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The Changing Structure of Nebraska Agriculture 1974-1982

by
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INTRODUCTION

This report focuses on changes in the Nebraska farm sector from 1974 to 1982. Items of major interest include number, size, and types of farms; resource use and output; tenure patterns; age of farm operators; forms of farm business organization; and capital investment. A Gini Index procedure is used to measure shifts in concentration of certain structural variables. Data sources are Censuses of Agriculture, with emphasis on the 1982, 1978, and 1974 Censuses.

The number of Nebraska farms declined in the period ending with the 1982 Census, a continuation of a long-term trend, both in the state and nationally. The 60,243 Nebraska farms accounted for in the latest Census represented an 11 percent decline from 1974 (Table 1). Similarly, the land in farms dropped to just under 45 million acres, down three percent from 1974. However, the value of Nebraska agricultural commodities sold jumped sharply in the eight year period - from $3.7 billion to $6.6 billion - reflecting both a larger volume of sales and inflation-driven prices, especially in the livestock sector.

SIZE DISTRIBUTION OF NEBRASKA FARMS

Sales Categories

Dramatic changes occurred in the distribution of farms by sales class between 1974 and 1982 (Table 2). In particular, distinctly different

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TABLE 1. Number of farms, value of sales, land in farms, and total cropland, Nebraska, 1982, 1978, and 1974.

Item	1982	1978	1974
Number of Farms	60,243	63,768	67,597
Value of Sales[a/] (mil. $)	6,626	5,149	3,733
Land in Farms (1,000 acres)	44,961	46,114	46,172
Total Cropland (1,000 acres)	22,434	22,274	22,213

[a/] Data for 1974 include sales of forest products.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Census of Agriculture, Nebraska volumes for indicated census years

TABLE 2. Number and percentage distribution of farms by value of product sales class, Nebraska, 1982, 1978, and 1974.

Sales Class	1982 No. of farms	1982 Pct. of farms[b]	1978 No. of farms	1978 Pct. of farms[b]	1974[a] No. of farms	1974[a] Pct. of farms[b]	Change 1974-1982 (percent)
Less than $2,500[c]	3,839	6.4	3,431	5.4	5,459	8.1	-29.7
$ 2,500-4,999	2,963	4.9	3,550	5.6	4,084	6.0	-27.4
5,000-9,999	4,615	7.7	5,985	9.4	7,531	11.1	-38.7
10,000-19,999	7,182	11.9	9,299	14.6	11,482	17.0	-37.4
20,000-39,999	10,366	17.2	13,028	20.4	15,424	22.8	-32.8
40,000-99,999	16,573	27.5	18,107	28.4	16,546	24.5	.2
100,000-199,999	9,135	15.2	6,855	10.7	4,899	7.2	86.5
200,000-499,999	4,235	7.0	2,700	4.2	1,690	2.5	150.6
500,000 & over	1,301	2.2	769	1.2	453	.7	187.2
Abnormal farms[d]	34	.1	44	.1	29	.04	17.2
Total	60,243	100.0	63,768	100.0	67,597	100.0	-10.9

[a] Data for 1974 include sales of forest products.

[b] Figures rounded to nearest tenth of one percent; details may not add to totals due to rounding.

[c] In 1982 and 1978, this category included all farms, except abnormal farms, with actual sales of less than $2,500. In 1974, farms with sales of less than $2,500 but having the production potential for sales of $2,500 and over are included in the category "$2,500 to 4,999."

[d] This category includes institutional farms, experimental and research farms, and Indian reservations.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Census of Agriculture, Nebraska volumes for indicated census years.

patterns emerged for farms with annual sales of less than $40,000 compared to those with sales of $40,000 or more. For sales classes below $40,000, the number of farms in each class declined by no less than 27 percent over the eight year period. But the number of farms with sales of $40,000 and more increased sharply, with especially large increases in the $200,000 and above sales classes.

Results are similar when analyzed by the proportion of total sales accounted for by each sales class (Table 3). In 1982, over three-fourths of all agricultural products sold came from farms with sales of $100,000 or more. In 1974, only 54 percent of all sales came from farms with at least $100,000 in sales. Sales from farms with less than $40,000 in gross sales declined on both an absolute and relative basis.

Data from Tables 2 and 3 may be combined to give additional insight into the number and size distribution of Nebraska farms. For example, in 1982, only 9.2 percent of all farms had sales of $200,000 or more, but these same farms accounted for 57.6 percent of all sales. At the other extreme, farms with less than $40,000 in sales accounted for 48.1 percent of all farms, but only 7.1 percent of all sales. In short, Nebraska farms parallel the national trend where relatively few units have large sales volumes but many small units sell relatively little.

Comparisons of Census data on farm numbers, sales volume, and distributions by sales classes are affected by various factors. In a general sense, price levels received and quantities sold determine sales value, both for individual farmers and the sector as a whole.

More specifically, prices received by farmers for crops and livestock are determined by competitive supply-demand forces, including such general economic phenomena as inflation. Between 1974 and 1982, the general price

TABLE 3. Value and percentage distribution of agricultural products sold by sales class, Nebraska, 1982, 1978, and 1974.

Sales Class	1982 Sales ($1,000)	1982 Pct. of total sales[b]	1978 Sales ($1,000)	1978 Pct. of total sales[b]	1974[a] Sales ($1,000)	1974[a] Pct. of total sales[b]	Change 1974-82 (Percent)
Less than $2,500[c]	4,205	.1	4,753	.1	6,786	.2	-38.0
$ 2,500-4,999	10,834	.2	13,094	.3	15,209	.4	-28.8
5,000-9,999	33,954	.6	43,980	.9	55,813	1.5	-39.2
10,000-19,999	105,275	1.6	136,539	2.7	168,458	4.5	-37.5
20,000-39,999	304,562	4.6	380,542	7.4	447,408	12.0	-32.0
40,000-99,999	1,078,510	16.3	1,150,523	22.3	1,025,203	27.5	5.2
100,000-199,999	1,266,314	19.1	940,236	18.3	663,237	17.8	90.9
200,000-499,999	1,244,676	18.8	787,115	15.3	489,995	13.1	154.0
500,000 & over	2,568,909	38.8	1,685,034	32.7	856,823	23.0	199.8
Abnormal farms[d]	8,509	.1	7,482	.1	4,050	.1	110.0
Total	6,625,742	100.0	5,149,297	100.0	3,732,982	100.0	77.5

[a] Data for 1974 include sales of forest products.

[b] Figures rounded to nearest tenth of one percent, details may not add to totals due to rounding.

[c] In 1982 and 1978, this category included all farms, except abnormal farms, with actual sales of less than $2,500. In 1974, farms with sales of less than $2,500 but having the production potential for sales of $2,500 and over are included in the category "$2,500 to 4,999."

[d] This category includes institutional farms, experimental and research farms, and Indian reservations.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Census of Agriculture, Nebraska volumes for indicated census years.

level increased 79.8 percent, as measured by the Gross National Product deflator. This pushed many Nebraska farms into higher sales categories even though purchasing power may have changed little.

Production and marketing efficiencies may encourage expansion of individual farm firms. However, the response to potential economies of size may vary according to individual knowledge, financial status, ability to assume risk, and tax benefits.

Analysis of Distribution by Sales Category

Analyses of distribution data can be presented in many different forms. No single form is best for all purposes.[1/]

The approach followed here is based on the Lorenz curve. In a Lorenz curve the ascending cumulative percentage of one variable ($x_i....n$) is plotted against the ascending cumulative percentage of another variable ($y_i....n$). If these cumulative percentages increase at exactly the same rate, the Lorenz curve would be represented by the diagonal line (D) in Figure 1. For example, suppose ($x_i....n$) represents the percentage of farms and ($y_i....n$) represents the percentage of aggregate farm sales. The Lorenz curve would coincide with D if 10 percent of all farms generated 10 percent of aggregate agricultural sales, 20 percent of all farms generated 20 percent of aggregate agricultural sales, etc.

In reality, the distribution of sales to farm units plots out below the diagonal. Thus, the Lorenz curve (L) is configured as shown in Figure 1. The farther L departs from D, the greater the area between the two lines and the more concentrated the distribution of income is said to be.

1/ See Boyne, David H. "Changes in Income Distribution in Agriculture," Journal of Farm Economics 47 (5):1213-1224. December, 1965.

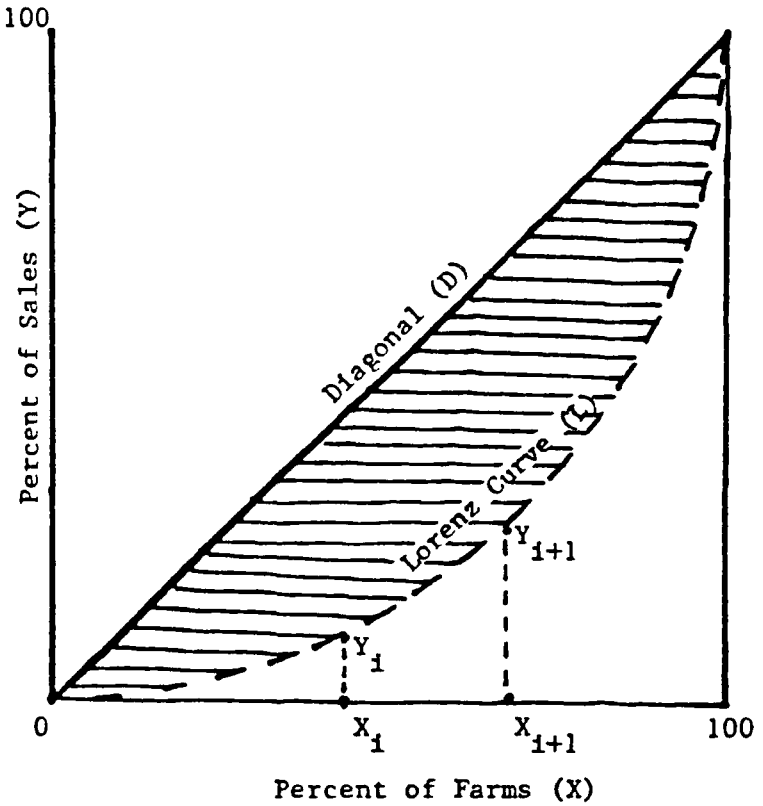

Figure 1. Example showing Lorenz Curve (L) where cumulative percentages do not increase at the same rate.

In order to readily compare the inequality of cumulative percentages for variables x and y, a quantifiable measure of the degree of inequality is necessary. The Gini Index (GI) is such a measure. The GI can be defined in Figure 1 as the proportion of the area under the diagonal (D) that lies between the (D) and the Lorenz curve (L). Thus, the GI can be expressed as follows, using the notation in Figure 1:

$$GI = \frac{\text{area between L and D}}{\text{area under D}}$$

Since each axis of the Lorenz curve cumulated to 100 percent, the area in the square bounded by the axes of Figure 1 can be defined as 1 and that under the diagonal as 1/2. Consequently, the definition can be rewritten as follows:

$$GI = \frac{\frac{1}{2} - \text{area under L}}{\frac{1}{2}}$$

$$= 1 - 2 \text{ (area under L)}$$

Assuming that the distance between any two points on L can be approximated by a straight line, the area under any segment of the curve can be defined as:

$$(X_{i+1} - X_i) \quad \left(\frac{Y_i + Y_{i+1}}{2}\right)$$

Summing over all the intervals, the area under the curve is:

$$\Sigma_i^n \quad (X_{i+1} - X_i) \quad \left(\frac{Y_i + Y_{i+1}}{2}\right)$$

Then substituting in the expression for the Gini Index above, the algebraic expression used in computation follows:

$$GI = 1 - 2\Sigma_{i=1}^n \quad (X_{i-1} - X_i) \quad \left(\frac{Y_i + Y_{i+1}}{2}\right)$$

$$= 1 - \Sigma_{i=1}^n \quad (X_{i+1} - X_i) \quad (Y_i + Y_{i+1})$$

Lorenz curves as plotted in Figure 1 will always result in a Gini Index which ranges between the limits of 0 (denoting an equal distribution of the x and y variables) and +1 (denoting a completely unequal distribution).

Using 1982 data, the percentage of Nebraska farms ($x_i....n$) and aggregate sales ($y_i....n$) could be arrayed as follows:

Sales Class	% of all Farms	% of all Sales
< 2,500	6.4	.1
2,500 - 4,999	4.9	.2
5,000 - 9,999	7.7	.5
10,000 - 19,999	11.9	1.6
20,000 - 39,999	17.2	4.6
40,000 - 99,999	27.5	16.3
100,000 - 249,999	17.9	24.6
250,000 - 499,999	4.3	13.4
500,000 or more	2.2	38.8
TOTAL	100.0	100.1*

*TOTAL does not sum to 100.0 because of rounding to nearest .1%

Applying the Gini Index procedure described above would yield the following values for the x and y variables:

x_1	= 0	y_1	= 0
x_2	= 6.4	y_2	= .1
x_3	= 11.3	y_3	= .3
x_4	= 19.0	y_4	= .8
x_5	= 30.9	y_5	= 2.4
x_6	= 48.1	y_6	= 7.0
x_7	= 75.6	y_7	= 23.3
x_8	= 93.5	y_8	= 47.9
x_9	= 97.8	y_9	= 61.3
x_{10}	= 100.0	y_{10}	= 100.1

Thus:

$$\Sigma_{i=1}^{n} (X_{i+1} - X_i) (Y_i + Y_{i+1}) = .3128$$

and the Gini Index =

1 - .3128 or .6872

This value, while representing neither a completely equal nor unequal distribution of farms and gross sales, is obviously closer to a totally unequal distribution (Gini Index = 1). Moreover, when comparisons are made to other post-World War II Census of Agriculture reports, the trend is toward greater inequality in sales volume (Table 4). The Gini Index indicates a steadily increasing concentration of agricultural product sales among the larger producers. Likewise, the proportion of total sales accounted for by the largest 5 percent of the state's producers has risen from 29 percent in 1950 to nearly 50 percent by 1982.

TABLE 4. Measures of Concentration of Agricultural Sales in Nebraska, Selected Years, 1950-82.

Year	Gini Coefficient of Agricultural Sales	Percentage of Total Sales Generated by:		
		Lower 50%	Top 10%	Top 5%
1950	.462	20	40	29
1959	.485	18	43	31
1969	.635	10	54	44
1978	.676	9	58	47
1982	.687	8	59	49

SOURCE: U.S. Department of Commerce, Bureau of the Census, Census of Agriculture, Nebraska volumes for indicated census years.

Clearly, however, the largest increase in concentration occurred during the 1960s, not the more prosperous 1970s. Two hypotheses might be advanced to account for this.

First, the spurt in technology adoption (especially in large farm equipment) may have been a contributing factor.[2/] To the extent labor-saving technology was adopted, it extended economies of size for many operations.

Second, despite expanding economies of size, average annual returns on farm assets nationally were only 3.4 percent in the 1960-69 period. This compared to an annual average of 8.8 percent in the 1970-79 period. Thus, many small-to-medium size operations which could not take full advantage of economies of scale may have had to leave production agriculture in the 1960s. But because of higher returns in the 1970s, there were fewer economic pressures on small and medium size firms to leave farming.

The increase in the Gini Index for the 1978-82 period also came at a time when economic conditions were deteriorating for agricultural producers. Perhaps this foretells another large increase in the Gini Index for the decade of the 1980s.

Acreage Categories

Another frequently used measure of farm size is average acreage per farm. Overall, the average acreage of Nebraska farms continued to increase in the latest Census reporting period. The 1982 average per farm was 746 acres, up from 723 acres in 1978 and 683 acres in 1974. However, as was true for product sales, average acreages do not tell the entire story of structural shifts underway.

2/ See Krause, Kenneth R. and Leonard R. Kyle, "Midwestern Corn Farms: Economic Status and the Potential for Large and Family Sized Units," Agricultural Economic Report No. 216, Economic Research Service, U.S. Department for Agriculture, November, 1971.

The number and percentage distribution of Nebraska farms by acreage categories for 1982, 1978, and 1974 are shown in Table 5. The following observations appear to be relevant for the 1974-1982 period: 1) the number of small farms (less than 70 acres) increased, with the largest increases coming in the smallest acreage categories; 2) the number of medium-sized farms (70 - 999 acres) declined; and 3) the number of large farms (1,000 acres or more) increased modestly.

The distribution of farms by acreage category has likely been influenced by several factors.

In some cases, persons may have entered farming on a full-time basis, but required relatively few acres to do so. Such intensive farming enterprises as swine or specialty crops usually do not require a large land base.

Many operators of the intermediate-size units apparently either left farming, scaled down their operated acreage, or acquired more land since 1974, thereby shifting into a larger acreage category. Thus, even in terms of acreage statistics, one can see some evidence of a movement toward a bimodal structural pattern of fewer mid-size units and more at both size extremes.

The increase in number of farms in the large acreage categories reflects a motivation on the part of many producers to attain a unit size sufficiently large to generate an adequate income. It has been facilitated

TABLE 5. Number and percentage distribution of farms by acreage categories, Nebraska, 1982, 1978, and 1974.

Farm Size[a]	1982 Number	1982 Percent[b]	1978 Number	1978 Percent[b]	1974 Number	1974 Percent[b]	Change 1974-82 (Percent)
Under 10 acres	4,162	6.9	3,832	6.0	3,350	4.9	24.2
10-49	4,062	6.7	3,592	5.6	3,384	5.0	20.0
50-69	1,042	1.7	995	1.6	984	1.5	5.9
70-99	2,777	4.6	2,940	4.6	3,263	4.8	-14.9
100-139	2,080	3.5	2,240	3.5	2,487	3.7	-16.4
140-179	5,201	8.6	5,867	9.2	6,986	10.3	-25.6
180-219	2,093	3.5	2,370	3.7	2,685	4.0	-22.0
220-259	3,030	5.0	3,627	5.7	4,310	6.4	-29.7
260-499	14,005	23.3	16,013	25.1	18,122	26.8	-22.7
500-999	11,847	19.7	12,369	19.4	12,586	18.6	-5.9
1,000-1,999	6,036	10.0	6,050	9.5	5,721	8.5	5.5
2,000 & over	3,908	6.5	3,873	6.1	3,719	5.5	5.1
Total	60,243	100.0	63,768	100.0	67,597	100.0	

[a] The average farm size was 746 acres in 1982, 723 acres in 1978, and 683 acres in 1974.

[b] Figures rounded to nearest tenth of one percent; details may not add to totals due to rounding.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Census of Agriculture, Nebraska volumes for indicated census years.

by continued advances in technology, especially in farm machinery and irrigation equipment. Tax incentives also may have played a role in the expansion of many farm units.

FARM CHARACTERISTICS AND ADJUSTMENTS

In addition to farm number and size distributions, other structural variables may be observed to assess changes in the Nebraska farm sector.

Type of Tenure

The Bureau of the Census separates farmers into three tenure designations: full owners, part owners, and tenants. In 1982, about 41 percent of Nebraska farmers were full owners; another 38 percent were part owners; and the remainder were tenants (Table 6). There were no perceptible trends underway in the 1974-82 period with respect to tenure patterns.

Part owners have larger operations than either full owners or tenants. Sixty percent of all farmland in Nebraska is now farmed by part owners. Meanwhile, both full owners and tenants account for relatively smaller amounts of land farmed than might be expected on the basis of the number of farms they represent.

The pattern of farm tenancy is probably related to the desire of most operators to own at least part of the land they farm. However, many farmers have not been able to generate sufficient capital (debt or equity) to purchase all the land they farm.

Type of Farm Business Organization

Individual or family-owned units continue to be the dominant type of farm business organization. In 1982, individual or family proprietorships accounted for 85 percent of all farms and 70 percent of all land in farms (Table 7). Partnerships and corporations, while accounting for much

TABLE 6. Distribution of farms and land acreage by tenure of operator, Nebraska, 1982, 1978, and 1974.

Tenure of Operator	1982			1978			1974		
	Number of farms	Percent of farms[a/]	Percent of land[a/]	Number of farms	Percent of farms[a/]	Percent of land[a/]	Number of farms	Percent of farms[a/]	Percent of land[a/]
Full Owner	24,840	41.2	26.7	25,239	39.6	23.7	28,674	42.4	23.6
Part Owner[b/]	23,083	38.3	60.0	24,842	39.0	61.5	25,084	37.1	58.5
Tenant	12,320	20.5	13.4	13,687	21.5	14.8	13,839	20.5	15.2
Total	60,243	100.0	100.0	63,768	100.0	100.0	67,597	100.0	100.0

[a/] Figures rounded to nearest tenth of one percent, details may not add to totals due to rounding.

[b/] Operators who both own land and rent from others.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Census of Agriculture, Nebraska volumes for indicated census years.

TABLE 7. Distribution of farms and land acreage by type of organization, Nebraska, 1982, 1978, and 1974.

Type of Organization	1982 Number of farms	1982 Percent of farms[b/]	1982 Percent of land[b/]	1978 Number of farms	1978 Percent of farms[b/]	1978 Percent of land[b/]	1974[a/] Number of farms	1974[a/] Percent of farms[b/]	1974[a/] Percent of land[b/]
Individual or family	51,323	85.2	70.2	54,968	86.2	71.9	56,406	90.1	78.5
Partnership	5,608	9.3	12.8	6,280	9.8	13.8	4,860	7.8	11.4
Corporation[c/]	3,013	5.0	15.4	2,330	3.7	13.3	1,192	1.9	9.8
Other[d/]	299	.5	1.6	190	.3	1.0	112	.2	.4
Total	60,243	100.0	100.0	63,768	100.0	100.0	62,570	100.0	100.0

[a/] Farms with sales of $2,500 and more only.

[b/] Figures rounded to nearest tenth of one percent; details may not add to totals due to rounding.

[c/] Includes family held corporations totaling 2732 in 1982 and 2125 in 1978.

[d/] Cooperative, estate or trust, prison farm, etc.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Census of Agriculture, Nebraska volumes for indicated census years.

smaller percentages of all farms, were relatively larger than individual and family-owned units. Partnerships accounted for nine percent of all farms and 13 percent of all land in farms. Farms organized as corporations accounted for five percent of all farms, but these farms accounted for 15 percent of all land in farms.

Between 1974 and 1982, two trends appeared to be significant: individual and family-operated units declined on both an absolute and relative basis while, at the same time, corporations were increasing in significance. However, caution must be exercised in the interpretation of these trends. In the first place, about 90 percent of the corporations with farming operations in Nebraska were family held and had fewer than 10 stockholders. Second, a constitutional amendment approved by the Nebraska voters in November, 1982, generally bars non-family coprorations from entering farming in the future. Finally, judgments about the desirability of specific types of farm business organization are a matter of perspective. Most operators organize in whatever manner is economically advantageous. However, society as a whole may prefer a certain organizational type for both economic and social reasons.

Farm Types

The Bureau of the Census classifies farms by type, based on sales value of products sold. In 1982, about 49 percent of Nebraska farms were classified as cash grain farms (Table 8). Another 42 percent were livestock farms. During the 1974-82 period, the relative percentages of farms classified as cash grain or livestock fluctuated from one Census to another, but the total for both types was consistently around 90 percent. The number of farms which emphasized field crops such as sugar beets and potatoes declined during the 8-year period. However, the number of poultry

TABLE 8. Number and percentage distribution of farms by major type, Nebraska, 1982, 1978, and 1974.

Type of Farms	1982 Number	1982 Percent[b]	1978 Number	1978 Percent[b]	1974[a] Number	1974[a] Percent[b]
Cash grain	29,258	48.6	28,961	45.4	30,039	48.0
Field crops, except cash grains	1,224	2.0	1,509	2.4	1,995	3.2
Livestock[c]	25,345	42.1	29,006	45.5	25,891	41.4
Dairy	1,421	2.4	1,304	2.0	2,121	3.4
General						
Primarily crop	984	1.6	1,199	1.9	1,372	2.2
Primarily livestock	835	1.4	930	1.5	669	1.1
Poultry and eggs	192	.3	183	.3	131	.2
All other	984	1.6	676	1.1	352	.6
Total	60,243	100.0	63,768	100.0	62,570	100.0

[a] Includes farms with product sales of $2,500 and over (1974 only).

[b] Figures rounded to nearest tenth of one percent; details may not add to totals due to rounding.

[c] Excludes dairy, poultry and animal specialty products.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Census of Agriculture, Nebraska volumes for indicated census years.

and egg farms increased between 1974 and 1982, and dairy farm numbers increased slightly in the 1978-82 period, a reversal after many years of declining numbers.

Crop Production

Corn remains the predominant crop in Nebraska, even though the number of corn producing farms dropped by 12 percent between 1978 and 1982 (Table 9). In the latter year, more acres of corn were harvested than the other three major crops combined. Moreover, total corn production (measured in bushels) was more than twice as large as the combined total of these three crops.

Soybeans have continued to grow in economic importance in the state. The 21,487 farms which produced soybeans in 1982 were second only to corn-producing farms. Moreover, since 1974, the number of acres in soybean production has doubled and the average acreage per farm has grown by two-thirds.

The number of farms that produce wheat dropped by 28 percent from 1974 to 1982. However, both acreage per farm and yields increased, resulting in a net loss of production of only three percent for the entire period.

Sorghum was grown on 15,160 farms in 1982 and on a total of 1,657,000 acres. By both measures, sorghum was the fourth-ranking crop in the state. Though production amounted to 117 million bushels, the value of production was also the lowest for the four major crops grown in the state.

Livestock Production

The number of farms engaged in livestock production trended downward from 1974 to 1982 (Table 10). In fact, other than sheep and lambs, the number of farms selling each species of livestock or livestock products declined significantly. However, total sales of each species increased as did sales per farm for all species categories except broilers. For the two

TABLE 9. Production of major crops, Nebraska, 1982, 1978, and 1974.

Crop Harvested	Unit	1982	1978	1974
Corn for Grain				
Farms	Number	34,573	39,326	40,830
Acres	1000 acres	6,519	6,662	5,591
Production	Million bu.	676.5	707.7	388.1
Yield	Bushel/acre	103.8	106.2	69.4
Size (avg.)	Acres/farm	188.6	169.4	136.9
Soybeans				
Farms	Number	21,487	16,662	17,691
Acres	1000 acres	2,106	1,210	1,048
Production	Million bu.	70.2	37.7	25.5
Yield	Bushel/acre	33.3	31.2	24.3
Size (avg.)	Acres/farm	98.0	72.6	59.2
Wheat				
Farms	Number	20,182	21,787	28,035
Acres	1000 acres	2,585	2,394	2,824
Production	Million bu.	88.0	73.0	90.6
Yield	Bushel/acre	34.0	30.5	32.1
Size (avg.)	Acres/farm	128.1	109.9	100 7
Sorghum for Grain				
Farms	Number	15,160	17,976	18,605
Acres	1000 acres	1,657	1,802	1,765
Production	Million bu.	116.9	127.1	59.8
Yield	Bushel/acre	70.6	70.5	33.9
Size (avg.)	Acres/farm	109.7	100.2	94.9

SOURCE: U.S. Department of Commerce, Bureau of the Census, Census of Agriculture, volumes for indicated census years.

TABLE 10. Livestock and livestock product sales by farms, Nebraska, 1982, 1978, and 1974.

Sales Items	1982	1978	1974
Cattle and calves			
Farms	39,796	43,617	49,854
Head (1000)	6,011	5,989	5,202
Head per farm	151	137	104
Hogs and pigs			
Farms	17,132	21,601	23,904
Head (1000)	7,065	6,086	4,992
Head per farm	412	282	209
Sheep and lambs			
Farms	3,013	2,355	2,819
Head (1000)	271	190	238
Head per farm	90	81	84
Broilers			
Farms	526	575	634
Head (1000)	104	121	113
Head per farm	198	210	178
Dairy products			
Farms	2,924	3,547	NA
Value (Million $)	135	101	NA
Sales per farm ($)	45,800	28,475	NA
Poultry and Poultry Prod			
Farms	2,952	4,119	6,533
Value (Million $)	44	32	32
Sales per farm ($)	14,743	7,769	4,898

SOURCE: U S. Department of Commerce, Bureau of the Census, Census of Agriculture, Nebraska volumes for indicated census years.

largest livestock enterprises, cattle and hogs, sales per farm were up 45 percent and 97 percent, respectively. While a large number of farms still reported cattle sales in 1982, the concentration of production is quite high. For example, in this year, some 528 operators reported fed cattle sales of 1,000 head or more annually and accounted for more than 73 percent of the total sales volume compared with 60 percent in 1974.

Concentration of hog and pig production has also increased in recent years. In 1974, about 500 operations sold at least 1,000 head annually and had 18 percent of the sales. By 1982, some 1,410 farm operations reported selling 1,000 or more head annually. These larger units, which represented about 8 percent of the farms reporting the sale of hogs and pigs, accounted for about 44 percent of the enterprise sales volume.

Farms with breeding animals and laying flocks declined in number during the 1974-82 period (Table 11). However, the number of hogs kept for breeding purposes increased substantially during the period. Smaller absolute increases were recorded for sheep and lambs and horses and ponies.

Beef cow numbers increased slightly in 1982, compared to 1978 but inventories in both years were about 10 percent less than in 1974. Milk cow numbers continued a long-term downtrend with a decline of 27,000 head (19 percent) being recorded in the 1974-82 period.

Farm Production Expenses

Production expenses for Nebraska farms increased substantially between 1974 and 1982 (Table 12). The largest single expenditure in each of the Census years (1982, 1978 and 1974) was for livestock and poultry, which was not surprising in view of the state's prominence in cattle feeding. The second largest item, which is also closely associated with the cattle industry, was for feed purchases.

TABLE 11. Livestock inventories of farms, Nebraska, December 31, 1982, 1978, and 1974.

Inventory Items	1982	1978	1974
Beef cows			
Farms	30,068	32,557	37,761
Head (1000)	2,024	1,994	2,202
Head per farm	67	61	58
Hogs and pigs			
Farms	15,998	20,532	21,301
Head (1000)	3,963	3,724	2,740
Head per farm	248	181	129
Milk cows			
Farms	4,686	5,827	8,292
Head (1000)	118	119	145
Head per farm	25	20	17
Sheep and lambs			
Farms	2,929	2,279	2,796
Head (1000)	331	171	223
Head per farm	79	75	80
Horses and ponies			
Farms	10,403	10,719	8,898
Head (1000)	52	47	37
Head per farm	5	4	4
Laying hens and pullets			
Farms	5,751	7,730	11,150
Head (1000)	3,304	3,064	3,354
Head per farm	574	396	301

SOURCE: U.S. Department of Commerce, Bureau of the Census, Census of Agriculture, Nebraska volumes for indicated census years.

TABLE 12. Farm production expenses, by items, Nebraska, 1982, 1978, and 1974.

Item	1982[a/] Million Dollars	1978[a/] Million Dollars	1974 Million Dollars	Percent Increase 1982-74
Livestock and poultry purchased	1,761	1,501	867	103.1
Feed purchased	844	655	599	40.9
Commercially mixed feeds	233	177	216	7.9
Energy and petroleum products	473	282	NA	--
Commercial fertilizer	325	267	208	56.3
Hired farm labor	168	130	77	118 2
Seeds, bulbs, plants, and trees	152	111	67	126.9
Agricultural chemicals[b/]	141	88	53	166.0
Contract labor, machine hire, and custom work	90	81	62	45.2

[a/] Data for 1982 and 1978 are based on a sample of farms.

[b/] Data for 1978 and 1974 include the cost of lime which was not collected in 1982.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Census of Agriculture, Nebraska volumes for indicated census years.

The largest percentage increases in expenses were for agricultural chemicals, followed by seeds, bulbs, plants and trees; hired farm labor; and livestock and poultry purchases. Expenditures for each of these items was at least twice as high in 1982 as in 1974. The most important contributing factor to these increases was general price inflation during the study period. However, more intensive utilization of certain inputs (e.g., agricultural chemicals) was also a contributing factor.

Perhaps the largest increase in production expenses for the 1974-82 period was for energy and petroleum products. However, incomplete data from 1974 make it impossible to calculate the full increase for the eight-year period.

Farm Product Sales and Other Income Sources

The total value of products sold and average value per farm increased greatly between 1974 and 1982 (Table 13). Average per farm sales were $59,497 in 1974, $80,750 in 1978, and $109,984 in 1982.

In 1978 and 1982, sales of livestock, poultry, and their products accounted for about two-thirds of all sales. In 1974, crops were relatively more important in overall product sales.

By sub-category, sales of cattle and calves amounted to about half of all agricultural product sales in 1982. A second important sub-category was grain sales. Together, these two sub-categories accounted for about 84 percent of all product sales.

Farm Asset Values

In each agricultural census, farm operators are asked to report their estimate of value of farm assets. The values of major farm assets more than doubled in the 1974-82 period (Table 14).

TABLE 13. Value of products sold by farms, Nebraska, 1982, 1978 and 1974.

Product Sold	1982 Million Dollars	1982 Percent of Total[b]	1978 Million Dollars	1978 Percent of Total[b]	1974[a] Million Dollars	1974[a] Percent of Total[b]
Crops						
Grain	2,244	33.9	1,595	31 0	1,388	37.3
Field Seeds, Hay, Forage & Silage	86	1.3	78	1.5	93	2.5
Other Field Crops	40	.6	37	.7	78	2.1
Vegetables, Sweet Corn, Melons	1.1	.02	.6	.01	.5	.01
Fruit, Nuts & Berries	.5	.01	.2	.004	.2	.006
Nursery & Greenhouse Products	9	.1	7.7	.15	4	1
Subtotal	2,380	35.9	1,718.5	33.4	1,563	42.0
Livestock, Poultry & Their Products						
Cattle & Calves	3,331	50.3	2,738	53.2	1,680	45 1
Poultry & Products	44	.6	32	.62	32	.9
Dairy Products	135	2.0	101	2.0	81	2.2
Hogs & Pigs	710	10.7	538	10.4	353	9.5
Sheep, Lambs & Wool	15	.2	13	.3	8	.2
Other Livestock & Livestock Products	11	.1	9	.2	7	.2
Subtotal	4,246	64.1	3,431	66.6	2,160	58.0
Total Products Sold	6,626	100.0	5,150	100.0	3,723	100.0
Average/Farm	$109,984		$80,750		$59,497	

[a] Farms with sales of $2,500 and more only.

[b] Details may not add to totals due to rounding.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Census of Agriculture, Nebraska volumes for indicated census years.

TABLE 14. Value of selected farm investment items, Nebraska farms, 1982, 1978, and 1974.

Item	Unit	1982[a/]	1978[a/]	1974
Value of land and buildings[b/]	($ mil.)	31,745	24,459	13,017
Average per farm	($)	532,741	371,313	192,574
Average per acre	($)	701	526	282
Value of machinery and equipment	($ mil.)	4,089	3,462	2,018
Average per farm	($)	68,007	54,354	29,856

[a/] 1982 and 1978 data are based on a sample of farms.

[b/] Excludes abnormal farms.

SOURCE: U.S. Department of Commerce,Bureau of the Census, Census of Agriculture, Nebraska volumes for indicated census years.

By category, the total value of farm land and buildings increased by 144 percent for the eight-year period, with the largest increase occurring between 1974 and 1978. This large increase in value also shows up when comparisons are made on a per farm or per acre basis.

The value of machinery and equipment on farms increased by 103 percent in the 1974-1982 period. Here, too, the largest increase occurred between 1974 and 1978.

Since 1982, the value of major farm assets, especially real estate, has fallen considerably. The increase in assets in the eight years prior to 1982 and the subsequent decrease since then have had different impacts on producers. The jump in land prices in the earlier period meant a large increase in net worth, borrowing power, and for those who sold, capital gains. But for those who purchased land near its price peak, borrowed a large portion of the purchase price, and financed it at high interest rates, severe financial stress has frequently followed. Data on farm asset values promise to be one of the more interesting areas for analysis in the next Census of Agriculture.

Operator Age

Between 1974 and 1982, the average age of Nebraska farmers declined slightly (Table 15). The relative percentage of farmers below 35 years of age increased from 15.7 percent in 1974 to 22.3 percent in 1982. At the same time farmers 45 years of age and above decreased from 66.8 percent to 60.3 percent of the total during the period. The relative number of farmers 35 to 44 years of age remained virtually unchanged.

Part of the shift by age group no doubt reflect changes which occurred in the general population. During the 1970s, farmers in their 20s and early 30s came from that portion of the population that was part of the post-World War II baby boom.

TABLE 15. Farm operators by age group, all farms, Nebraska, 1982, 1978, and 1974.

Age	1982		1978		1974[a]	
	Number	Percent[b]	Number	Percent[b]	Number	Percent[b]
Under 25 years	3,107	5.2	3,335	5.2	2,656	4.0
25 to 34 years	10,329	17.1	9,590	15.1	7,751	11.7
35 to 44 years	10,478	17.4	10,987	17.2	11,604	17.5
45 to 54 years	12,949	21.5	15,484	24.3	17,086	25.8
55 to 64 years	14,603	24.2	15,615	24.5	16,578	25.0
65 years and over	8,777	14.6	8,757	13.7	10,589	16.0
Total	60,243	100.0	63,768	100.0	66,264	100.0
Average Age	48.5		48.7		50.3	

[a] 1974 data apply only to individual or family operations (sole proprietorship) and partnerships.

[b] Figures rounded to the nearest tenth of one percent; details may not add to totals due to rounding.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Census of Agriculture, Nebraska volumes for indicated census years.

But perhaps the more important contributing factor to a changing age structure was that several years in the 1970s were extremely good years in terms of farm income. This encouraged more young people who were making career decisions to begin farming. As economic conditions have deteriorated in the 1980s, it is likely that fewer young farmers have chosen farming as a profession.

SUMMARY AND CONCLUSIONS

The structure of Nebraska agriculture continued to change in the 1974-1982 period. Sales of agricultural products were increasingly concentrated in farms with annual sales of at least $100,000. Perhaps the key contributing factor was inflation; general price increases of nearly 80 percent in the eight-year period pushed many farms into larger sales (though not necessarily higher income) categories.

The average number of acres per farm in Nebraska increased between 1974-82. However, averages do not reflect the fact that the number of farms in mid-size categories (70-999 acres) decreased during the period.

The predominant tenure pattern among Nebraska farmers continues to be part ownership, where land is both owned and leased. Most farms are individual - or family - operated units. Corporation farms (of which the majority are family-owned corporations) were the fastest growing organizational type between 1974 and 1982, but this trend may change because of the 1982 Constitutional prohibition against some types of corporation farming.

By enterprises, Nebraska continues to be primarily a cattle and corn state, although several other enterprises add significantly to the total value of farm production in the state. Clearly, this state's agricultural sector is quite diverse.

The structure of agriculture will continue to change in the future, although neither causal forces nor resulting changes will be exactly like those that have occurred previously. For example, recent financial stress in agriculture will likely alter a number of the structural variables discussed in this paper.

Beyond that, production agriculture's relationship to general economic and monetary conditions will likely become even more direct, with resulting implications for farm profitability and the sector's aggregate balance sheet. Those producers with the largest volume will have the most at stake - good or bad.

Technological gains in both production and marketing of agricultural products will probably be slow, but steady. As in the past, operators of larger farms are likely to be most able to use effectively many of these technological advancements. However, there are certainly major questions as to the degree of technical innovation and capital/labor substitution which can take place, given the economic and financial environment which agriculture faces.

Finally, domestic markets are not likely to be sufficiently large to absorb all the potential production of Nebraska farms in the foreseeable future. Thus, conditions in the export sector will impact heavily on farm output and profitability - and ultimately the structure of Nebraska agriculture.

APPENDIX TABLE 1. Selected data items for farms in Nebraska and surrounding states, 1982, 1978, and 1974.[a/]

Item	Nebraska	Colorado	Iowa	Kansas	Missouri	S. Dakota	Wyoming
Number of farms							
1982	60,243	27,111	115,413	73,315	112,447	37,148	8,861
1978	63,768	26,907	121,339	74,171	114,963	38,741	8,040
1974	67,597	25,501	126,104	79,188	115,711	48,825	8,018
Acres per farm (avg.)							
1982	746	1,237	283	642	260	1,179	3,781
1978	723	1,310	274	640	262	1,147	4,182
1974	683	1,408	262	605	258	1,074	4,274
Value of sales ($ avg./farm)[b/]							
1982	109,984	108,476	85,163	84,442	32,076	66,709	68,426
1978	80,750	96,257	67,356	67,352	28,799	48,996	65,959
1974	55,224	77,261	50,114	46,497	19,912	38,766	45,014
Value of land and buildings ($ avg./farm)							
1982	532,741	562,479	471,011	384,197	223,247	418,940	732,875
1978	382,902	416,988	427,161	322,165	191,130	295,953	598,623
1974	192,574	264,065	188,370	179,454	102,074	155,415	343,063

[a/] 1982 and 1978 data are based on a sample of farms.

[b/] 1974 data include sales of forest products.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Census of Agriculture, Nebraska volumes for indicated census years.