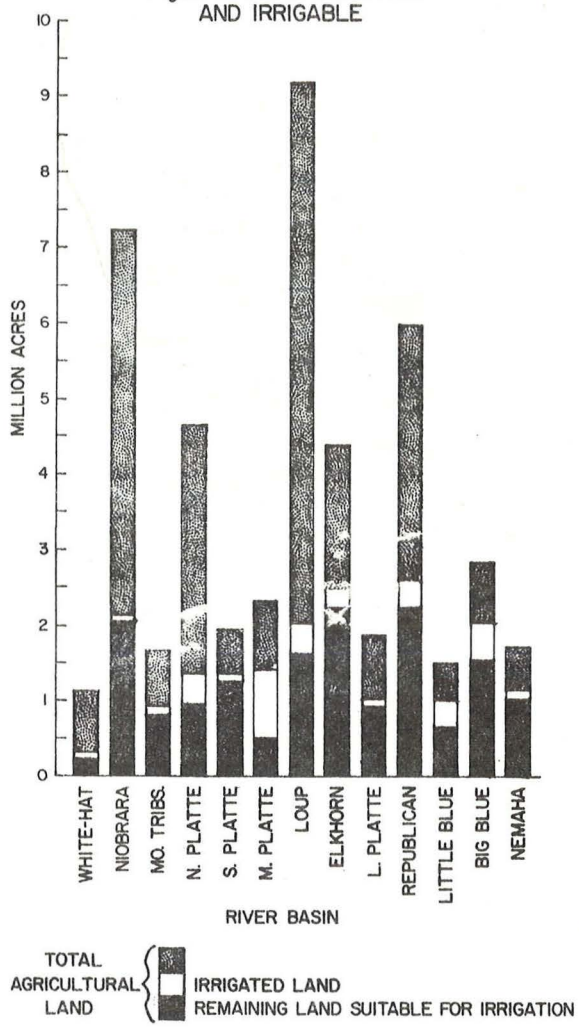


SOURCE: NEBRASKA SOIL AND WATER CONSERVATION COMMISSION

Irrigation wells have been installed in all of Nebraska's 93 counties. Many have been producing water for many years with little effect on the level of water tables. Compared to other areas of the United States where irrigation has expanded rapidly only to encounter rapidly declining water tables and a very poor long-range outlook for continued extensive irrigation, Nebraska has only limited areas where the water table has declined (Figure 14).

The long-range outlook for irrigation is excellent in Nebraska. The present level of irrigation and great potential for additional development of water resources give Nebraska's crop producing capability a stability and growth potential which few, if any, other states can match. It has aided in record crop yields in 1967 and 1969 and cattle feeders in Nebraska can expect record crop harvest in the future. Greater yields will add to the feed grain surplus already available in Nebraska and should insure continuance of the lower feed-grain-cost advantage in the State.

Figure 15 LAND IRRIGATED AND IRRIGABLE

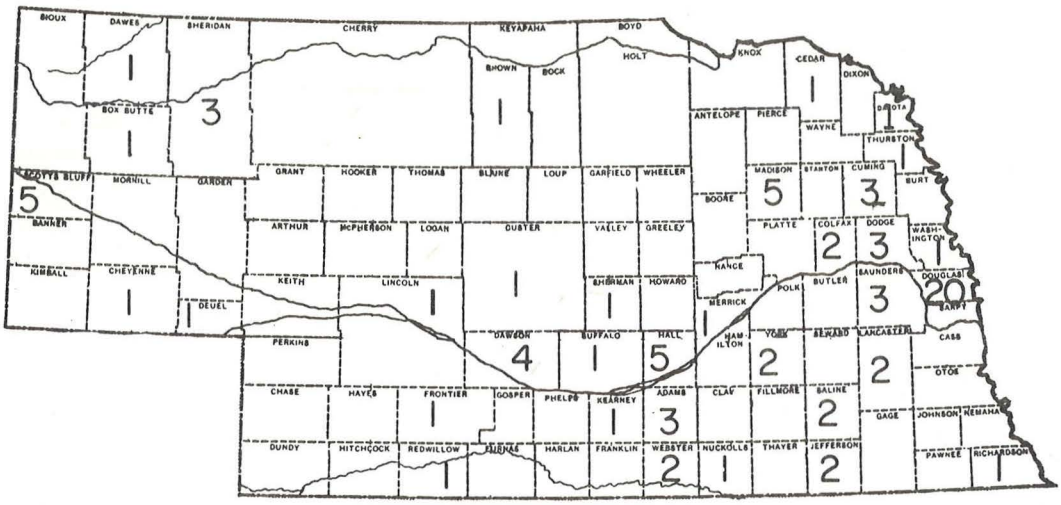


The future outlook for cattle feeding in Nebraska is encouraging when one considers that Nebraska has the potential to triple its present level of irrigation, thereby insuring an abundant supply of feed grain for continuing expansion of the industry.

Existing Slaughter Facilities

Another definite asset for the expansion of the Nebraska cattle feeding industry is the existing adequacy of slaughter capacity and the geographical distribution of slaughtering plants throughout the State. The 1970 Directory of Nebraska Manufacturers listed a total of 85 meat packing plants in Nebraska, of which 45 are major facilities accounting for the bulk of the State's livestock slaughtering capacity.

Figure 16
MEAT PACKING PLANTS IN NEBRASKA, 1970



The livestock slaughter industry in Nebraska has been characterized by a shift from the large plants concentrated in Omaha to a well dispersed system of smaller but more modern and efficient operations.

The 1963 Census of Manufacturers reported that of the nation's slaughter plants employing 20 or more persons, 3.2 percent were located in Nebraska. The same publication for 1967 showed that Nebraska's share had gained almost a full percent to 4.1 percent. Total employment in Nebraska's meat packing plants increased from 5 percent of the nation's total in 1963 to 5.9 percent in 1967. These increases in the percentage share of the nation's slaughter capacity came at a time when many of the major packers were closing large facilities in the Omaha area. A further indication of the recent expansion of packing plants in Nebraska is reflected in the investment for new plants and equipment. In 1963, investments in plant and equipment in the Nebraska meat packing industry accounted for 6 percent of industry investment nationally. In 1967, capital investment in meat packing plants and equipment totaled 9.9 million dollars in Nebraska, accounting for 9 percent of industry investment in plants and equipment nationally.

Table 10

Major Livestock Slaughtering Plants in Nebraska
(August, 1971)

UNDER FEDERAL INSPECTION

NAME	LOCATION
Platte Valley Packing Company	Cozad
Iowa Beef Packers	Dakota City
Roode Packing Company, Inc.	Fairbury
Geo. A. Hormel & Company	Fremont
Gibbon Packing Company	Gibbon
Nebraska Beef Packers, Inc.	Gordon
Swift & Company	Grand Island
Cornland Dressed Beef	Lexington
Acme Markets, Inc. (American Stores)	Lincoln
McCook Packing Corporation	McCook
Minden Beef Company	Minden
Midwest Beef, Inc.	Norfolk
American Beef Packers, Inc.	Omaha
Armour & Company	Omaha
Cornhusker Packing Company	Omaha
Greater Omaha Packing Company, Inc.	Omaha
Morris Beef Company	Omaha
Midwest Packing Company	Omaha
Nebraska-Iowa Dressed Beef Company	Omaha
Omaha Dressed Beef	Omaha
John Roth & Son, Inc.	Omaha
Shamrock Beef Company	Omaha
Sioux Beef Company	Omaha
E. W. Kneip, Inc.	Omaha
Union Packing Company	Omaha
Wilson & Company, Inc.	Omaha
Schuyler Packing Company	Schuyler
Scottsbluff Packing Company	Scottsbluff
Swift & Company	Scottsbluff
Potter Packing Company	Sidney
E. W. Kneip, Inc.	Wahoo
Iowa Beef Packers	West Point
Sunflower Beef Packers	York
York Packing Company, Inc. /a	York

NOT UNDER FEDERAL INSPECTION

Boston Stores	Bayard
F & S Sausage	Cozad
Dodge Meat Plant	Dodge
Ford Packing Company	Grand Island
Kearney Packing Company	Kearney
Roman Packing Company	Norfolk
North Platte Packing Company	North Platte
6th Street Processing Plant	North Platte
Yost Packing Company	Red Cloud
Hersch Packing Company	Scottsbluff
Prenzlow & Son	Snyder

/a. Slaughter hogs only.

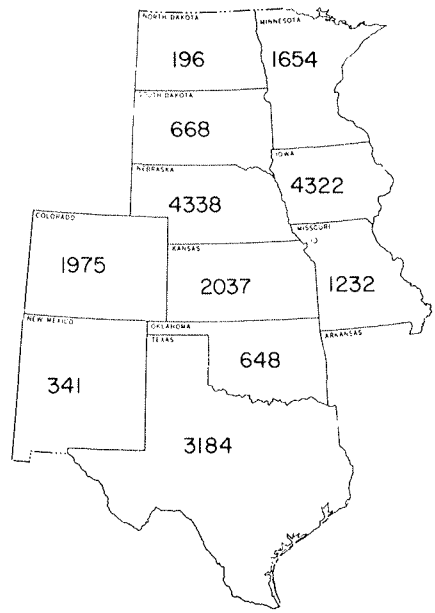
Source: Nebraska Department of Agriculture

In both 1969 and 1970, Nebraska led the Nation in commercial cattle slaughter. The 4,338,000 head slaughtered in Nebraska facilities in 1970 accounted for over 12 percent of the forty-eight state total commercial slaughter.

Forty-five of the 85 Nebraska plants can be classified as major livestock slaughtering plants. (These plants are listed in Table 10.) Nearby plants in surrounding states also serve as outlets for Nebraska fed cattle.

Direct marketing of fed cattle to packers has been increasing rapidly. In 1961, 13.5% of all steers were sold directly to packers. By 1967, 48.3% of all heifers and 55.2% of all steers sold were purchased directly by packers. The concentration of packers in Nebraska provides for excellent coverage of the State by packer-buyer and insures the desired competitive bidding for finished cattle.

Figure 17
COMMERCIAL CATTLE SLAUGHTER, 1970
(1,000 Head)



48 STATES TOTAL 35,042
SOURCE: WESTERN LIVESTOCK MARKETING INFORMATION PROJECT

Kill capacity in Nebraska livestock slaughtering plants cannot be determined precisely, but examination of internal data indicates an annual kill capacity per eight-hour shift of approximately 5,400,000 cattle. Thus, 1970 slaughter was about 80 percent of operating capacity.

There is little doubt that slaughter capacity in Nebraska can be increased as needed. Many of Nebraska's slaughter plants could add a second shift by adding cooler space. Other plants could utilize present cooler space more effectively by adding a second shift. Present trends in locating new packing plants in areas with an expanding feeding industry indicate that additional slaughter facilities will be made available in Nebraska when they are needed. Many of the new slaughter plants in outstate Nebraska are a result of the economic advantage gained by locating packing plants in areas of intensive feeding.

Farmer-Feeders

The large number of smaller feeders is an important asset to the cattle feeding industry in Nebraska. This pool of feeders with many years of valuable experience and a high owner equity in their industry represents a firm basis for industry expansion. The fact that smaller feedlots are sometimes not as efficient as larger feedlots is offset by the potential for expansion that they represent.

A sizable expansion of cattle feeding could occur without a correspondingly large requirement for capital to build facilities. Many existing lots which are turning only one set of cattle per year could more than double cattle numbers by utilizing their facilities on a continuous basis. A doubling of cattle marketed in 1970 by the 18,400 lots with a capacity of less than 1,000 head would increase the number of cattle marketed from Nebraska's lots by 1,590,000 head. This represents the potential for a 45% increase in total cattle fed in Nebraska.

Farmer-feeders in Nebraska also add versatility to the cattle feeding industry. The trend toward larger commercial lots is creating a continuous demand for feeder cattle. This in turn creates a demand for operators who will grow replacement cattle. Many smaller feeders are well suited for this type of operation, since they often have roughages and crop residues from their farming operations which can be used effectively. A combination of cattle feeders who grow or "background" replacements, and cattle feeders who specialize in finishing cattle, are an asset to the industry as it permits each to specialize in the kind of feeding operation best suited for him. It also provides for a more stable feeding industry and enhances the competitiveness of the state in securing replacement cattle.

Supplies of Roughages and Crop Residues

An additional advantage for an expanding cattle feeding industry in Nebraska is an abundant supply of roughages. Roughage, because of its bulk, becomes very costly when transported long distances. Consequently, an abundant supply of roughages provides a cost advantage for cattle feeders in the area where it is produced.

Table 11

Roughage Supply in Nebraska, 1970

Alfalfa	1,793,000 tons
Tame Hay	2,134,000 tons
Wild Hay	2,284,000 tons
Corn Stalks	5,478,000 acres
Sorghum Stubble	1,720,000 acres
Wheat Stubble	2,558,000 acres
Oat Stubble	578,000 acres
Rye Stubble	210,000 acres
Barley Stubble	58,000 acres

An abundant and growing supply of crop residues, which are today largely unused, represents the majority of the nutrients needed to maintain additional cow herds in Nebraska. Future expansion of cow-calf enterprises in Nebraska, based on the potential use of crop residues, could provide an additional two million head of feeder cattle for Nebraska feeders.

A source of feeder calves within the State will become more crucial to an expanding feeding industry in Nebraska. As cattle feeding also expands in other areas, it will reduce the number of feeder calves available from those states which in the past have been a source of feeder calves for Nebraska.

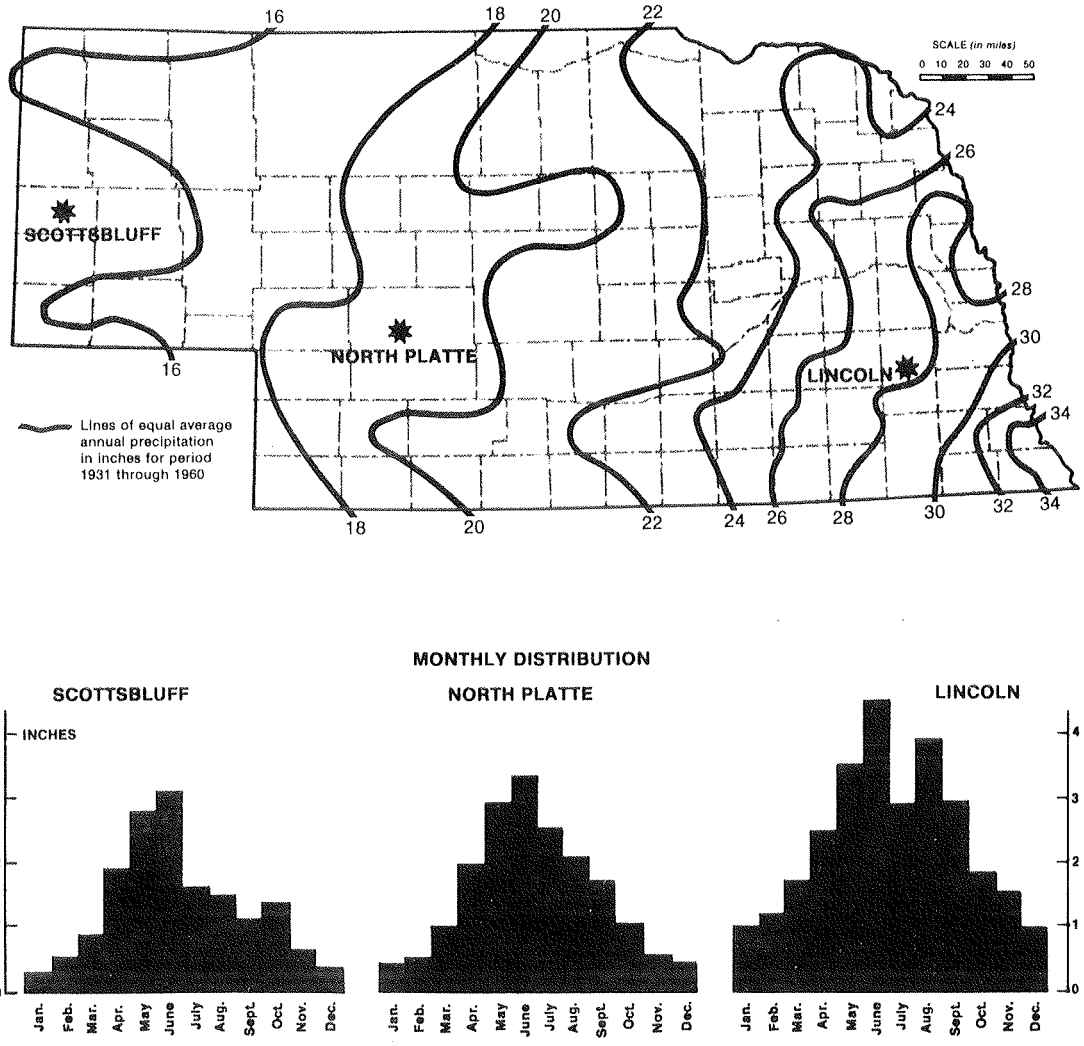
Feeder-calf production has increased significantly in the Central and Northern Plains States which ship substantial numbers of feeder calves to Nebraska. Shifts from sheep to cattle raising has increased range and pasturelands devoted to cattle production

along with the technological advances in forage and grass production. The 1971 calf crop in Montana, Wyoming, South Dakota, Colorado and Kansas was 42 percent larger than in 1960. In contrast, Nebraska showed a 21 percent gain in its calf crop during the period. These neighboring states showed an 80 percent increase in their exports of feeder cattle and calves to Nebraska between 1960 and 1970. Nebraska exports represented 9 percent of its 1960 calf crop. In 1970, this percentage had risen to 12 percent. The assurance of increasing numbers of feeder cattle and calves in this reservoir area should permit even more rapid expansion of cattle feeding in Nebraska than would result from growth in the State's calf crop to utilize the future supplies of feed and forage.

Climatic Conditions in Nebraska

Overall climatic conditions in Nebraska are an asset to cattle feeding. It is necessary, however, to properly design open lots in order to insure dry areas for animals during times of relatively high precipitation. Mounds accompanied by adequate

Figure 18 PRECIPITATION CHARACTERISTICS



Monthly distribution of average annual precipitation in inches for period 1931 through 1960

drainage will permit cattle in open lots to perform as well as cattle in confinement barns. At present the costs of construction makes it doubtful whether confinement barn feeding can be justified in Nebraska, except possibly in the extreme eastern portion of the State where average yearly precipitation is about 28 inches. In relatively low rainfall areas of central and western Nebraska (Figure 18), precipitation averages approximately 16 and 20 inches respectively.

Normal mean temperatures for January and July at several locations throughout Nebraska indicate a very acceptable temperature range for cattle feeding activities (Table 12).

Nebraska is situated below the extremely cold area of the U. S. and temperatures during the winter months usually do not create excessive stress if cattle are provided a dry area. Only in the extreme southern portion of Nebraska does the temperature reach 80°F for more than 100 days per year. (Figure 19)

Table 12

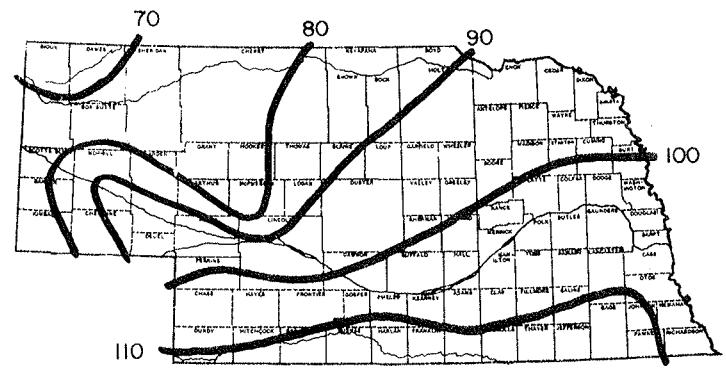
Temperature Means and Extremes at Selected Stations (Degrees Fahrenheit)

Location	Normal Mean[a/] Jan.	Normal Mean[a/] July	Extremes[b/] Record High	Extremes[b/] Record Low
Lincoln	24.9	79.4	117	-24
Scottsbluff	25.3	74.7	110	-45
Valentine	20.0	75.4	110	-38
Norfolk	19.4	77.0	113	-26
North Platte	24.0	76.1	112	-35

a/ Average Annual for period 1931 thru 1960.
b/ Prior to 1968

Source: U. S. Weather Bureau Climatic Summaries.

Figure 19
DAYS PER YEAR WITH TEMPERATURES ABOVE 80°



Waste Management

Waste management regulations might be considered a liability to the cattle feeding industry, but the problem is not unique to Nebraska. All feeders with existing lots having potential pollution problems are expected--and will be required--to take appropriate steps to remedy the situation.

Nebraska is a leader in development of a waste management plan which states that needed controls must be in operation by December 31, 1972. An accelerated program in applied research on methods of handling waste is being conducted by University of Nebraska scientists in cooperation with the Agricultural Research Service of the U. S. Department of Agriculture. Results of this research will aid cattle feeders in the alleviation of waste management problems.

In reality, Nebraska's pollution control program is an asset to its cattle feeding industry. The necessity of planning and designing lots for waste management will work to the advantage of feeders. Lots that are drained properly will provide dry areas at all times for cattle, thus improving performance and reducing costs of gain. Economic value can also be abstracted from impounded runoff and trapped wastes.

SECTION IV

PROFITABILITY AND CASH FLOWS

As income and employment in the United States continue to rise, domestic consumption of beef will also be subject to substantial growth. The Nebraska cattle feeding industry, with its unsurpassed potential for expansion through utilization of its abundant natural resources, its existing feed grain surpluses, and its well developed livestock marketing network and slaughtering industry, has the capability of providing a substantial portion of the additional fed cattle needed to meet future consumer demand.

Opportunities for Investors

Expansion of the Nebraska cattle feeding industry will require large amounts of short and intermediate term capital. In order to illustrate the magnitude of the capital requirement for expansion, an increase in production of 3,500,000 head by the Nebraska cattle feeding industry is assumed. While this increase does not represent full utilization of present feed grain surpluses, it is approximately double the present production.

Expansion of the annual level of fed cattle production in Nebraska by 3,500,000 head will require approximately 155 new lots, each with a capacity of 10,000 head. Estimation of annual expenditures and the capital requirements for such expansion is as follows:

- Capital Investments of $430,000 per lot is needed for facilities and equipment.

- Annual Feed Costs for each of the 155 new lots will be $1,700,000.

- Variable Operating Costs will total $122,000 per year for each lot.

- Cattle Purchases for each lot will require expenditures of $4,500,000 annually (based on 22,500 cattle fed annually per lot).

A study of the financing of cattle feeding in the Tenth Federal Reserve District (Nebraska, Kansas, Colorado, Wyoming, and parts of Missouri, New Mexico, and Oklahoma) was conducted by the Federal Reserve Bank of Kansas City in early 1970. Results of the study, shown in Table 13, indicate the amounts and types of capital investment needed for the operation of large feedlots.

Table 13

Estimated Capital Investment for Large - Scale Feedlots Using Early 1970 Prices

Lot Capacity in Head	Real Estate and Equipment	Feed Inventories and Operating Costs	Cattle	Total
10,000	$ 400,000	$100,000	$ 2,500,000	$ 3,000,000
20,000	800,000	200,000	5,000,000	6,000,000
30,000	1,200,000	300,000	7,500,000	9,000,000
40,000	1,600,000	400,000	10,000,000	12,000,000

Source: Federal Reserve Bank of Kansas City

Table 14

Estimated Annual Costs of Operation for 10,000 Head

	(10,000 Head Capacity)[a/]	
	Per Lot	155 Lots
-- Thousands of Dollars --		
Feed	1,704	264,120
Cattle	4,500	697,500
Other Variable Cost	122	18,910
Total	6,326	980,530

a/ Costs shown assumes each lot feeds 22,500 head per year.

Source: Kansas State University, Cooperative Extension Service, Guidelines for Developing Commercial Feedlots in Kansas.

Table 14 shows the estimated annual costs of operation for one 10,000 head capacity lot and for 155 similar lots. In addition to the capital needed for annual operations, $430,000 per lot is needed initially for capital investment in plant and equipment. For the 155 new lots, this capital requirement totals $66,650,000.

As shown in Table 14, nearly one billion dollars will be used annually to purchase cattle and feed, and to pay for operating costs when total growth is achieved. Cattle purchases alone will require monthly expenditures of approximately $58,125,000 for the additional 155 lots.

Investments in cattle offer the potential for high returns. Cattle turnover in most commercial feedlots ranges from 90 to 120 days. A monthly cash flow statement from an ongoing operation is shown in Table 15. Average costs and returns for 1969 and 1970 are shown in Table 16.

As shown in Table 16, 1969 purchases of cattle for feeding in a 10,000 head lot yielded a profit of $511,383 before interest charges. After paying approximately $57,000 in interest charges (8 percent), the profit on 23,400 head of purchased cattle was $454,383, or about $19 per head.

Table 15

Monthly Cash Flow Statement

Month	1,950 Head 700 lb. Feeders Purchased	Total Feedlot Costs[a/]	1,930 Head 1,104 lb. Cattle Marketed	Balance[b/]
		----Dollars----		
1969				
January	352,443	193,050	589,783	44,290
February	366,912	193,050	588,079	28,117
March	380,016	193,050	604,272	31,206
April	401,310	193,050	637,511	43,151
May	424,515	193,050	684,813	67,248
June	446,355	193,050	720,823	81,418
July	415,915	193,050	678,208	69,243
August	389,571	193,050	642,838	60,217
September	404,313	193,050	614,287	16,924
October	418,918	193,050	590,209	-21,759
November	407,998	193,050	581,900	-19,148
December	400,218	193,050	592,340	- 928
				399,979
1970				
January	374,965	193,050	596,815	28,800
February	399,808	193,050	616,843	23,985
March	422,194	193,050	655,623	40,379
April	429,429	193,050	661,802	39,323
May	407,316	193,050	633,889	33,523
June	421,921	193,050	638,577	23,606
July	411,684	193,050	657,541	52,807
August	398,443	193,050	645,608	54,115
September	409,636	193,050	626,858	24,172
October	422,058	193,050	608,534	- 6,574
November	426,289	193,050	586,374	-32,965
December	379,060	193,050	568,476	- 3,634
				277,537

a/ Assumed cost of gain at $22/cwt

b/ Cash flow for ongoing program. Balance is monthly cash flow balance not profit or loss.

Calculations based on monthly cattle prices at Omaha.

Table 16

Monthly Balance for Purchases, Sales and Feedlot Costs for a 10,000 Head Capacity Lot[a/]

Month	1,950 Head 700 lb. Feeders Purchased	Total Feedlot Costs[a/]	1,930 Head 1,104 lb. Cattle Sold[b/]	Profit or Loss[c/]	Total for 12 Months
1969	$	$	$	$	$
January	352,443	193,050	--	--	
February	366,912	193,050	--	--	
March	380,016	193,050	--	--	
April	401,310	193,050	--	--	
May	424,515	193,050	684,803	139,310	
June	446,355	193,050	720,816	160,854	
July	415,915	193,050	678,202	105,136	
August	389,571	193,050	642,844	48,484	
September	404,313	193,050	614,280	- 3,285	
October	418,918	193,050	590,213	- 49,192	
November	407,998	193,050	581,895	- 27,070	
December	400,218	193,050	592,336	9,715	
	4,808,484	2,316,600			
1970					
January	374,965	193,050	596,814	- 549	
February	399,808	193,050	616,847	4,879	
March	422,194	193,050	655,621	54,573	
April	429,429	193,050	661,797	68,529	511,383
May	407,316	193,050	633,889	65,874	
June	421,921	193,050	638,579	45,721	
July	411,684	193,050	657,532	42,108	
August	398,443	193,050	645,604	23,125	
September	409,636	193,050	626,864	26,498	
October	422,058	193,050	608,529	- 6,442	
November	426,289	193,050	586,373	- 18,361	
December	379,060	193,050	568,482	- 23,011	
	4,902,803	2,316,600			
1971					
January			599,593	- 3,093	
February			670,115	55,007	
March			679,920	60,581	
April			690,786	118,676	386,683

a/ Assumed cost of gain at $22/cwt.
b/ Added 450 lbs. gain, 1% death loss, 4% shrink.
c/ Profit or loss based on purchase price and sale price approximately 140 days later.
Calculations based on monthly cattle prices at Omaha.

For cattle purchased in 1970, a profit of $386,683 was calculated before interest charges were deducted. Profit after deduction of interest charges of $58,000 (8 percent) was $328,683, or approximately $14 per head.

In the preceding discussion, estimated costs and profitability were shown for a 10,000 head capacity lot feeding 22,500 head of cattle annually. Costs in feeding operations, however, vary significantly with the size of operation. Per head investment requirements as well as operating costs tend to decrease slightly with size, thereby permitting a relatively greater profit potential for the larger feedlots.

The Economic Research Service of the U. S. Department of Agriculture, in cooperation with the Colorado Agricultural Experiment Station, studied the economics of size for specialized beef feedlots in Colorado. The results of their study are used in this report only for the purposes of illustrating comparative costs for varying sizes of operations.

Table 17 shows total variable costs per head of cattle fed for different combinations of equipment by size of feedlot. In this table, costs of feed and cattle purchases are excluded.

Table 17

Variable Cost Per Head of Cattle Fed
Excluding Costs of Feed and Cattle[a/]

Feedlot Capacity (Head)	Without Feed Mill		With Feed Mill and Powerbox[b/]			
	Hand Feeding	Powerbox Feeding	8 Ton	15 Ton	50 Ton	100 Ton
	--- Dollars ---					
135	35.69	33.98	33.62	--	--	--
1,450	21.72	19.03	16.47	16.66	18.84	--
3,150	20.66	17.67	c/	15.34	15.97	16.44
9,025	19.95	16.97	--	--	14.61	14.10

a/ Includes all variable costs when feedlot is operated at normal capacity during year. Annual cost per head of capacity is obtained by multiplying the above data by the annual turnover ratio, 2.13.

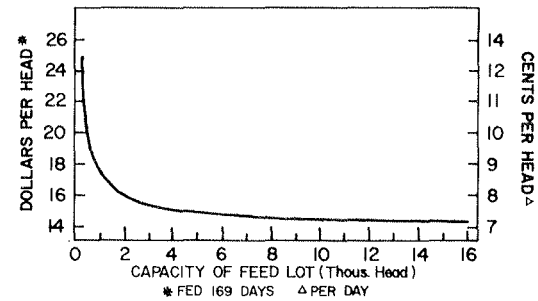
b/ Rated capacity of feed mill for processing grains and concentrates in 8 hours.

c/ Capacity of feed mill is not sufficient to process enough feed for 3,150 head of cattle unless it operates approximately 19 hours a day.

Source: U. S. Department of Agriculture, Economic Research Service, in cooperation with Colorado Agricultural Experiment Station, Agricultural Economic Report No. 91, Economics of Size for Specialized Beef Feedlots in Colorado.

Shown in Figure 20 is a long-run average cost curve for beef fattening operations. The costs represented by the curve reflect five general categories of costs: labor, commercial grain processing, overhead, other operating expenses, and interest on operating capital. Costs shown by the curve represent per head costs of fattening cattle for various sizes of operations utilizing optimal sizes of equipment for each size of operation. Commercial costs for grain processing are used for equipment combinations that do not include a feed mill. Cattle and feed purchases are excluded from the costs represented.

Figure 20
LONGRUN AVERAGE COST CURVE FOR BEEF FATTENING OPERATIONS



SOURCE: U.S.D.A., ECONOMIC RESEARCH SERVICE

As shown in Table 17, variable costs per head for a lot having a capacity of 135 head is $33.62, using an eight ton feedmill. As lot capacity is expanded to 1,450 head, per head variable costs decline to $16.47. Expanding lot capacity to 3,150 head reduces per head variable costs to $15.34 by using a 15 ton feedmill. Costs per head are reduced further by expanding lot capacity and using larger feed mills, as depicted in Figure 20.

Table 18

Estimated Investment Per Head of Capacity by Type of Feeding Operation[a/]

Type of Feeding Operations	Size of Feedlot (onetime capacity)							
	135	450	1,450	2,315	3,150	7,640	9,025	15,300
	--- Dollars ---							
Own no feed mill:								
Hand feeding	154	93	46	39	32	25	--	--
Powerbox feeding	192	80	50	41	33	25	--	--
Own feed mill with 8-hour capacity of:								
8 tons	260	91	49[b/]	39[b/]	--	--	--	--
15 tons	313	107	54	42[c/]	34[b/]	--	--	--
50 tons	--	253	99	70	55	33[c/]	30[b/]	23[b/]
100 tons	--	322	121	83	64	37	33	26

a/ Data derived from a study done for South Platte Valley, Colorado.
b/ Feed mill operates more than 8 hours a day.
c/ Feed mill operates at full capacity, 8 hours a day.

Source: U. S. Department of Agriculture, Economic Research Service, in cooperation with Colorado Agricultural Experiment Station, Agricultural Economic Report No. 91, Economics of Size for Specialized Beef Feedlots in Colorado.

Table 19

Investment Costs for Specified Sizes of Feedlots, South Platte Valley, Colorado[a/]

Item	Size of feedlot (head)							
	135	450	1,450	2,345	3,150	7,640	9,025	15,300
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
Feedlots:								
Feedpens	2,345	5,905	13,560	19,890	22,920	51,685	64,080	103,440
Lighting	130	255	640	990	1,305	3,055	3,580	6,010
Land	4,000	4,000	8,000	12,000	12,000	28,000	32,000	52,000
Total	6,475	10,160	22,200	32,880	36,225	82,740	99,660	161,450
Per head	47.96	22.58	15.31	14.02	11.50	10.83	11.04	10.55
Feed storage and miscellaneous:								
Silo, bunk	1,000	3,330	10,300	15,800	20,100	34,055	35,000	38,750
Grain storage	1,100	3,110	8,350	11,125	13,000	18,900	b/	b/
Office and scales	1,000	3,000	4,000	4,000	4,000	6,000	b/	b/
Total	3,100	9,440	22,650	30,925	37,100	58,955	b/35,000	b/38,750
Per head	22.96	20.98	15.62	13.19	11.78	7.72	3.88	2.53
Machinery:								
Hand feeding,								
Total	11,235	22,470	22,470	27,110	27,110	45,970	50,675	c/
Per head	83.22	49.93	15.50	11.56	8.61	6.02	5.61	c/
Powerbox feeding,								
Total	16,335	16,335	27,135	31,535	31,535	50,070	50,070	75,070
Per head	121.00	36.30	18.71	13.45	10.01	6.55	5.55	4.91

a/ Excludes feed mill. If a feed mill is used, grain storage, office and scales shown above should be replaced by the appropriate cost of feed mill selected.

b/ Not economical for this size feedlot to operate without feed mills except under unusual circumstances.

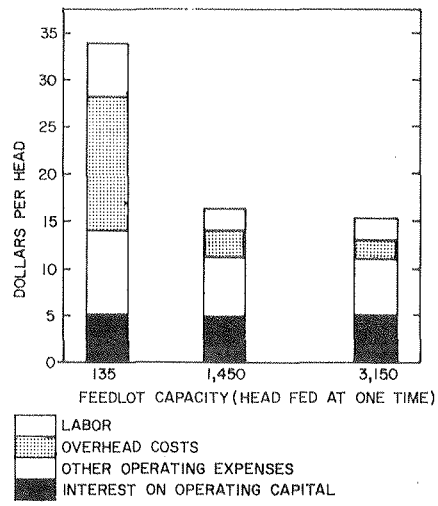
c/ Impractical for this size feedlot to feed cattle by hand.

Source: U. S. Department of Agriculture, Economic Research Service, in cooperation with Colorado Agricultural Experiment Station, Agricultural Economic Report No. 91, Economics of Size for Specialized Beef Feedlots in Colorado.

Shown in Table 19 are investment costs for various sizes of feedlots for plant and equipment excluding feed mills. Again, in all categories per head investment decreases are greater in the interval between 450 head capacity and 1,450 head capacity.

Figure 21 summarizes the least-cost equipment combinations for a 135 head capacity lot, a 1,450 head capacity lot, and a 3,150 head capacity lot. Average cost per head declines sharply as the size of the feedlot is extended beyond 135-head capacity, but it declines little beyond 1,450 head capacity. In the larger operations, the composition of average cost remains about constant: Labor and overhead each account for about a sixth of average total costs, while other operating expenses and interest on operating capital each account for about a third. Overhead costs decline slightly as size increases.

Figure 21
THREE LOW-COST COMBINATIONS OF EQUIPMENT



SOURCE: U.S.D.A., ECONOMIC RESEARCH SERVICE

A further consideration which has a substantial impact on per head costs, and consequently profitability of cattle feeding operations is the degree of utilization of feedlot capacity. Table 20 shows three situations and the appropriate per-head costs, for each situation. Situation one in this table shows per head costs for 100 percent feedlot occupancy; situation two shows per head costs when feedlots are fully occupied 7.2 months a year and vacant 4.8 months; and situation three shows costs per head when feedlots experience 60 percent occupancy throughout the year. Costs shown in Table 20 include these three situations for two alternative feedlot sizes; a feedlot of 500 head annual capacity and a feedlot of 5,000 head annual capacity.

As shown in the table, per head costs when feedlots are 60 percent full throughout

Table 20

Effect of Occupancy Rate on Per Head Feedlot Operating Costs

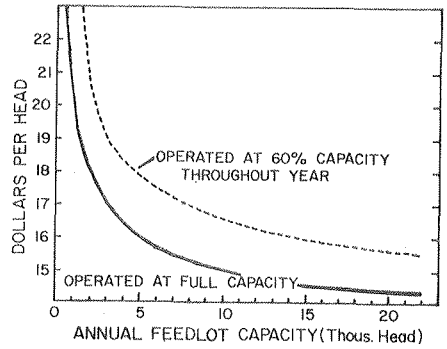
Occupancy Rate (Percent)	Months of Year Utilization[a/]	Average Cost Per Head by Size of Lot[b/] 500	5,000
100	12.0	25.75	16.05
100	7.2	32.30	17.70
60	12.0	34.10	17.85

a/ The second situation reflects full utilization of feedlot capacity 7.2 months a year and idle 4.8 months.
b/ Size of lot shown is annual capacity.

Source: U.S. Department of Agriculture, Economic Research Service, in cooperation with Colorado Agricultural Experiment Station, Agricultural Economic Report No. 91, Economics of Size for Specialized Beef Feedlots in Colorado.

the year are slightly higher than 100 percent occupancy 7.2 months per year; both situations representing substantially higher per head costs than full utilization throughout the year. Figure 22 shows longrun cost curves for full utilization of feedlots throughout the year and for 60 percent utilization throughout the year.

Figure 22
LONGRUN COSTS FOR FEEDLOTS BY DEGREE OF UTILIZATION



SOURCE: U.S.D.A., ECONOMIC RESEARCH SERVICE

Small Capacity Feedlots

Economies of size in cattle feeding operations are reflected by structural changes in the industry. Marked uptrend in the average size of operations in the cattle feeding industry suggests that significant economic gains can be achieved through large-scale organizations. The preceding analysis, however, indicates that average per head costs decline sharply as the size of the feedlot operation is extended to the 1,450 head capacity level, but further extension of capacity yields only minor reductions in per head cost.

Consequently, the trend in the cattle feeding industry toward lot capacities much larger than 1,450 head may reflect primarily the desire of management to add more volume simply to increase total income. An increase in efficiency is not essential to make large operations more attractive to management than smaller ones, provided diseconomies of size are not associated with production increases.

Currently, fed cattle production in the smaller Nebraska lots is seasonal. Primarily, the objective of the "farmer-feeder" with small lot capacity is to maximize profit per acre of crop land when no alternative use of management skills or labor is available.

Integration of feeding with farming operations reduces the impact of low profit years in feeding. This combination also tends to add stability to the farming operations. Many operators of feedlots in Nebraska which fall into the small lot classification have the management skills necessary to manage lots of an economical size. Thus, these operators represent an important resource available to use in expanding Nebraska's beef cattle feeding industry.

SECTION V

FINANCING EXPANSION IN THE NEBRASKA CATTLE FEEDING INDUSTRY

Beef feeding is a capital-intensive operation. Although the amount of capital needed for financing expansion in the Nebraska cattle feeding industry is subject to variation, depending on the size and types of feedlots that will be added to achieve this expansion, investments for plant and facilities and for operating capital will be substantial.

Operating capital in large feedlots accounts for over 97 percent of total annual capital requirements. Annual depreciation of fixed assets for one 10,000 head feedlot is approximately $54,000 (Table 21). As shown in Table 21, financing for one additional 10,000 head capacity feedlot producing 22,500 head of fed cattle annually requires an initial investment of approximately $430,000 for real estate and equipment and annual operating capital of $2,600,000 (Section IV, Table 13).

Capital requirements for 155 additional 10,000 head capacity feedlots, producing 3,500,000 head of cattle annually, include approximately 67 million dollars of initial investment in plant and equipment (annual depreciation of fixed assets of $8,350,625) and annual operating capital totaling nearly one billion dollars (Section IV, Table 14).

Table 21

Fixed Costs and Annual Depreciation of Fixed Assets for a 10,000 Head Feedlot

Fixed Costs	10,000 Head Capacity	Annual Depreciation
Feed mill	$180,000	$18,000
Land Depreciation (160 a.)	32,000	3,200
Feed bunks and aprons	60,000	6,000
Fences, water, etc.	70,000	7,000
Total Yards	162,000	16,200
Trench silo	18,000	1,800
Office Equipped	12,000	3,000
Shop Equipped	8,000	2,000
Feeding and Maintenance Equipped	51,500	12,875
Totals	$431,500	$53,875

Source: Kansas State University, Cooperative Extension Service, Guidelines for Developing Commercial Feedlots in Kansas.

Internal Capital

Expansion of operations in some of the existing smaller feedlots in Nebraska may be financed by internal capital. This source consists primarily of capital which has previously been set aside. Also, it may include the labor contribution of the operator if payment for his labor is delayed, thereby

providing more money for operating capital. An important potential source of internal capital is the "farmer-feeder" who will expand his feeding operation. Also, farmers who add feedlots to their existing farming operations may provide a substantial amount of internal capital.

External Capital

Few cattle feeding enterprises are able to finance new feedlots or extensive expansions of existing operations without external capital.

Major sources of external capital available to cattle feeding enterprises include:

Banks

Agricultural loans of all operating banks in Nebraska in 1970 totaled $741,799,000. Real estate and non-real estate accounted for $39,051,000 and $702,748,000 respectively, up 8 percent and 18 percent from 1969.

Commercial banks are one of the main sources of real estate and equipment financing for feedlots. Nearly all commercial banks finance feed inventories and a majority finance other operating expenses. Terms and conditions vary widely among banks and among customers within a bank. This is a result of banks' efforts to adopt the kind of financing to each individual operator's circumstances.

Commercial banks in the Tenth Federal Reserve District (Nebraska, Colorado, Kansas, Wyoming, and parts of Oklahoma, New Mexico, and Missouri), are the most important source of credit for financing cattle. Commercial banks rely heavily on the overline loan with a city correspondent for handling requests that surpass their legal lending limits.

Some commercial banks have worked out an arrangement whereby a consortium (group of banks) handles the very large size lines of credit of good operators which even city banks cannot accommodate alone. Its success is dependent upon the feedlot operator with one of the banks making an aggressive effort to see that such lines are properly handled and supervised.

Some commercial banks tend to finance only farmer-feeders, feeding in their own lots or in commercial lots, while most financed all classes of clients for commercial lots. A few banks finance a larger proportion of nonfarmer-feeders than farmer-feeders utilizing commercial lots.

Banks finance customer cattle for commercial lots much the same as they do for owners of the feedlot. For those customers with a strong financial statement, banks arrange for credit overlines. In many cases the feedlot

operators maintained complete control of cattle placed by commercial customers using bank credit. It is common for feedlot operators and commercial lot clients to exceed local bank credit limits. Local banks, however, can retain their customers and provide a valuable service in helping secure the additional credit from other banks and other credit sources.

Production Credit Association

Production Credit Association (PCA) held loans in agriculture worth $169,179,000 in Nebraska at the end of 1969. PCA loans money for real estate and equipment, which usually is a relatively long term arrangement with maturities of five to fifteen years. PCA has also been active in providing credit for cattle, feed inventories, and operating expenses. If a feeder can provide normally from $30-$50 financing on the original purchase price of a feeder as the margin, PCA will often finance the remainder of the original purchase price and the feed and yardage bill. If only feed is financed, inventories are taken as security. Financing feed is normally done on a margin based on original purchase price of the feeder. Margins required depend on the financial condition of the operator.

PCA, in some instances, will provide the credit for large overlines when operators using local banks for credit are up to their loan limit. PCA has worked out an arrangement for handling large lines (several millions) of credit and distributing the risk among many Production Credit Associations. The risk sharing arrangement has been worked out by the Federal Intermediate Credit Bank (FICB). Under this Large Loan Risk Sharing Plan, potential losses on large loans are shared proportionately among the PCA's which are members of the plan. This plan enables the granting of large loans without endangering the capital structure of an individual PCA.

PCA has been active in financing both farmer-feeders and commercial lots. They also finance customers of commercial lots. Lines of credit for feeding cattle of non-residents or non-farmers usually requires maximum margins. The PCA works closely with feedlot operators handling the cattle in supervising such loans, and frequently makes drafts for payment of feed and yardage bills directly to the feedlot.

Warehouse Receipts

Warehouse receipts for years have been recognized as instruments of collateral guarantee for loans on grain and other commodities and are rapidly gaining acceptance as collateral for cattle loans. Warehouse receipts allow lending agencies to grant cattle loans outside of their service areas without having to inspect the cattle. The receipts are issued to the lending agency by specialists in collateral guarantee who arrange contracts

with commercial feedlot operators, which in turn enables the feedlot operators to offer financing assistance to cattle owners. The feedlot operator pays the warehouse receipts issuance fee, which amounts to about 10¢ per head per month.

Bankers Acceptance

Large city banks guarantee loans by permitting drafts to be drawn on them for cattle. They then sell the loan paper to other investors so that bank money is not tied up. A small acceptance rate is required in addition to regular rates. Bankers acceptance matures within six months. Acceptances are a relatively new but potentially good source of credit for cattle loans.

Life Insurance Companies

Life Insurance companies are a source of funds for financing of feedlot facilities and real estate. Life Insurance companies held total agricultural loans of $244,970,000 in Nebraska on January 1, 1970.

Individuals

Individuals who have funds for investments are one of the main sources of credit for financing the real estate and equipment for feedlots. These loans are of relatively long term, and have distinct advantages in terms of security for loans. Some feedlot managers have worked out arrangements whereby they borrow from individuals to provide feed inventory and operating capital. Accounts receivable are frequently used for security and notes are written for relatively short periods.

Individuals wishing to invest in the cattle feeding industry are supplying a sizable amount of money for purchase of feeder cattle. Usually the individual arranges with a commercial feedlot operator to buy the cattle to be fed. The feedlot operator will, in most cases, also market the cattle when they are finished. Financing cattle for feeding has appeal to many individuals who have large sums available for investments and want rapid turnover of funds with a potential for large profits. Each yearling represents an investment of approximately $200, and can be finished in 90-120 days. The profit potential on a yearling is often $20-40 per head, and at times may be twice that amount. Negative profits are encountered periodically, but have been limited during the last decade.

Individuals with a desire to invest in the cattle feeding business are an excellent source of capital for expanding Nebraska's feeding industry.

Feedlot managers and operators, who are doing an outstanding job and who actively solicit these clients, will find individuals willing to place cattle in their lots.

Small Business Administration

Under certain conditions, the Small Business Adminsitration (SBA) can make long term loans up to 30 years to a local development company for land and physical facilites, which may be leased or sold under lease-purchase agreement to the small business operator.

When financing is not otherwise available on reasonable terms, the SBA may guarantee bank loans to the operator for facilities or working capital. The feed operation must be commercial in order to qualify.

In order to qualify for a local development company loan, the development company must have a broad base of local ownership of 25 or more, and be incorporated under the laws of the state of residence. The SBA prefers local bank participation in all of its loan programs. The SBA cannot make loans for financing cattle to go into a feedlot.

Feeding Clubs

Feeding clubs are a rapidly growing method of financing the purchase of cattle to be fed in commercial lots. Individuals interested in feeding cattle pool their funds in a club, which is usually incorporated. The initial money can be used as collateral for loans from the conventional sources of credit which enable them to increase the number of cattle that they can feed.

Capital from feeding clubs provide the cattle for commercial feedlots. This allows the operator to use his credit for financing the feeding operation and to expand if there is a demand to warrant it.

Public Sale of Stocks

Offering stock of a large commercial feedlot to the public is a method of obtaining finances for operation or expansion. Feedlots that choose this method of financing are often a part of a corporation which is also involved in other business ventures, such as a packing plant, a ranching operation, or non-related business such as oil or chemicals.

Cooperative Feeding Enterprise

Financing is obtained by pooling of funds of members of a cooperative. This is most apt to succeed if cooperators also feed cattle in the lots. Banks for cooperatives held $15,940,000 worth of agricultural loans in Nebraska on January 1, 1970.

Federal Land Bank

Federal Land Banks have exhibited the strongest growth of all lenders in real estate lending. They are a main source of financing for real estate and equipment investment for feedlots. They held $223,654,000 in agricultural loans in Nebraska at the beginning of 1970.

Farmers Home Administration

Loans held in Nebraska January 1, 1970, consisted of farm ownership--$78,332,000, operating capital--$23,131,000, and emergency capital $3,099,000.

Table 22 summarizes the sources of external credit available to cattle feeding enterprises.

Table 22

Kinds and Sources of External Credit

Item	Kind of Credit	Sources
Real Estate & Equipment	Long Term (5-15 yr.)	Individuals Commercial Banks Federal Land Banks PCA
	(Up to 30 years)----------	SBA Life Insurance Co.
Feed Inventories & Operating Expenses	14-30-90 days	Banks PCA Individuals
Feeder Cattle	120-280 days	Commercial Banks PCA
	(Risk sharing)----------	Federal Intermediate Credit Bank (FICB) Local Banks
	(Combination)----------	Correspondent Banks Consortium Individuals

Obtaining Credit

Credit is available for those that qualify. One of the major factors in obtaining a loan is to make the lender feel comfortable extending credit. Differences in the availability of credit to borrowers with the same qualifications is often due to availability of a complete financial report on the feeding operation. Four sets of information will provide the lender a basis for making a decision on a loan.

1) A financial statement. This lists all assets and liabilities.

2) A profit and loss statement from the previous year.

3) A cash flow budget. This lists monthly income and expenses for the 12 months ahead. A record of the last year's cash flow is also helpful.

4) Progress reports during the year to inform the lender of the borrower's financial situation and measure his progress toward the goals of the loan.

An accurate financial report will become even more important in obtaining credit in the years ahead. This is especially true in areas where demands for credit are high. As Nebraska expands its beef cattle feeding industry to utilize its feed grain supplies and other resources, competition for credit will become keener.

Attracting Outside Capital

Nebraska has the opportunity to attract investors from outside the State. Cooperation with out-of-state investors is fundamental to development and operation of commercial lots needed in Nebraska to utilize available feed resources locally.

Management skills necessary for expansion of the cattle feeding industry in Nebraska are available among feeders in the State. However, substantial amounts of capital are needed to fill the lots with cattle. Feedlot operators willing to seek out new clients interested in feeding cattle can contribute to the success of their lot by assuring a high occupancy rate--a vital factor to profitability in commercial feeding operations. Successful commercial feedlot operators who provide a "complete package" of services to their clients will find investors anxious to do business with them.

APPENDIX A

CATTLE FEEDING INDUSTRY IN NEBRASKA's CROP REPORTING DISTRICTS

Various phases in the production of fabricated beef differ in importance throughout the geographic regions of Nebraska. The material presented in this appendix will outline major activities in each of the crop reporting districts related to the cattle feeding industry. Also, the material provides a basis for a brief evaluation of the potential for expansion of the various phases of production in each of the regions.

For each crop reporting district, it is significant to ascertain the characteristics of the cattle feeding industry itself. The number and trends in the number of cattle fed for slaughter is one indicator of the importance of the cattle feeding industry in each region. Another significant characteristic of the livestock industry is the number of calves born in each district. These data give some indication of the probable replacements generated in the area.

The availability of slaughter facilities and auction markets are also an important asset to the industry in the various regions. The number and employment size of the meat packing plants located in each district of the state is shown in the table following.

Table A1

Meatpacking Plants in Nebraska

District	1970-71										1966-67							
	Size of Plant										Size of Plant							
	A	B	C	D	E	F	G	H	I	Total	A	B	C	D	E	F	G	Total
Northeast	3	2	2	2	-	1	-	-	1	11	5	3	-	-	-	-	-	8
East	4	9	8	5	2	3	2	1	-	34	9	9	8	1	1	2	4	34
Southeast	4	1	-	1	-	-	-	-	-	6	4	-	1	-	-	-	-	5
Central	1	7	1	2	1	-	-	-	-	12	6	1	2	-	-	-	-	9
South	3	1	1	1	-	-	-	-	-	6	5	2	-	-	-	-	-	7
North	1	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	1
Southwest	1	-	1	-	1	-	-	-	-	3	3	1	1	1	-	-	-	6
Northwest	6	3	-	2	-	1	-	-	-	12	9	2	2	-	1	0	-	14
STATE	23	23	13	13	4	5	2	1	1	85	42	18	14	2	2	2	4	84

Size of Plants

A-Under 10 employees
B-10 to 24
C-25 to 49
D-50 to 99 employees
E-100 to 199
F-200 to 499
G-500 to 999 employees
H-1,000 to 2,499
I-2,500 and Over

Source: Nebraska Department of Economic Development, Directories of Nebraska Manufacturers.

As seen in Table A1, while the number of slaughter facilities has not changed significantly since 1966, the employment sizes of the plants have increased considerably. These employment increases are indicative also of expanding slaughter capacity in the regions of the state.

Also, important in the determination of potential for future expansion of cattle feeding in the geographic regions of Nebraska is an assessment of feed grain supplies. Types and yields of feed grain crops, irrigation information, and projected future production are critical factors with which regional potentials for expansion of fed cattle production can be gauged.

Last, climatic conditions in the districts are significant. Overall weather characteristics of the State are an asset to the cattle industry. Average temperatures in winter and summer are well within a satisfactory range. Nebraska is located below the extremely cold area of the nation and winter temperatures generally do not create a problem if livestock are provided a dry area. Only in extreme southern Nebraska does the summer temperature reach 80°F for more than 100 days per year. Areas with relatively high precipitation necessitate the proper design of lots in order to insure dry places for the cattle. The table below summarizes the weather characteristics of the eight crop reporting districts.

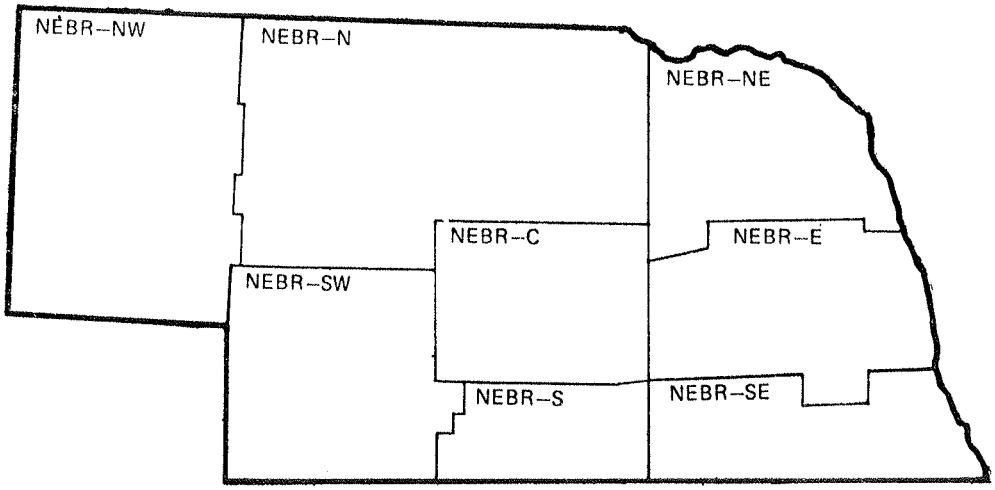
Table A2

Climatic Conditions in Nebraska

District	1957 to 1968 Average Annual Precipitation	Average January 1968 Temperature	Average July 1968 Temperature
Northeast	26.2 inches	19.9°F	74.9°F
East	30.2	23.2°	76.2°
Southeast	31.1	24.0°	77.0°
Central	23.6	24.2°	73.6°
South	24.8	25.6°	76.1°
North	21.5	22.6°	73.1°
Southwest	20.0	25.0°	74.6°
Northwest	17.2	24.2°	71.4°
STATE	23.3	23.6°	74.6°

Source: State - Federal Division of Agricultural Statistics, USDA - Nebraska Department of Agriculture, Nebraska Agricultural Statistics.

Figure A1 NEBRASKA CROP REPORTING DISTRICTS

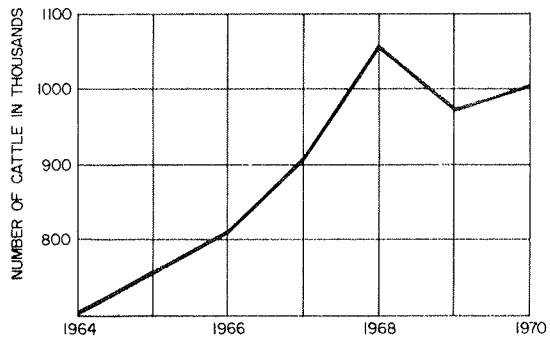


Northeast Crop Reporting District

Cattle Feeding

In 1970 there were 1,000,300 head of cattle placed on feed in the Northeast Crop Reporting District. Ranking second among the State's eight Crop Reporting Districts, the Northeast District accounted for 28.1 percent of the 1970 total number of cattle placed on feed in Nebraska.

Figure A2 NORTHEAST DISTRICT CATTLE ON FEED



The cattle placed on feed in 1970 represent an increase of 26,300 head, or 2.7 percent, over the previous year, and an increase of 297,400 head, or 42.3 percent, since 1964. Cuming County has consistently claimed the greatest number of cattle on feed in the area, 299,000 head in 1970; while Dakota County accounted for the fewest, 15,700 in 1970.

In 1970 there were 233,600 cows two years or older that gave birth to 218,740 calves in the District. This calf crop has remained rather stable since 1966.

Feed Grain Supplies

In 1969 production of feed grains in the Northeast District totaled 103,733,000 bushels of corn-equivalents. This represented a 25.9 percent increase in the level of production over 1965. Table A3 shows the feed grain production in the District for the years 1965-1969.

Table A3

Northeast District Feed Grain Production in Corn Equivalents

	------thousands of bushels------					
Year	Corn	Sorghum	Barley	Oats	Rye	Total
1965	65,254	10,331	69	6,312	450	82,416
1966	83,912	8,793	37	6,400	504	99,646
1967	74,437	6,426	87	6,091	381	87,422
1968	46,490	3,253	63	2,567	270	52,643
1969	92,089	4,595	82	6,510	457	103,733
Average	72,436	6,679	67	5,576	412	85,172

Source: State - Federal Division of Agricultural Statistics, USDA - Nebraska Department of Agriculture, Nebraska Feed Grains, 1965-1969

As can be observed in Table A3, corn is the most important feed grain produced in the District, accounting for 89 percent of the total in 1969 and an average of 85 percent of the total for the five-year average. Production of sorghum, oats, rye, and barley follow in importance in that order.

In 1968, only nine percent of the corn harvested for grain and 4.6 percent of the grain sorghum was produced on irrigated land. However, the long-range outlook for irrigation development in the District is excellent, assuring a continuing local supply of feed grains.

Feed grains converted into livestock in the Northeast District in 1969 accounted for 89 million bushels, or 85 percent of feed grain production in the District. Over the five-year period, 1965-1969, the ratio of feed grains fed to livestock to feed grains produced averaged 97 percent.

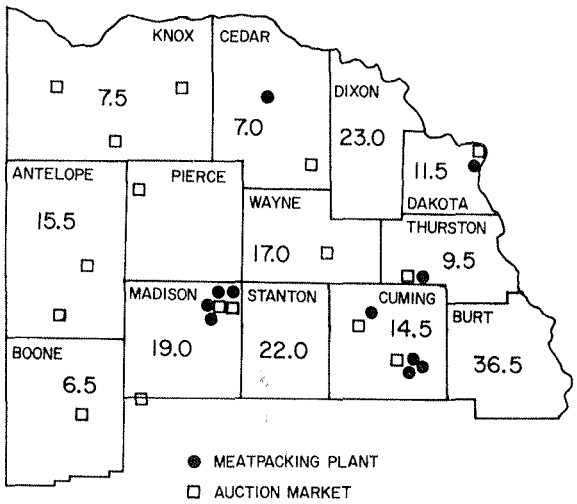
Projections of feed grain production by the University of Nebraska, Department of Agricultural Economics, estimate a 1980 corn-equivalent production of 107,955,000 bushels of corn and sorghum, the two principal feed grain crops in the Northeast District.

Markets for Livestock

Slaughter facilities numbered eleven in the Northeast District in 1970-71 (Table A1). The adjacent Northwest Iowa Crop Reporting District contains 24 slaughtering facilities and the East District of Nebraska also has many facilities close to the area.

Figure A3 shows the locations of the meatpacking plants, the cities in the Northeast District which have livestock auction markets, and the maximum one-time capacity of large feedlots in the area.

Figure A3 MEATPACKING PLANTS, AUCTION MARKETS, AND MAXIMUM ONE-TIME CAPACITY OF LARGE FEEDLOTS.



FIGURES REPORT MAXIMUM ONE-TIME CAPACITY OF LARGE FEEDLOTS IN THOUSANDS OF HEAD.

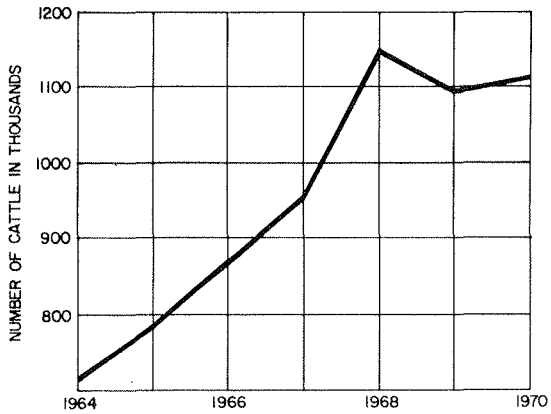
TOTAL CAPACITY 321.5
CAPACITY OF COUNTIES NOT LISTED 20.0

East Crop Reporting District

Cattle Feeding

In 1970 there were 1,114,800 head of cattle placed on feed in the East Crop Reporting District. Ranking first among the State's eight Crop Reporting Districts in fed cattle production, the East District accounted for 31.4 percent of the 1970 total number of cattle placed on feed in Nebraska.

Figure A4 EAST DISTRICT CATTLE ON FEED



The 1970 level of cattle placed on feed in the East District represents an increase of 18,800 head, or 1.7 percent, over the previous year's production, and an increase in the District of 397,800 head, or 55.5 percent, since 1964. Douglas, Sarpy, and Polk Counties have consistently claimed the greatest number placed on feed in the District, a total of 361,700 head in 1970, while Nance County accounted for the fewest, 13,900 in that year.

In 1970 there were 203,250 cows two years or older that gave birth to 190,510 calves in the District. This calf crop was about 6,500 head greater than the 1968 crop, representing an increase of over 3.5 percent.

Feed Grain Supplies

Production of feed grains in the East Crop Reporting District in 1969 totaled 175,884,000 bushels of corn-equivalents. This production level represented an increase of 55,339,000 bushels, or 46 percent, over 1965. Table A4 shows the feed grain production in the District for the years 1965-1969.

Table A4

East District Feed Grain Production in Corn Equivalents

	------thousands of bushels------					
Year	Corn	Sorghum	Barley	Oats	Rye	Total
1965	77,489	41,327	48	1,629	52	120,545
1966	102,004	48,095	23	1,531	74	151,727
1967	102,749	42,434	29	1,442	40	146,694
1968	102,704	33,013	28	1,154	24	136,923
1969	137,722	36,464	58	1,591	49	175,884
Average	104,533	40,266	37	1,469	47	146,354

Source: State - Federal Division of Agricultural Statistics, USDA - Nebraska Department of Agriculture, Nebraska Feed Grains, 1965-1969

As can be observed in Table A4, corn is the major feed grain produced in the District, accounting for 78 percent of total feed grain production in 1969 and an average of 71 percent of the total for the five-year average. Production of sorghum, oats, rye, and barley follow in importance in that order.

In 1968, forty-two percent of the corn harvested for grain and 12 percent of the total acres producing grain sorghum were irrigated. The long-range outlook for irrigation development in the area is excellent, however, assuring a continuing local supply of feed grains for expansion in fed cattle production.

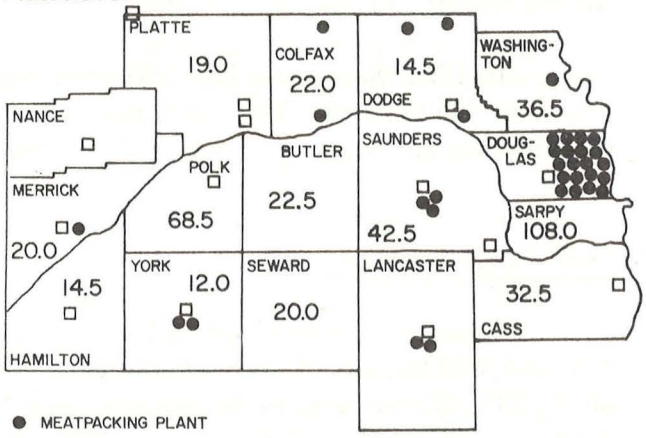
Feed grains converted into livestock in the East District totaled 11,091,000 bushels, or 42 percent of feed grain production in the District. Over the five-year period, 1965-1969, the ratio of feed grains fed to livestock to feed grains produced averaged 50 percent.

Projections of feed grain production by the University of Nebraska, Department of Agricultural Economics, estimate a 1980 level of corn-equivalent production of 193,641,300 bushels of corn and sorghum, the two principal feed grain crops in the East District.

Markets for Livestock

Slaughter or meat packing facilities numbered 34 in the East Crop Reporting District in 1970-71 (Table A1). The contiguous Central, Southeast, and Northeast Nebraska Crop Reporting Districts also contain numerous facilities, as does the West Central Iowa District. Douglas County is by far the meat packing capital of the State, but has lost several large packers since 1966. Lancaster, Dodge, Colfax, Saunders, and York Counties are also large centers of the industry.

Figure A5 MEATPACKING PLANTS, AUCTION MARKETS, AND MAXIMUM ONE-TIME CAPACITY OF LARGE FEEDLOTS.



● MEATPACKING PLANT

□ AUCTION MARKET

FIGURES REPORT MAXIMUM ONE-TIME CAPACITY OF LARGE FEEDLOTS IN THOUSANDS OF HEAD.

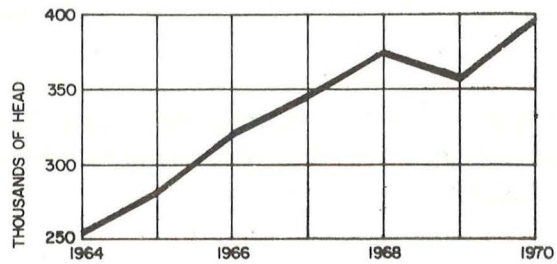
TOTAL CAPACITY 516.5
CAPACITY COUNTIES NOT LISTED 4.5

Figure A5 shows the location of the meat packing plants, the cities in the East Crop Reporting District which have livestock auction markets, and the one-time capacity of large feedlots in the area.

Southeast Crop Reporting District

In 1970 there were 397,700 head of cattle placed on feed in the Southeast Crop Reporting District, accounting for 11.2 percent of the 1970 total number of cattle placed on feed in Nebraska.

Figure A6 SOUTHEAST DISTRICT CATTLE ON FEED



The cattle placed on feed in the Southeast District in 1970 represent an increase of 39,700 head, or 11.1 percent, over the previous year's number, and an increase of 142,900 head, or 56.1 percent, since 1964. Gage, Fillmore, and Richardson Counties have consistently claimed the greatest number on feed in the District, a total of 158,600 head in 1970, while Pawnee County accounted for the fewest, 7,300 in that year.

In 1970 there were 188,600 cows two years or older that gave birth to 178,750 calves. This calf crop has remained rather stable since 1966.

Feed Grain Supplies

1969 production of feed grains in the Southeast District totaled 106,005,000 bushels of corn-equivalents. This represented an increase of 42,901,000 bushels, or 68 percent, over the level of production in 1965. Table A5 shows the feed grain production in the District for the years 1965-1969.

Table A5

Southeast District Feed Grain Production in Corn Equivalents

	------thousands of bushels------					
Year	Corn	Sorghum	Barley	Oats	Rye	Total
1965	28,051	34,550	59	433	11	63,104
1966	34,782	40,208	38	330	16	75,374
1967	42,839	42,616	22	397	14	85,888
1968	43,854	37,056	24	431	12	81,377
1969	59,116	46,289	68	514	18	106,005
Average	41,728	40,143	42	421	14	82,349

Source: State - Federal Division of Agricultural Statistics, USDA - Nebraska Department of Agriculture, Nebraska Feed Grains, 1965-1969

As can be observed in Table A5, corn is presently the most important feed grain produced in the District, accounting for 55.8 percent of total feed grain production in 1969 and an average of 50.7 percent of the total for the five-year average. Production of sorghum, oats, barley, and rye follow in importance in that order.

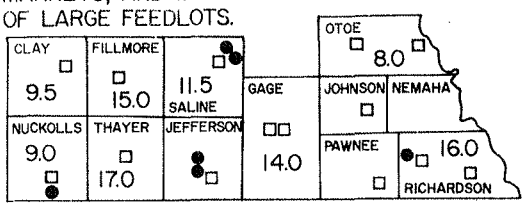
In 1968, fifty percent of the corn harvested for grain and 13 percent of the grain sorghum in the area was produced on irrigated land. The substantial amount of irrigation development in the area as well as the favorable outlook for continuing development adds stability to feed grain production in the area and assures a local source of feed grains for expansion of the cattle feeding industry.

Projections of feed grain production by the University of Nebraska, Department of Agricultural Economics, estimate a 1980 corn-equivalent production of 112,563,750 bushels of corn and sorghum, the two principal feed grain crops produced in the Southeast District.

Markets for Livestock

Slaughter facilities numbered six in the Southeast District in 1970-71 (Table A1). Jefferson and Saline Counties are the largest slaughter centers in the area. Numerous other facilities are nearby in the Nebraska East District and the Missouri Northwest and Kansas North Central and Northeast Districts.

Figure A7 MEATPACKING PLANTS, AUCTION MARKETS, AND MAXIMUM ONE-TIME CAPACITY OF LARGE FEEDLOTS.



● MEATPACKING PLANT

□ AUCTION MARKET

FIGURES REPORT MAXIMUM ONE-TIME CAPACITY OF LARGE FEEDLOTS IN THOUSANDS OF HEAD.

TOTAL CAPACITY 111.5

CAPACITY COUNTIES NOT LISTED 11.0

Figure A7 shows the location of the meat packing plants, the cities in the Southeast Crop Reporting District which have livestock auction markets, and the one-time capacity of large feedlots in the area.

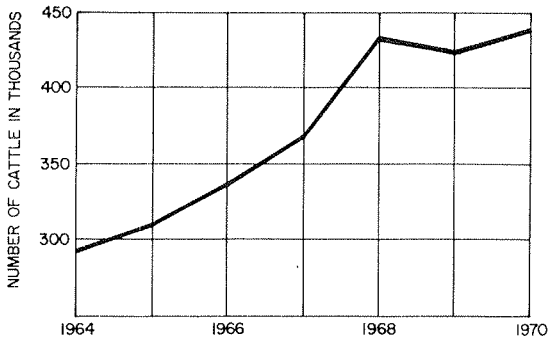
Central Crop Reporting District

Cattle Feeding

In 1970 there were 439,400 head of cattle placed on feed in the Central Crop Reporting District, accounting for 12.4 percent of the 1970 total number of cattle placed on feed in Nebraska.

The cattle placed on feed in the Central District in 1970 represented an increase of 15,400 head, or 3.6 percent, over the previous year's level of production, and an increase of 146,400, or fifty percent, since 1964.

Figure A8 CENTRAL DISTRICT CATTLE ON FEED



Dawson County has consistently claimed the greatest number of feed in the area, 172,800 head in 1970, while Sherman County has accounted for the fewest, 8,000 in that same year.

In 1970 there were 286,900 cows two years or older that gave birth to 274,030 calves. The annual calf crop has grown by 11,020 head since 1966.

Feed Grain Supplies

Production of feed grains in the Central Crop Reporting District in 1969 totaled 64,272,000 bushels of corn-equivalents. This production level represented an increase of twenty million bushels, or 45 percent, since 1965. Table A6 shows the feed grain production in the District for the year, 1965-1969.

Table A6

Central District Feed Grain Production in Corn Equivalents

	------thousands of bushels------					
Year	Corn	Sorghum	Barley	Oats	Rye	Total
1965	35,983	7,576	43	542	127	44,271
1966	49,415	8,550	29	474	198	58,666
1967	49,763	5,336	52	407	107	55,665
1968	50,126	4,476	32	197	68	54,899
1969	59,978	3,846	30	316	102	64,272
Average	49,053	5,956	37	387	120	55,554

Source: State-Federal Division of Agricultural Statistics, USDA - Nebraska Department of Agriculture, Nebraska Feed Grains, 1965-1969

As can be observed in Table A6, corn is the most important feed grain produced in the District, accounting for 93 percent of all feed grains produced in 1969, and an average of 88 percent of the total for the five-year average. Production of sorghum, oats, rye, and barley follow in importance in that order.

In 1968, seventy-four percent of the corn harvested for grain and 20.3 percent of the grain sorghum was harvested on irrigated land. Substantial development of irrigation in the area as well as a favorable outlook for continuing development assure adequate supplies of feed grains for future expansion of the cattle feeding industry in the Central District.

Feed grains converted into livestock in the Central District totaled 34,037,000 bushels, or 52 percent of feed grain production in the District. Over the five-year period, 1965-1969, the ratio of feed grains fed to livestock to feed grains produced averaged 55 percent.

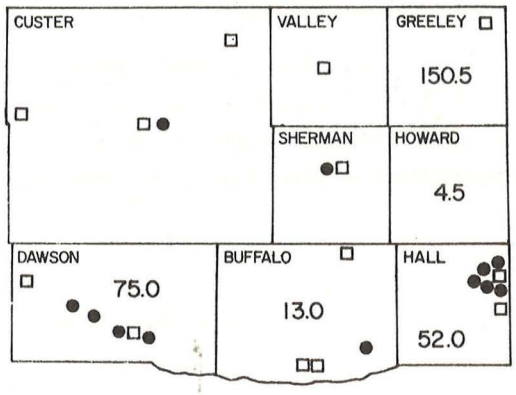
Projections of feed production by the University of Nebraska, Department of Agricultural Economics, show an estimated 1980 corn equivalent production of 66,889,340 bushels of corn and sorghum, the two principal feed grain crops produced in the Central District.

Markets for Livestock

Slaughter facilities numbered 12 in the Central Crop Reporting District in 1970-71 (Table A1). There are also three plants located near this area in the adjacent South District and one in the East District. Both the number and sizes of the slaughter facilities in the Central area have increased significantly since 1966. Dawson and Hall Counties have shown the greatest growth in meat processing.

Figure A9 shows the location of the meat packing plants, the cities in the Central District which have livestock auction markets, and the one-time capacity of large feedlots in the area.

Figure A9 MEATPACKING PLANTS, AUCTION MARKETS, AND MAXIMUM ONE-TIME CAPACITIES OF LARGE FEEDLOTS.



● MEATPACKING PLANT

□ AUCTION MARKET

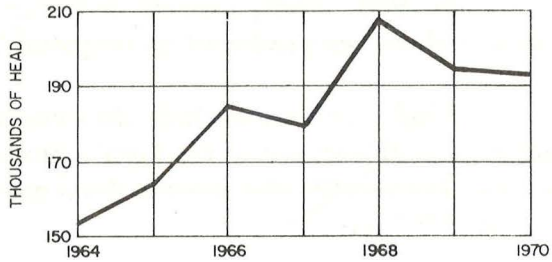
FIGURES REPORT MAXIMUM ONE-TIME CAPACITY OF LARGE FEEDLOTS IN THOUSANDS OF HEAD.

TOTAL CAPACITY 150.5
CAPACITY COUNTIES NOT LISTED 6.0

South Crop Reporting District

Cattle Feeding

Figure A10 SOUTH DISTRICT CATTLE ON FEED



In 1970 there were 193,100 head of cattle placed on feed in the South Crop Reporting District, accounting for 5.4 percent of the 1970 total number of cattle placed on feed in Nebraska.

The cattle placed on feed in the South District in 1970 represent a decrease of 1,900 head, or one percent, from the previous year's number but an increase of 39,600 head, or 25.8 percent, since 1964. Kearney and Phelps Counties have consistently claimed the greatest number on feed in the area, a total of 106,300 head in 1970, while Gosper County has accounted for the fewest, 9,500 in that year.

In 1970 there were 133,600 cows two years or older that gave birth to 126,620 calves. This calf crop has decreased slightly since 1966.

Feed Grain Supplies

1969 production of feed grains in the South District totaled 57,109,000 bushels of corn-equivalents. This represented an increase of 23,113,000 bushels, or 68 percent over the level of production in 1965. Table A7 shows the feed grain production in the District for the years 1965-1969.

Table A7

South District Feed Grain Production in Corn Equivalents

	------thousands of bushels------					
Year	Corn	Sorghum	Barley	Oats	Rye	Total
1965	20,853	12,933	19	123	68	33,996
1966	28,528	17,921	8	84	38	45,579
1967	30,603	13,098	4	58	36	43,799
1968	35,557	11,739	8	80	11	47,395
1969	42,947	13,951	22	152	37	57,109
Average	31,697	13,928	12	99	38	45,775

Source: State - Federal Division of Agricultural Statistics, USDA - Nebraska Department of Agriculture, Nebraska Feed Grains, 1965-1969

As can be observed in Table A7, corn is the most important feed grain produced in the District, accounting for 75 percent of total feed grain production in 1969, and an average of 69 percent of the total for the five year average. Production of sorghum, oats, rye, and barley follow in importance in that order.

In 1968, ninety percent of the corn harvested for grain and 11 percent of the grain sorghum was produced on irrigated land.

Feed grains converted into livestock in the South District totaled 15,735,000 bushels, or 27 percent of feed grain production in the District. Over the five-year period, 1965-1969, the rates of feed grains fed to livestock to feed grains produced averaged 32 percent.

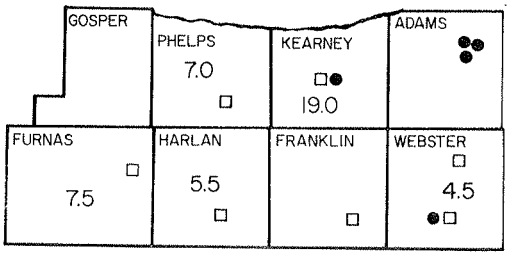
Projections of feed grain production by the University of Nebraska, Department of Agricultural Economics, estimate a 1980 corn-equivalent production of 71,017,650 bushels of corn and sorghum, the two principal feed grain crops produced in the South District.

Markets for Livestock

Slaughter facilities numbered six in the South Crop Reporting District in 1970-71 (Table A1). Adams County is the fastest-growing area in the District in slaughter facilities. The adjacent Nebraska Central and Southeast Districts contain several other nearby plants, as does the Kansas North Central District.

Figure A11 shows the location of the meat packing plants, the cities in the South Crop Reporting District which have livestock auction markets, and the one-time capacity of large feedlots in the area.

Figure A11 MEATPACKING PLANTS, AUCTION MARKETS, AND MAXIMUM ONE-TIME CAPACITIES OF LARGE FEEDLOTS.



● MEATPACKING PLANT

□ AUCTION MARKET

FIGURES REPORT MAXIMUM ONE-TIME CAPACITY OF LARGE FEEDLOTS IN THOUSANDS OF HEAD.

TOTAL CAPACITY 65.0

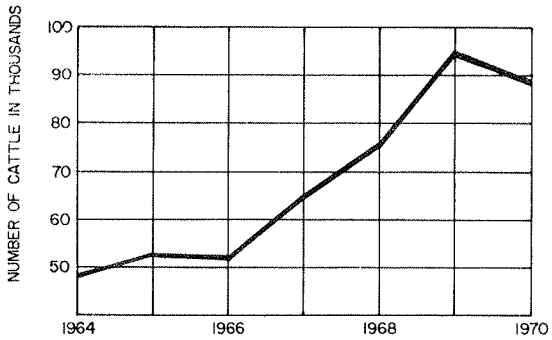
CAPACITY COUNTIES NOT LISTED 11.5

North Crop Reporting District

Cattle Feeding

In 1970 there were 88,800 head of cattle placed on feed in the North Crop Reporting District, accounting for 2.5 percent of the 1970 total number of cattle placed on feed in Nebraska.

Figure A12 NORTH DISTRICT CATTLE ON FEED



The cattle placed on feed in the North District in 1970 represent a decrease of 6,200 head, or 6.5 percent, over the previous year's number, and an increase of 40,300 head, or 83 percent, since 1964. Holt County has consistently claimed the greatest number on feed in the area, with 37,400 head in 1970, while in Arthur County no cattle were placed on feed in 1970.

In 1970 there were 538,900 cows two years or older that gave birth to 515,690 calves, this calf crop has declined by over 20,000 head since 1966.

Feed Grain Supplies

1969 production of feed grains in the North District totaled 13,537,000 bushels of corn-equivalents. This represented an increase of 5,681,000 bushels, or 72 percent, over the level of production in 1965. Table A8 shows the feed grain production in the North District for the years 1965-1969.

Table A8

North District Feed Grain Production in Corn Equivalents

	------thousands of bushels------					
Year	Corn	Sorghum	Barley	Oats	Rye	Total
1965	6,016	1,136	35	597	72	7,856
1966	7,900	1,019	18	519	134	9,590
1967	9,595	930	51	752	97	11,425
1968	10,113	792	88	420	77	11,490
1969	12,043	902	46	442	104	13,537
Average	9,133	955	47	546	96	10,779

Source: State - Federal Division of Agricultural Statistics, USDA - Nebraska Department of Agriculture, Nebraska Feed Grains, 1965-1969

As can be observed in Table A8, corn is the most important feed grain produced in the District, accounting for 89 percent of total feed grain production in 1969 and an average of 84.7 percent of the total for the five-year average. Production of sorghum, oats, rye, and barley follow in importance in that order.

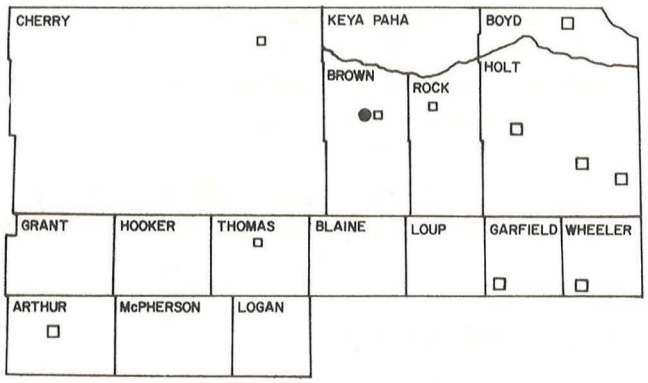
In 1968, forty-eight percent of the corn harvested for grain and eight percent of grain sorghum was produced on irrigated lands. The long-range outlook for irrigated development is excellent, providing an outlook in the area for increased feed grain production for further expansion of cattle feeding in the area.

Markets for Livestock

There is one slaughter facility in the North Crop Reporting District (Table A1). This facility, located in Brown County, employs under 10 workers. Other nearby slaughter facilities are found in the adjacent Northwest Crop Reporting District.

The map in Figure A13 shows the location of the meat packing plants, the cities in the North Crop Reporting District which have livestock auction markets, and the one-time capacity of large feedlots in the area.

Figure A13 MEATPACKING PLANTS, AUCTION MARKETS, AND MAXIMUM ONE-TIME CAPACITIES OF LARGE FEEDLOTS.



● MEATPACKING PLANT

□ AUCTION MARKET

FIGURES REPORT MAXIMUM ONE-TIME CAPACITY OF LARGE FEEDLOTS IN THOUSANDS OF HEAD.

TOTAL CAPACITY 35.0

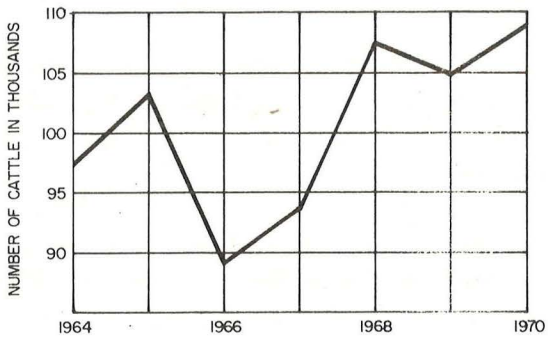
CAPACITY OF COUNTIES NOT LISTED 16.0

Southwest Crop Reporting District

Cattle Feeding

In 1970 there were 109,100 head of cattle placed on feed in the Southwest Crop Reporting District, accounting for 3.1 percent of the 1970 total number of cattle placed on feed in Nebraska.

Figure A14 SOUTHWEST DISTRICT CATTLE ON FEED



The cattle placed on feed in the Southwest District in 1970 represent an increase of 4,100 head, or 3.9 percent, over the previous year's number, and an increase of 11,600 head, or 11.9 percent, since 1964. Keith County has consistently claimed the greatest number of feed in the area with 32,500 head in 1970, while Hayes County accounted for the fewest, 2,100 in that year.

In 1970 there were 219,600 cows two years or older that gave birth to 203,620 calves. This calf crop has decreased by about 20,000 head since 1967.

Feed Grain Supplies

1969 production of feed grains in the Southwest District totaled 25,912,000 bushels of corn-equivalents. This represented an increase of 9,848,000 bushels, or 61.3 percent, over the level of production in 1965. Table A9 shows the feed grain production in the Southwest District for the years 1965-1969.

Table A9

Southwest District Feed Grain Production in Corn Equivalents

	------thousands of bushels------					
Year	Corn	Sorghum	Barley	Oats	Rye	Total
1965	10,474	4,922	82	258	328	16,064
1966	14,487	7,315	63	278	389	22,532
1967	16,479	4,354	20	99	129	21,081
1968	16,834	3,993	66	160	141	21,194
1969	20,480	4,115	188	534	595	25,912
Average	15,750	4,939	83	265	316	21,356

Source: State - Federal Division of Agricultural Statistics, USDA - Nebraska Department of Agriculture, Nebraska Feed Grains, 1965-1969

As can be observed in Table A9, corn is the most important feed grain produced in the District, accounting for 79 percent of total feed grains produced in 1969 and an average of 59 percent of the total for the five-year average. Production of sorghum, rye, oats, and barley follow in importance in that order.

In 1968, sixty-seven percent of the corn harvested for grain and eight percent of the total acres producing grain sorghum were irrigated. Approximately 90 percent of the oats harvested in the District were planted on unirrigated land.

Feed grains converted into livestock in the Southwest District totaled 11,091,000 bushels, or 42 percent of feed grain production in the District. Over the five-year period, 1965-1969, the ratio of feed grains fed to livestock to feed grains produced averaged 46 percent.

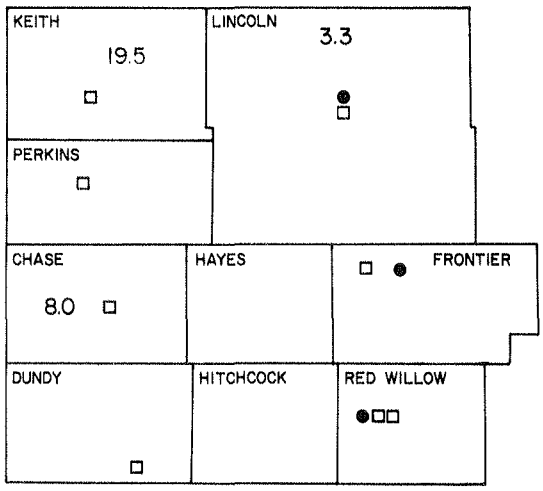
Projections of feed grain production by the University of Nebraska, Department of Agricultural Economics, estimate a 1980 corn-equivalent production of 30,643,500 bushels of corn and sorghum, the two principal feed grain crops produced in the Southwest District.

Markets for Livestock

Slaughter facilities in the Southwest Crop Reporting District numbered three in 1970-71 (Table A1). Red Willow County has demonstrated the greatest growth in the industry here. The two contiguous crop reporting districts of Colorado contain several nearby slaughter facilities, as does Nebraska's Central District.

Figure A15 shows the location of the meatpacking plants, the cities in the Southwest Crop Reporting District which have livestock auction markets, and the one-time capacity of large feedlots in the area.

Figure A15 MEATPACKING PLANTS, AUCTION MARKETS, AND MAXIMUM ONE-TIME CAPACITIES OF LARGE FEEDLOTS.



● MEATPACKING PLANT

□ AUCTION MARKET

FIGURES REPORT MAXIMUM ONE-TIME CAPACITY OF LARGE FEEDLOTS IN THOUSANDS OF HEAD.

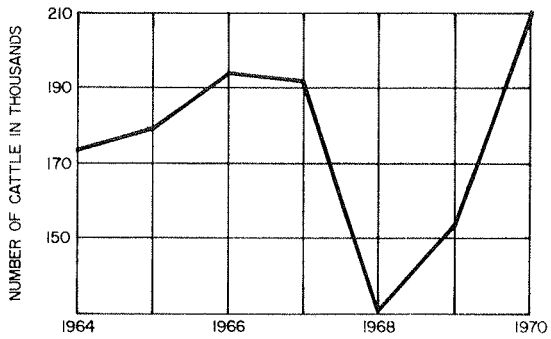
TOTAL CAPACITY 39.5

CAPACITY COUNTIES NOT LISTED 12.0

Northwest Crop Reporting District

Cattle Feeding

Figure A16 NORTHWEST DISTRICT CATTLE ON FEED



In 1970 there were 210,800 head of cattle placed on feed in the Northwest Crop Reporting District, accounting for 5.9 percent of the 1970 total number of cattle placed on feed in Nebraska.

The cattle placed on feed in the Northwest District in 1970 represents an increase of 56,800 head, or 36.9 percent, over the previous year's number, and an increase of 37,000 head, or 21.3 percent, since 1964. Scotts Bluff County has consistently accounted for the greatest number on feed in the area with 138,200 head in 1970, while Dawes County accounted for the fewest, 600 in that same year.

In 1970 there were 287,550 cows two years or older that gave birth to 273,040 calves. This calf crop represented an increase of about 16,000 head since 1966.

Feed Grain Supplies

1969 production of feed grains in the Northwest District totaled 9,087,000 bushels of corn-equivalents. This represented an increase of 627,000 bushels, or 7.1 percent, over the level of production in 1965. Table A10 shows the feed grain production in the Northwest District for the years 1965-1969.

Table A10

Northwest District Feed Grain Production in Corn Equivalents

	------thousands of bushels------					
Year	Corn	Sorghum	Barley	Oats	Rye	Total
1965	5,430	219	489	2,199	533	8,870
1966	6,974	207	513	1,026	1,174	9,894
1967	7,274	37	401	1,050	292	9,054
1968	7,991	287	568	1,245	493	10,584
1969	5,285	169	669	1,899	1,065	9,087
Average	6,590	183	528	1,483	711	9,497

Source: State - Federal Division of Agricultural Statistics, USDA - Nebraska Department of Agriculture, Nebraska Feed Grains, 1965-1969

As can be observed in Table A10, corn is the most important feed grain produced in the Northwest District, accounting for 58 percent of total feed grain production in 1969 and averaging 69 percent of the total for the five year average. Production of oats, rye, barley, and sorghum follow in importance in that order.

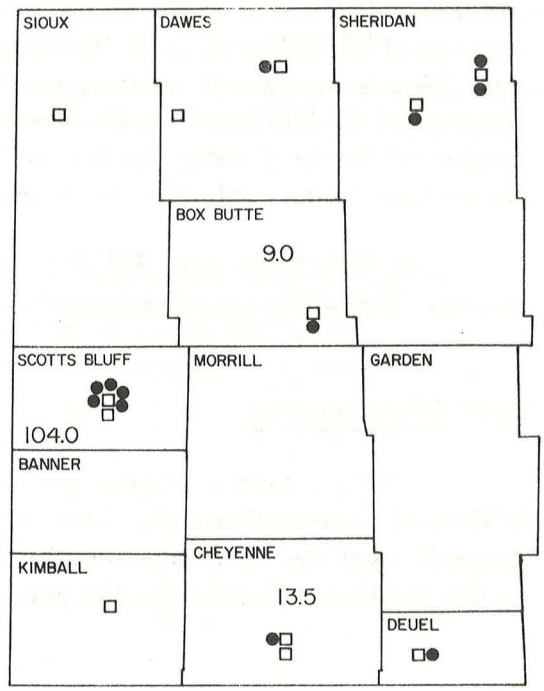
Projections of feed grain production by the University of Nebraska, Department of Agricultural Economics, estimate a 1980 corn-equivalent production of 11,621,510 bushels of corn and sorghum.

Markets for Livestock

Slaughter facilities numbered 12 in the Northwest Crop Reporting District in 1970-71 (Table A1). Scotts Bluff and Sheridan Counties are the fastest growing meat packing plant areas in the District. The one Wyoming and one Colorado crop reporting districts contiguous to the region contain nineteen other facilities.

The map in Figure A17 shows the location of the meat packing plants, the cities in the Northwest Crop Reporting District, which have livestock auction markets, and the one-time capacity of large feedlots in the area.

Figure A17 MEATPACKING PLANTS, AUCTION MARKETS, AND MAXIMUM ONE-TIME CAPACITIES OF LARGE FEEDLOTS.



● MEATPACKING PLANT
□ AUCTION MARKET

TOTAL CAPACITY 141.0
CAPACITY COUNTIES NOT LISTED 14.5

FIGURES REPORT MAXIMUM ONE-TIME CAPACITY OF LARGE FEEDLOTS IN THOUSANDS OF HEAD.

APPENDIX B

Introduction

This appendix presents general information about the State of Nebraska which may be of interest to the livestock industry, including cattle slaughterers and fabricators of beef products who would benefit from an increase in Nebraska fed cattle production. Specific topics covered in Appendix B include:

- The regional consumer market
- Transportation facilities in Nebraska
- Nebraska's labor force
- A general description of Nebraska's tax structure including average urban and rural mill levies by county.

The Regional Consumer Market

Nebraska's central location combined with the important transportation advantages of a major river--the Missouri; strong rail and truck services; air service equal to other mid-west states; the east-west interstate highway I-80 passing through the entire width of the State; and the north-south interstate highway I-29 passing along Nebraska's eastern border offers Nebraska's livestock industry access to major consumer markets across the United States and overseas.

Since 1960 the per capita consumption of beef in the United States has increased from 85 pounds to 109.4 pounds in 1968, based on carcass weight.(1) This trend of increased consumption of beef and beef products is expected to continue as per capita personal income increases.

Approximately 37 million people live within 400 miles of Nebraska's borders. These people have a total personal income exceeding $135 billion and an average per capita income of $3,704. The following table presents information on those states falling within a 400 mile radius of Nebraska's borders.

Consumer Market Data

State	1970 Population(1) (1,000)	Percent of U.S.	Personal Income 1969(2) ($1,000,000)	Percent of U.S.	Per Capita(2) Income 1969 (dollars)	Per Capita Income as % of U.S. Average
Colorado	2,207	1.09	$ 7,569	1.02	$3,495	94.48
Illinois	11,114	5.47	47,340	6.36	4,288	115.92
Iowa	2,825	1.39	9,870	1.33	3.519	95.13
Kansas	2,249	1.11	8,096	1.09	3,621	97.89
Minnesota	3,805	1.87	13,448	1.81	3,579	96.76
Missouri	4,677	2.30	16,085	2.16	3,467	93.73
Nebraska	1,484	0.73	5,230	0.70	3,548	95.92
North Dakota	618	0.30	1,852	0.25	2,982	80.62
Oklahoma	2,559	1.26	7,825	1.05	3,087	83.45
South Dakota	666	0.33	1,995	0.27	2,986	80.72
Wisconsin	4,418	2.17	15,376	2.07	3,512	94.94
Wyoming	332	0.16	1,073	0.14	3,261	88.16
TOTAL	36,954	18.20	135,759	13.20	3,704	100.135
U.S. TOTAL	203,185	100.00	744,479	100.00	3,699	100.000

(1) U. S. Department of Commerce, Bureau of the Census, 1970 Census of Population.
(2) U. S. Department of Commerce, Office of Business Economics, Survey of Current Business, April 1971, Volume 51, Number 4.

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(1) U. S. Department of Agriculture/Economic Research Service, FOOD-Consumption, Prices, Expenditures, Agricultural Economic Report, No. 138.

Transportation Facilities in Nebraska

Motor Freight

The Nebraska highway system contains more than 63,000 miles of surfaced roads, including a 475 mile segment of the east-west Interstate Highway (I-80) which is over 80 percent complete. These roads make it possible for nearly all communities to have regular motor carrier service. Currently there are 45 Class I and 40 Class II motor freight carriers in the State. One-day service is available to a number of cities including Chicago, Denver, Kansas City, and Oklahoma City.

The map inside the rear cover outlines the proposed freeway and expressway plan for Nebraska. The Nebraska Department of Roads has taken a critical look at Nebraska's transportation needs, present and future, and introduced this 20-year proposal as the most feasible plan to fulfill the immediate and long-range needs of Nebraska. The freeway and expressway systems represent a total of 2,209 miles of new highways.

Rail

Nebraska is served by nine major railways with more than 5,500 miles of trackage. The railroads are the Chicago & Northwestern; Burlington Northern; Chicago, Rock Island & Pacific; Missouri Pacific; and the Union Pacific. In addition, the Santa Fe Railroad serves Superior, Nebraska; and the Chicago, Milwaukee, St. Paul and Pacific, Illinois Central and Wabash Railroads serve the Omaha area which ranks fourth in the nation as a railroad center.

Air Services

Nebraska is served by 342 airports. These include commercial, municipal, and personal use airports, distributed throughout the State. Six airlines serve the State, and direct service is available to both coasts. These airlines include Braniff International Airways, Eastern Airlines, Frontier Airlines, North Central Airlines, Ozark Airlines, and United Airlines. Air freight service brings almost any point in the nation within six to twelve hours from eastern Nebraska. The thirteen Nebraska cities with commercial air service are: Alliance, Chadron, Columbus, Grand Island, Hastings, Kearney, Lincoln, McCook, Norfolk, North Platte, Omaha, Scottsbluff and Sidney.

Water Transportation

The Missouri River constitutes Nebraska's eastern border and has made the State the western terminal for water transportation by barge to ocean traffic from the Atlantic, the Gulf of Mexico, and world markets. Harbor and terminal facilities available to Nebraska shippers are located in or near Sioux City, Blair, Omaha, Nebraska City, Council Bluffs, Bellevue, Plattsmouth, Brownville, and Rulo. Most of these terminals have connections with railroads, and all are accessible by improved highways.

Highway Miles to Selected Consuming Centers From Three Nebraska Cities

Scottsbluff to:		Grand Island to:		Omaha to:	
Chicago	914	Chicago	599	Chicago	462
Detroit	1,174	Detroit	859	Detroit	722
Indianapolis	1,055	Indianapolis	718	Indianapolis	587
New York	1,719	New York	1,404	New York	1,267
St. Louis	857	St. Louis	558	St. Louis	454
Des Moines	590	Des Moines	276	Des Moines	140
Tulsa	790	Tulsa	460	Tulsa	388
Oklahoma City	684	Oklahoma City	436	Oklahoma City	454
Salt Lake City	564	Salt Lake City	815	Salt Lake City	950
Denver	210	Denver	405	Denver	540
Minneapolis	712	Minneapolis	448	Minneapolis	360
Wichita	604	Wichita	280	Wichita	300
Kansas City	600	Kansas City	300	Kansas City	205
Dallas	888	Dallas	648	Dallas	648

Approximate Transit Times (Day of Delivery) for Rail and Truck Shipments From Selected Nebraska Areas.

FROM: / TO:	Omaha		Scottsbluff		Grand Island	
	CL	TL	CL	TL	CL	TL
Kansas City	1	1	3	1	1	1
Denver	1	1	2	1	1	1
Chicago	1	1	3	2	2	1
Minneapolis	2	1	3	2	3	1
Los Angeles	4	3	5	2	3	3
San Francisco	4	4	5	2	3	3
St. Louis	2	1	3	2	1	1

CL: Carload
TL: Truckload

Nebraska's Labor Force

According to projections by the Bureau of Labor Statistics, the total labor force in Nebraska will increase by approximately 83,000 persons from 1970 to 1980--an increase of almost 13 percent. The labor displaced by technological advances in farming methods and the increasing female participation rate in the labor force in Nebraska--33.2 percent in 1960 to 43.3 percent in 1980, also illustrate the readily available labor force in Nebraska.

Nebraska Labor Force--1960 and Projected 1970 and 1980

	Labor Force Annual Average (Thousands)			Labor Force Participation Rates (Percent)			Percent Increase in Labor Force	
	1960	1970	1980	1960	1970	1980	1960-70	1970-80
BOTH SEXES, 14 and over	556	652	735	55.9	59.1	61.1	17.2	12.7
MALE								
Total, 14 and over	388	424	468	79.5	78.9	79.7	9.3	10.3
14 - 24 years	64	102	115	62.8	68.5	70.9	57.9	12.9
25 - 54 years	238	242	277	96.2	96.8	96.6	1.8	14.4
55 years and over	86	81	76	61.9	57.9	55.1	-6.2	-5.2
FEMALE								
Total, 14 and over	168	228	267	33.2	40.3	43.3	35.5	17.0
14 - 24 years	38	65	74	36.8	44.3	46.8	71.9	13.9
25 - 54 years	95	116	140	37.8	46.3	50.0	22.3	21.2
55 years and over	36	48	53	23.2	28.0	29.7	31.8	11.0

Source: U. S. Department of Labor, Bureau of Labor Statistics, Special Labor Force Report No. 74, Labor Force Projections by State, 1970 and 1980.

Productivity

One indication of the high productivity of Nebraska's labor force can be found by dividing the value added in manufacturing by the number of employees in manufacturing resulting in the value added per employee. In comparing Nebraska with the United States as a whole, we see that value added per employee in Nebraska exceeded the U. S. average by $768 in 1967. As a percent of the U. S., value added in manufacturing per employee in Nebraska has shown a steady increase from 99.7 percent in 1958 to 105.4 percent of the U. S. in 1967.

Value Added by Manufacturing Per Employee; U. S. and Nebraska

	1967	1966	1963	1958	% Increase 1958-63	1963-66	1966-67	1958-67
U. S.	$14,167	$13,784	$11,834	$9,177	+29.0	+16.5	+2.8	+54.4
Nebraska	14,935	13,906	11,504	9,152	+25.7	+20.9	+7.4	+63.2
Nebraska as a Percent of U. S.	105.4	100.9	97.2	99.7				

Source: U. S. Department of Commerce, 1967 Census of Manufactures.

Vocational Training

Along with the extensive vocational agriculture programs offered in Nebraska's high schools Nebraska also operates the University of Nebraska School of Technical Agriculture at Curtis. The programs of this school are directed toward providing its students with occupational skills and technical knowledge for employment in an agricultural trade or technical job.

Programs which concentrate primarily on trade and industrial education, along with office education, areoffered by the Nebraska Vocational Technical School at Milford and the Western Nebraska Vocational Technical School at Sidney.

In 1967, the Nebraska Legislature authorized a system of five area vocational technical schools to serve the needs of participating counties. These schools are the Central Nebraska Technical College at Hastings, the Mid-Plains Technical College in North Platte, the Northeast Nebraska Technical College in Norfolk, the Lincoln Technical College in Lincoln, and the Omaha Technical College in Omaha. These schools operate at the post high school level and are very flexible in the type of programs and training they offer.

Taxes

The State of Nebraska, in 1967, enacted a combination sales and income tax replacing state property levies as the principal source of tax revenues.

The major taxes comprising the Nebraska tax system are corporate and personal income taxes and the sales and use taxes. Property tax is the most important source of local revenue.

Corporate and Individual Income Tax

The Nebraska income tax on corporations and individuals is applicable with respect to times of income, deduction, loss or gain realized on or after January 1, 1968. The income tax rate is set annually by the State Board of Equalization. The rates effective for taxable years beginning in 1971 are:

Individuals - 10% of adjusted federal income tax liability
Corporations - 2% of federal taxable income attributable to Nebraska operations

The tax rate for corporations is set by law to be 20% of the applicable rate to individuals.

Corporations whose business within Nebraska consists exclusively of foreign and/or interstate commerce are subject to a direct income tax. Corporations having any interstate business are subject to a franchise tax measured by net income.

Where corporations with income derived from sources within and outside of the state and this income is not separate and distinct one from the other, the corporation must apportion and allocate its income. The portion of total corporate income attributable to Nebraska operations is the average of the following percentages.

1. Nebraska property to all property
2. Sales in Nebraska to total corporate sales
3. Nebraska payroll to total payroll

The corporate tax rate of 2% is then applied to the federal taxable income attributable to Nebraska operations.

Sales and Use Tax

The Nebraska Sales and Use Tax rate is 2 1/2% and is levied against gross receipts from retail sales of tangible personal property. Omaha and Lincoln levy a city sales tax in addition to the state levy. Rates effective October 1, 1970 are 1% in Omaha and 1/2% in Lincoln.

1970 Average Urban and Rural Mill Levies
By County

County and District	Average Urban Mill Levy	Average Rural Mill Levy
North East		
Antelope	72.57	47.62
Boone	83.81	42.67
Burt	67.70	41.96
Cedar	78.76	60.55
Cuming	56.46	34.45
Dakota	93.75	62.55
Dixon	87.16	65.54
Knox	74.36	58.92
Madison	94.94	42.47
Pierce	73.19	52.92
Stanton	68.89	40.18
Thurston	77.66	63.22
Wayne	98.48	50.11
East		
Butler	64.07	32.73
Cass	82.14	51.38
Colfax	78.88	39.28
Dodge	104.11	38.95
Douglas	94.71	73.17
Hamilton	52.32	36.22
Lancaster	91.63	57.52
Merrick	64.49	45.48
Nance	83.93	45.72
Platte	89.64	52.48
Polk	52.72	39.83
Saunders	78.61	44.35
Seward	60.45	43.59
Washington	83.06	42.95
York	65.53	44.50
South East		
Clay	70.88	47.08
Fillmore	69.61	43.01
Gage	83.23	53.48
Jefferson	83.07	41.17
Johnson	77.46	46.05
Nemaha	89.21	52.81
Nuckolls	105.43	57.37
Otoe	81.04	38.00
Pawnee	79.98	48.20
Richardson	73.65	47.50
Saline	79.72	45.03
Thayer	63.61	41.79
South		
Adams	105.59	46.02
Franklin	74.46	51.72
Furnas	86.13	61.36
Gosper	91.49	51.20
Harlan	80.87	57.84
Kearney	72.30	48.54
Phelps	75.00	33.49
Webster	90.69	63.63
Central		
Buffalo	96.41	43.48
Custer	78.26	43.37
Dawson	81.54	29.80
Greeley	93.13	59.76
Hall	97.30	47.05
Howard	86.69	59.33
Sherman	82.01	65.29
Valley	78.03	53.49
South West		
Chase	83.33	49.06
Dundy	82.19	60.93
Frontier	83.65	56.44
Hayes	60.93	34.10
Hitchcock	89.26	59.24
Keith	85.20	45.84
Lincoln	88.87	44.53
Perkins	67.16	47.60
Redwillow	100.00	42.92
North West		
Banner	--	29.90
Box Butte	97.62	33.45
Cheyenne	87.93	38.89
Dawes	101.99	27.58
Deuel	61.64	43.29
Garden	76.49	40.39
Kimball	86.20	54.32
Morrill	71.64	44.35
Scotts Bluff	95.80	62.40
Sheridan	107.18	30.80
Sioux	48.18	34.84
North		
Arthur	43.23	36.29
Blaine	53.39	37.04
Boyd	81.11	64.59
Brown	83.61	35.05
Cherry	103.85	30.73
Garfield	93.64	30.25
Grant	82.18	40.76
Holt	75.01	34.48
Hooker	64.20	38.58
Keya Paha	33.40	23.24
Logan	61.50	46.55
Loup	51.00	35.04
McPherson	--	23.90
Rock	71.53	28.55
Thomas	57.14	39.38
Wheeler	34.90	34.24
STATE AVERAGES	90.96	46.47

Source: Property Tax Division, Nebraska Department of Revenue.

Property Tax

Real estate and personal property taxes in Nebraska are levied by county and municipal subdivisions, including school districts. Intangible personal property is not subject to property taxes. The State is prohibited from levying a property tax for state purposes. All property in the State not specifically exempt is required to be assessed at 35% of its actual value. The average urban mill levy for 1970 in Nebraska was 90.96 mills. The average rural mill levy for 1970 in Nebraska was 46.47 mills.

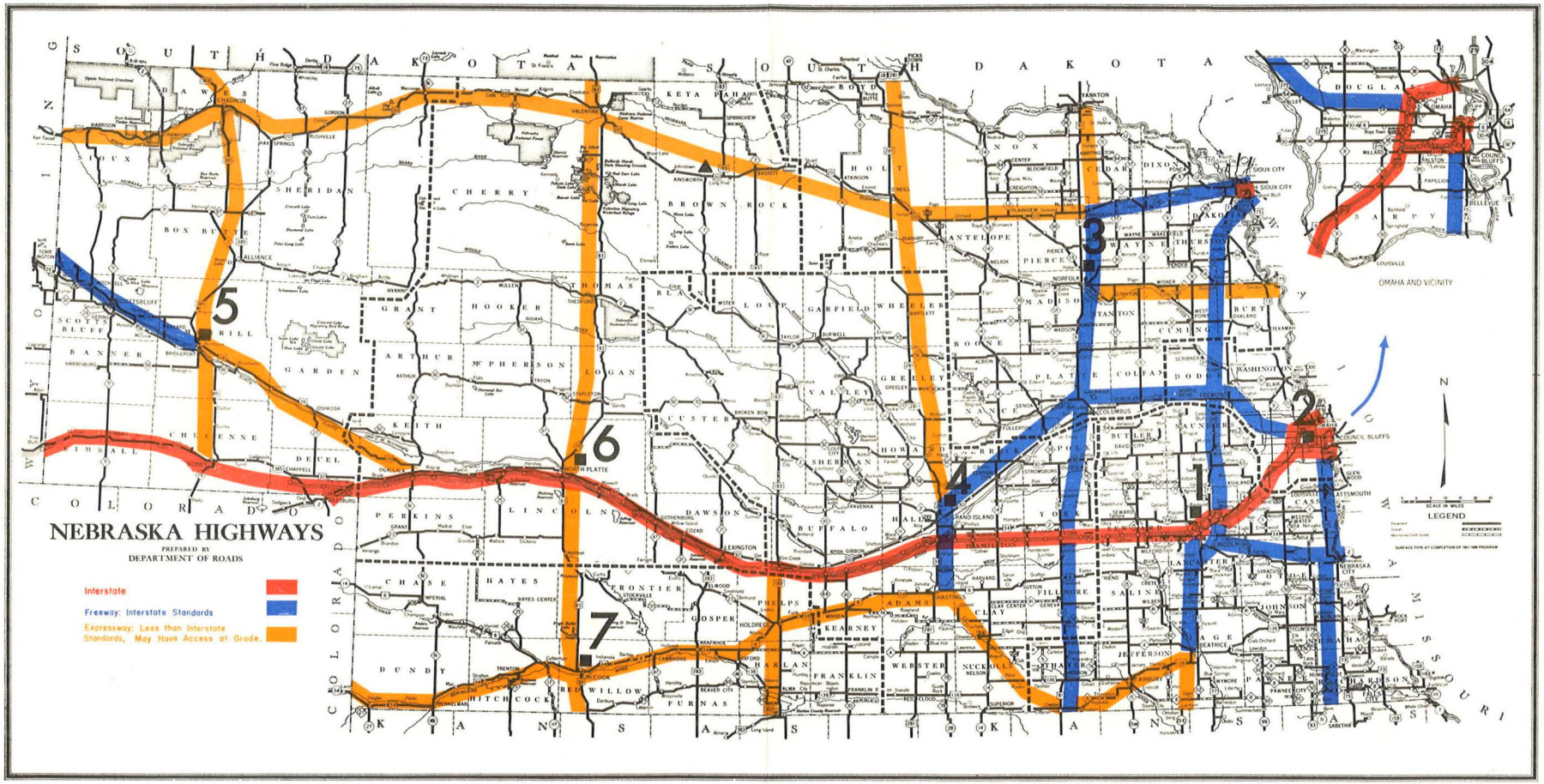
Freeport Law

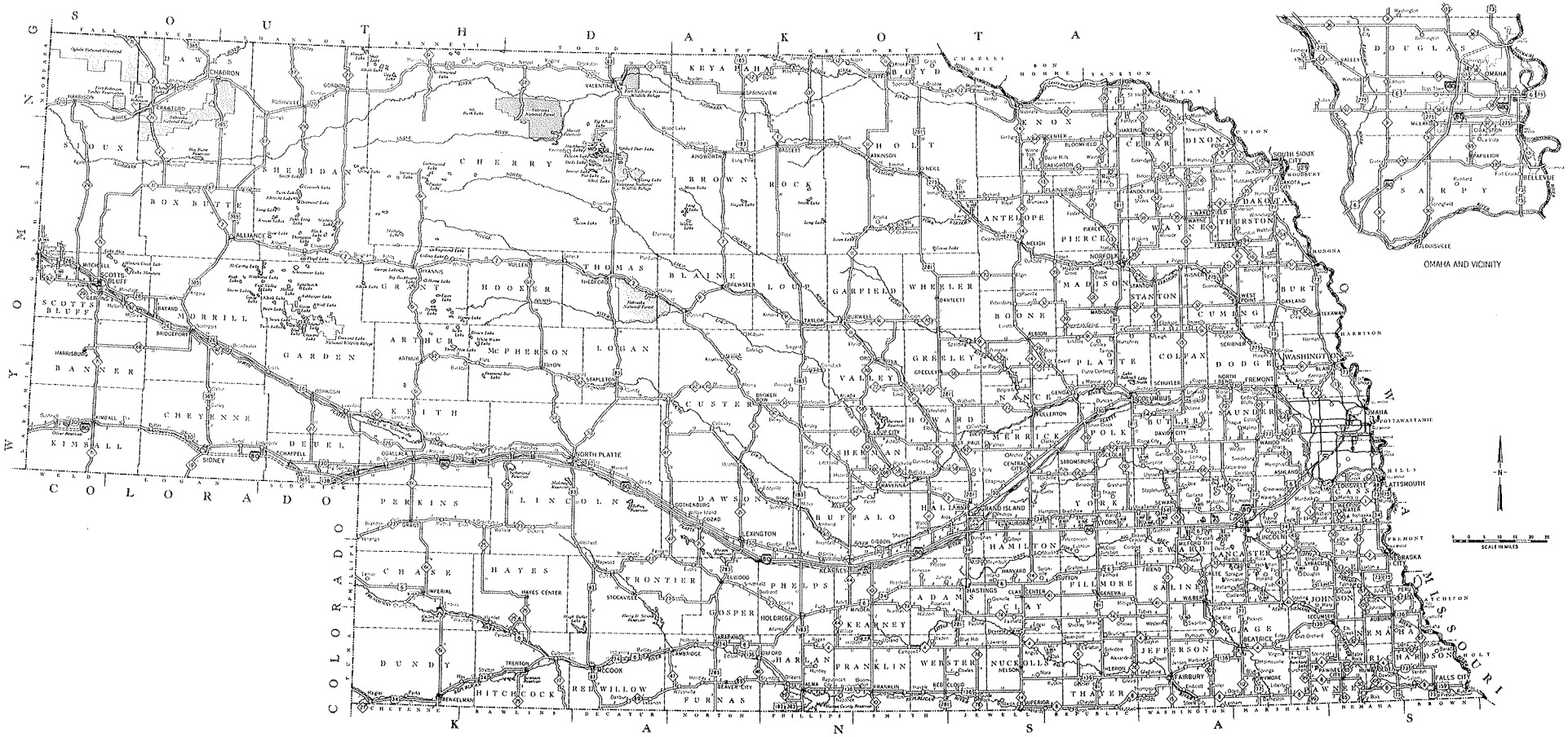
Under Nebraska's freeport law, any goods, wares, and merchandise, stored in transit in this state, whether manufactured, processed, produced, or otherwise originating within or without this state which are intended for and shipped to a final destination outside of Nebraska are exempt from taxation while stored in a bonded and licensed warehouse.

NEBRASKA DEPARTMENT OF ROADS

FREEWAY – EXPRESSWAY PLAN

20-YEAR PLAN: 1969 – 1989




SOUTH DAKOTA
WYOMING
COLORADO
KANSAS
MISSOURI
IOWA
DAWES
SIOUX
SHERIDAN
CHERRY
KEYA PAHA
BOYD
KNOX
CEDAR
DIXON
DAKOTA
THURSTON
WAYNE
PIERCE
ANTELOPE
BROWN
ROCK
HOLT
BOX BUTTE
SCOTTS BLUFF
MORRILL
GARDEN
BANNER
CHEYENNE
KIMBALL
DEUEL
KEITH
ARTHUR
McPHERSON
LOGAN
THOMAS
BLAINE
LOUP
GARFIELD
WHEELER
BOONE
MADISON
STANTON
CUMING
BURT
PLATTE
COLFAX
DODGE
WASHINGTON
GREELEY
VALLEY
NANCE
CUSTER
HOWARD
BUTLER
SAUNDERS
DOUGLAS
SARPY
POLK
HERICK
SHERMAN
PERKINS
LINCOLN
DAWSON
BUFFALO
HALL
YORK
SEWARD
LANCASTER
CASS
CHASE
HAYES
FRONTIER
PHELPS
HAMILTON
FILLMORE
SALINE
GOSPER
ADAMS
CLAY
KEARNEY
JOHNSON
NEMAHA
GAGE
JEFFERSON
DUNDY
HITCHCOCK
RED WILLOW
FURNAS
HARLAN
FRANKLIN
WEBSTER
NUCKOLLS
THAYER
RICHARDSON
BROWN
ALLIANCE
SCOTTS BLUFF
SIDNEY
NORTH PLATTE
GRAND ISLAND
LINCOLN
OMAHA
BELLEVUE
PLATTSMOUTH
FREMONT
NORFOLK
SIOUX CITY
OMAHA AND VICINITY
SCALE IN MILES