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# The Changing Structure of South Dakota Agriculture

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THE CHANGING STRUCTURE  
OF  
SOUTH DAKOTA AGRICULTURE

by  
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Research Report 83-2

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# THE STRUCTURAL TRENDS IN SOUTH DAKOTA AGRICULTURE

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## INTRODUCTION

Many people are concerned about the future of agriculture, family farms and rural communities. Continuing trends of declining farm numbers, increased farm size and concentration of control over agriculture production influences the potential for young people to enter farming, the viability of many rural community institutions, the economic organization of the food system and the political clout of agriculture producers. Farm structure changes such as land ownership, farm tenancy, business organization, enterprise specialization, and various financial characteristics reflect the health and vulnerability of agriculture and family farms upon which the South Dakota economy is based. As a result many South Dakotans are vitally interested in the structural trends of agriculture.

The purpose of this report is to present and analyze recent structural trends in South Dakota Agriculture and to outline major implications of these trends.

In the report, major forces underlying the recent structural trends in South Dakota agriculture are briefly discussed. Recent South Dakota trends are then presented and analyzed in the following order:

- (1) Declining farm numbers
- (2) Increasing farm size in acres
- (3) Increasing sales volume and concentration
- (4) Land tenure and ownership trends
- (5) Farm corporations in perspective
- (6) Greater specialization and concentration of livestock enterprises



- (7) Greater reliance on debt capital and other changes in farm finance
- (8) Growing reliance on off-farm income

Comparisons are made with regional and national trends to place the South Dakota situation in better perspective. Predictions for the year 2000 are presented for a few key trends.

Many structural trends and their implications are specifically related to farm size. Therefore, profiles of South Dakota farms by economic class (farm sales volume) are presented to better understand structural trends by farm size and to help assess future implications.

This report concludes with a summary of observations and implications for family farms, rural communities and the future of agriculture in South Dakota.

Information presented in this report is primarily based upon data from the U.S. and South Dakota Census of Agriculture reports, various U.S. Department of Agriculture (USDA) bulletins and previous studies of South Dakota agriculture.



## MAJOR FORCES<sup>1/</sup>

Agricultural trends in South Dakota and the United States are generally in the same direction, but often vary in relative magnitude and importance. Trends discussed in the bulletin have been greatly affected by interactions of six major forces:

1. Economic development
2. Technological change in agriculture
3. Income and population growth
4. Increased reliance on farm exports
5. Federal government farm policies
6. Monetary and fiscal policy

U.S. economic development historically has been a two step process. First we used technology to make "two blades of grass grow where one grew before". This released most people from the primary concern of food production. Secondly, the labor released from agriculture became engaged in producing other goods and services. As a result, total economic activity has increased as well as the average standard of living per person. The United States has become an urban society in which those who actually "till the soil" are less than 3 percent of the total population.

Economic development has been greatly aided by our society's investment in human capital-education and health care. Improved health and education of all of our people has made it easier for families to adjust to changing economic opportunities available and to understand how to control and manage high technology in agriculture.

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<sup>1/</sup> This section is partly based on Lyle Schertz, Another Revolution in U.S. Farming U.S. Department of Agriculture, Washington, DC, 1979, pp. 43-74.

Technological change increased agriculture's ability to produce more volume with less resources. New technology is adopted if it potentially reduced the cost per unit of output or increases the marginal value of production per unit of input. This process has resulted in additional profits for the new technology adapter and eventually lowered real food prices for consumers.

Changing technologies have affected economies of size in farming and the income opportunities for those who have been willing and able to adopt more profitable technologies. Those who were unable or unwilling to keep up on the "treadmill" were faced with declining farm income potential as their out-of-date practices became more inefficient as time went on.

Some technologies, such as fertilizer, hybrid seeds, livestock pharmaceuticals and high energy feeds, primarily increased production per acre or animal. Other technologies, such as four-wheel drive tractors, larger combines and automated feeding systems, reduced the amount of labor in farming which made it possible to farm more acres or feed more livestock per person. As a result, U.S. farming has been transformed into fewer, more capital intensive and specialized farming units.

Population and real income growth in the U.S. over the past 40 years has increased overall demand for most farm products. Consumption demand for food products, such as beef and chicken, with moderate to high income elasticities have increased the most. Changing family sizes and more affluent lifestyles affect consumer demand for farm products in many ways. Increased use of convenience foods, low-fat foods, restaurant and fast-food meals, are only a few of many factors affecting farm product demand.

Increased reliance on export markets can be traced to worldwide economic growth (increased population and real incomes) and government policies favor-



ing international trade. Export markets have increased demand for U.S. farm products but have also increased the volatility of demand leading to greater annual variation in prices and farm incomes. It also leads to greater regional specialization in production of food grains and feed grains.

Federal government farm policies including commodity programs, farm credit, and taxation have also affected many agricultural trends. Increased availability of credit by banks, the Farm Credit System and other lending institutions at favorable interest rates (until 1980) has made farm expansion possible at faster rates than would otherwise be the case. Commodity programs are designed to alter production and reduce extreme price fluctuations in agriculture. Tax rules related to cash accounting designation of receipts as ordinary income or capital gains, accelerated depreciation, investment credit and other rules affect the organization of farm firms and their potential for growth.

Monetary and fiscal policies affect farming by influencing the level of prices, cost of credit, and the demand for land and other assets. Inflationary policies increase returns for capital appreciation relative to current income. As a result, many farm borrowers become more vulnerable to future disinflationary policies as they expand current debt to take advantage of cheap credit and potential capital appreciation.

These major forces interact with each other in many different ways and have collectively influenced the agricultural trends discussed in the remainder of this report.



## DECLINING FARM NUMBERS

Declining numbers of farms is a continuing trend for South Dakota and the U.S. which has persisted from 1935 to the present. Farm numbers actually increased for the state and nation until the early 1930's but have declined since then.

In the early 1930's there were over 83,000 farms in South Dakota, the highest farm numbers recorded. By 1982, there were 37,000 farms, a 55% decline in farm numbers (Table 1).<sup>2/</sup> Nationally, farm numbers declined from a peak of 6.8 million farms in 1935 to 2.4 million farms in 1982.

The most rapid South Dakota farm exodus occurred from 1935-1940 when a net reduction of over 10,800 farms took place for a 2.8 percent annual decline. Farm numbers declined at rates slower than 1.5 percent per year during the 1940's and early 1950's, accelerating again to above 2 percent per year from 1954 to 1964. Since 1964, the farm exodus has slowed to below the 2 percent rate of annual decline.

Farm number trends have been very similar in all Northern Plains states (Kansas, Nebraska, South Dakota, North Dakota). Each state has lost similar proportions of farms in each decade. From 1935 to 1969 all regions of the U.S. experienced declining farm numbers, with the greatest rates of decline in

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<sup>2/</sup> A small percentage (less than 5 percent) of the decline in South Dakota farm numbers has been due to changing census definitions of "farms". Beginning with the 1974 Census of Agriculture, any farm selling \$1,000 or more of farm products annually is counted as a "farm". Before 1974 even more liberal definitions of "farms" were used. Almost all of the impact of changing definitions and procedures has been on the number of very small farms. The effect on estimates of farm product sales has been miniscule (less than 0.1 percent).

Table 1. Declining Number of South Dakota Farms

Census year	Number of farms	Net changes in number of farms	Annual rate of change
1930	83,157		
1935	83,303	+ 146	--
1940	72,454	-10,849	-2.8
1945	68,705	- 3,749	-1.1
1950	66,452	- 2,253	-0.7
1954	62,520	- 3,932	-1.5
1959	55,727	- 6,793	-2.3
1964	49,703	- 6,024	-2.3
1969	45,726	- 3,977	-1.7
1974	42,825	- 2,901	-1.3
1978	39,665	- 3,160	-1.9
1982 est.	37,000	- 2,665	-1.7

Source: U.S. Department of Commerce, Bureau of the Census  
 1978 Census of Agriculture, South Dakota, Vol. I, Table 1.  
 1959 Census of Agriculture, South Dakota, Vol. I, Table 1.  
 1982 estimates from the South Dakota Crop and Livestock Reporter,  
 September 1982.



the South and Northeast. Although farm numbers have actually increased since 1969 in many West and Northeast states, most of this recent phenomenon can be attributed to urbanization of rural areas. Farm numbers still continue to decline in almost all Southern and North Central states.

#### Trends by Region in South Dakota

Rates of decline in farm numbers vary substantially by region over time in South Dakota. The major changes can be seen by grouping counties into three regions (western, central and eastern South Dakota) and farm numbers into three periods (1935-1950, 1950-1964, 1964-1978). The regions are shown in Figure 1 and the percentage reductions of farm numbers by time period are shown in Table 2.

From 1964 to 1978, farm numbers in western counties declined at half the annual rate (0.9%) of farm numbers in eastern counties (2.1%) and two-thirds the annual rate for central South Dakota counties (1.5%). The situation was reversed in the earlier 1935-1950 period when annual reduction of farm numbers in eastern counties (0.7%) was less than one-fourth the reduction rate for western counties (3.3%)

Since 1935, five of eight farms have been consolidated in the western region--the highest rate of consolidation in any region of South Dakota. For this region, the rate of decline was the highest in 1935-1950, but has been fairly slow since 1969. A few western counties have even stabilized in farm numbers.

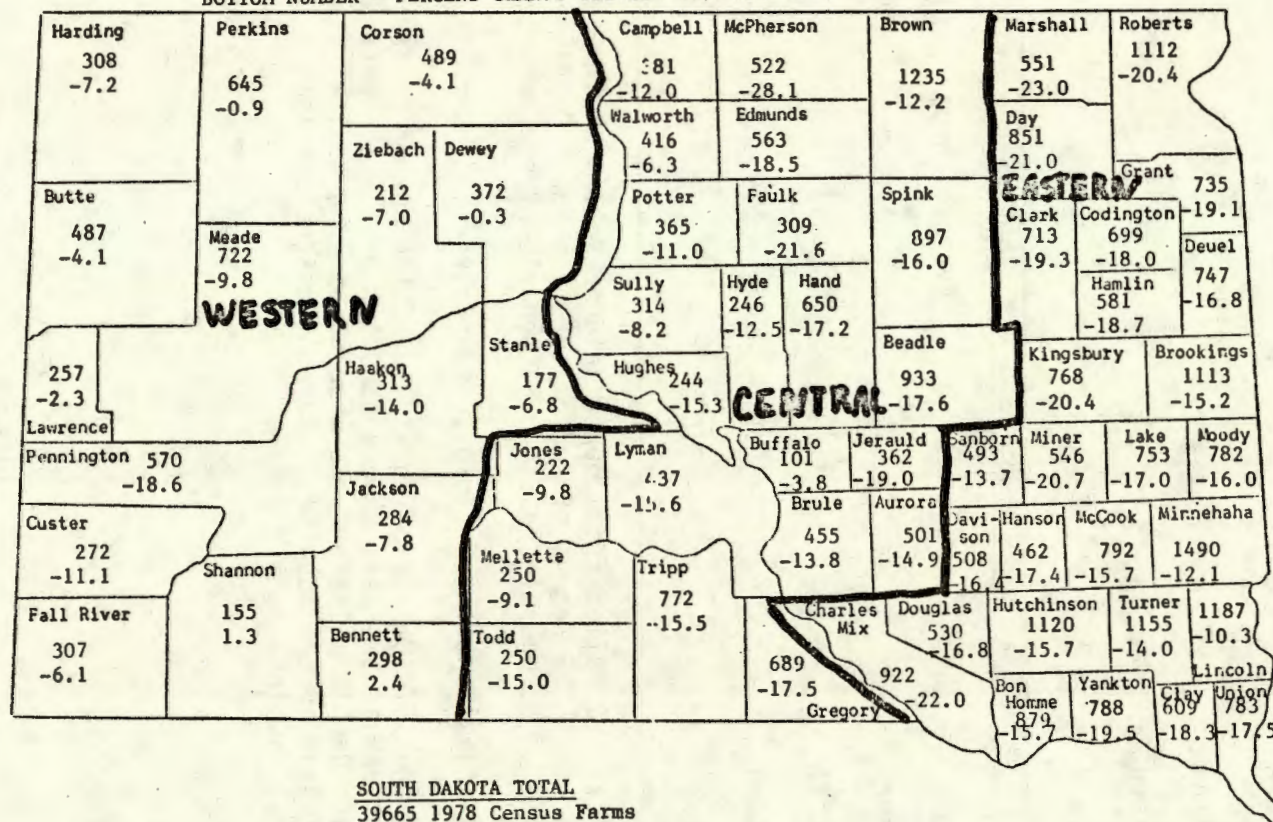
Farm numbers have declined at 1.5 to 2.3 percent annual rates in most central South Dakota counties over the entire period since 1935. Five of nine farms have been consolidated during this period.



FIGURE 1. SOUTH DAKOTA CENSUS FARM NUMBERS 1978 and PERCENT CHANGE FROM 1969.

TOP NUMBER - 1978 CENSUS FARMS.

BOTTOM NUMBER - PERCENT CHANGE BETWEEN 1969 AND 1978



SOURCE: U.S. DEPARTMENT OF COMMERCE, BUREAU OF THE CENSUS, U.S. CENSUS OF AGRICULTURE, SO.DAK., 1969 and 1978



Table 2. Number of Farms and Percent Reduction in Number of Farms by Region of South Dakota, 1925-1978

South Dakota region <sup>a</sup>	1935	1950	1964	1978
Thousands of farms <sup>b</sup>				
Western	15.2	9.2	6.7	5.9
Central	25.6	19.3	13.9	11.2
Eastern	42.5	38.0	29.1	21.7
State	83.3	66.5	49.7	39.7
	1935-1950	1950-1964	1964-1978	1935-1978
Average annual percent change				
Western	- 3.3	- 2.2	- 0.9	- 2.2
Central	- 1.9	- 2.3	- 1.5	- 1.9
Eastern	- 0.7	- 1.9	- 2.1	- 1.6
State	- 1.5	- 2.1	- 1.6	- 1.7

Source: Compiled from county data in Vol. 1 of the 1978, 1969, 1959, and 1950 Census of Agriculture for South Dakota. Published by the Bureau of Census, U.S. Department of Commerce.

<sup>a</sup>For a description of regions, see Figure 1.

<sup>b</sup>For the 1978 Census of Agriculture, the number of farmers summed by county for 1978 is 924 less than the number of farms reported for the state of South Dakota. These farms were not on the mail list and have not been distributed to the counties. Percent change statistics are calculated based on these raw farm number totals.



One of every two eastern South Dakota farms have been consolidated during the 45 year period since 1935. In most eastern counties, farm numbers declined slowly from 1935 to 1964. However the eastern counties have exhibited the highest rates of decline in the state since 1964.

#### Explanation of declining farm numbers

Initial settlement patterns, technological changes in agriculture, farm economic conditions and availability of nonfarm employment opportunities are major explanations for declining farm numbers in the U.S. and in South Dakota.

Dustbowl conditions during the mid-1930's along with an economic depression severely tested farmers in South Dakota. The semi-arid western and central regions were affected the most because settlers found that the population exceeded the carrying capacity of the land that was more suited to range.

Technological change and rapid adoption of new technology by farmers are principal reasons for farm exodus after World War II. The rate of technological change has varied across agricultural enterprises and partly explains regional differences in farm number declines. It still takes a certain number of rangeland acres to support a cow in western and central South Dakota. As one moves to eastern South Dakota there is a much greater proportion of cropland acres and the increasing size of crop machinery has greatly increased the number of acres one person can farm.

Growing national economic prosperity has greatly increased non-farm employment opportunities. Many farmers or their children responded to these opportunities by leaving the farm and moving to towns and cities. Since the early 1960's the South Dakota economy has generated increasing numbers of industrial and service sector jobs particularly in eastern counties. This has reduced the rate of outmigration from the state. Also, a growing number of



South Dakota farm families are now able to combine nonfarm jobs along with their farm business resulting in an increase in their family incomes as will be discussed in a later section.

Farm economic conditions also have a major impact on farm numbers with periods of farm prosperity reducing the decline in farm numbers--a condition observed in the early and mid-1970's. Conversely, extended periods of depressed farm prices and/or severe drought tends to increase the rate of decline in farm numbers and also encourages more farm families to combine farm and nonfarm employment, if it is available.

#### Entry/exit rates of farm operators

Actual changes in farm numbers over time are determined by the rate of entry into and exit from farming by individuals and families. Examination of age distribution of farm operators over time (age-cohorts) contributes to understanding how and why farm numbers have declined and is useful in making baseline projections of farm numbers in the future.

Age distribution data for South Dakota farm operators from 1930 to 1978 are shown in Table 3. For example, in 1930 there were 3300 young farm operators 15-24 years of age. Additional entrants into farming increased this age cohort by 1940 to 12,700 farm operators between 25 and 34 years of age. This cohort increased to 15,300 by 1950. Since then the effects of change in occupation, retirement, disability and death are apparent. By 1969 there were 11,000 farm operators from 55 to 64 years of age. By 1978 there were only 5,000 farm operators ages 65 years or older.

Analyses of age-cohorts of South Dakota farm operators from 1930 to 1978 reveals the following trends:

- (1) Most farm operators enter farming when they are between 25 and 34 years of ages, although some farm operators are younger.



Table 3. Distribution of South Dakota Farm Operators, 1930 to 1978.

Age level in years <sup>a</sup>	Census year <sup>b</sup>											
	1930		1940		1950		1959		1969		1978	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Less than 25	3.3	4.2	2.7	3.8	2.6	4.0	1.3	2.7	1.2	2.7	2.1	5.3
25-34	17.8	22.2	12.7	18.2	13.2	20.7	9.2	16.7	5.4	11.9	6.2	15.5
35-44	23.6	29.4	16.9	24.1	15.3	24.2	13.7	24.8	10.9	21.4	6.7	16.9
45-54	18.9	23.5	18.4	26.4	14.7	23.2	13.7	24.9	12.7	27.8	9.7	24.5
55-64	11.1	13.8	12.9	18.5	11.7	18.4	11.1	20.9	11.0	24.0	10.0	25.2
65 and older	5.6	6.9	6.3	9.0	6.0	9.5	6.1	11.1	5.5	12.1	5.0	12.6
Total	80.3	100.0	69.9	100.0	63.5	100.0	55.1	100.0	45.7	100.0	39.7	100.0

Source: U.S. Department of Census, Bureau of the Census, Census of Agriculture, South Dakota, Vol. 1, 1978, 1969, and 1959.

<sup>a</sup> Age level of operator was reported for all farms in 1959, 1969 and 1978 but not for earlier census periods shown. Approximately 2,500 - 2,900 farm operators did not report their age in these earlier census periods.

<sup>b</sup> Farm numbers are reported in thousands.



- (2) The number of farm operators in a given age-cohort increases slightly beyond the 25-34 year age group and is highest from 35-44 years of age.
- (3) The net effects of changing occupation, retirement, disability and death reduce farm numbers for age cohorts above 45 years. The number of farm operators gradually decline between 45 and 64 years of age and rapidly decline after age 65.

These age level trends for South Dakota farm operators are consistent with national trends.

Net changes in annual entry/exit rates of farm operators by age group and by decade since 1930 are shown in Table 4. In spite of popular belief, the entry rate of young people into farming in South Dakota increased during the 1970's. The annual entry rate of young farmers in the 1970's was 780 compared to less than 560 young farmers each year during the 1960's. Higher income years in the 1970's may have provided increased incentives for young people to enter farming.

However farm numbers have continued to decline because the number of senior farmers (55 years and older) exiting is greater than the number of young people (less than 35 years old) entering. The current exit rate of senior farmers--approximately 1,590 per year--has remained about constant compared to the exit rate for senior farmers during the 1950's and 1960's.

#### Future trends in farm numbers

Farm numbers are expected to continue to decline, the question is: "How fast will they decline?" Farm number projections to the year 2000 are dependent upon two sets of variables:

- (1) Age distribution and related demographic characteristics of existing farm operators
- (2) Future economic conditions and structural incentives in the farm sector and national economy, especially the availability and attractiveness of nonfarm employment opportunities relative to farming



Table 4. Entry and Exit Trends of South Dakota Farm Operators, 1930-1978.

Age level of farm operator	1930-1940	1940-1950	1950-1959	1959-1969	1969-1978
Years	--average annual net change in number of farm operators--				
Less than 35	+1,206	+1,304	+ 795	+ 557	+ 778
35 to 54	- 622	+ 51	- 138	- 36	+ 135
55 and older	<u>-1,629</u>	<u>-2,000</u>	<u>-1,522</u>	<u>-1,441</u>	<u>-1,587</u>
Annual net changes in number of farm operators	-1,045	-645	- 865	-940	-674

Source: Compiled from age-level data shown in Table 3. Basic reference source is U.S. Census of Agriculture, South Dakota, Vol. 1, 1978, 1969 and 1959 reports.



The age distribution of farm operators in 1978 provides indications of future decline in farm numbers--we simply have more farmers in older age brackets. Today, there are over 19,700 farm operators in the 45 to 64 year age cohort, and all of these people will reach 65 years of age or older by the year 2000. However there are only 12,900 farm operators in the 25 to 44 year age group to replace the older group by the year 2000. In order to stabilize farm numbers at present levels, an additional 600 to 1000 farm entrants would be required per year to offset the exit of senior farmers. This represents an approximate doubling of current entry rates. Therefore, even if optimistic economic conditions and farm structure policies are assumed, stabilized farm numbers are not realistic. The decline in farm numbers is likely to continue until the older age cohorts reach age 65 by the year 2000.

The sensitivity of farm entry/exit rates to economic conditions faced by young farmers and senior farmers, can be seen by looking at two scenarios for farm numbers in the year 2000. The first scenario assumes 1969-1978 entry/exit rate trends will continue for each age group. The second scenario assumes 1950-1969 trends for each age group. Farm numbers in 1978 are extrapolated to the year 2000 with these assumptions.

If the slower rate of decline observed from 1969 to 1978 continued, there would be approximately 30,000 to 32,000 farms in South Dakota by the year 2000. This is an approximate decline of 1.1 percent per year. On the other hand if the more rapid rates of decline observed from 1950 to 1969 resumed we could expect 25,000 to 27,000 farms in South Dakota by the year 2000. This is an approximate decline of 1.9 percent per year. It is not likely that trends in either period are likely to be replicated; however the range in farm numbers projections indicates the sensitivity of farm numbers to present and future economic conditions and policies.



## INCREASED FARM SIZE

Naturally as farm numbers decline the average size (acre) per farm increases since land in farms has remained relatively constant in South Dakota since 1950. In acres, the average South Dakota farm has increased from 674 acres in 1950 to 1,123 acres in 1978 (Table 5). Since 1950, land in farms (and ranches) has remained between 44.5 million acres to 45.9 million acres after increasing by several million acres in most previous decades. Land in farms and ranches is 92 percent of all land in South Dakota.

Farm size (in acres) generally increases as we move from east to west in South Dakota (Figure 2). The smallest farms are found in southeastern counties where average farm size is 300 to 600 acres. In western South Dakota average farm and ranch size varies from 2,000 to 5,200 acres in most counties.

### Dual trends in farm size

A dual trend in farm sizes is emerging in all regions of South Dakota. Increased average farm size is accompanied by an increased number of large farms, an increased number of very small farms and decreased numbers of small and medium size farms.

Since 1959, the number of farmers operating less than 140 acres has actually increased by 23% and accounts for one-sixth of all South Dakota farm operations (Table 6). Farm operations exceeding 1,000 acres have also increased in numbers by 8 percent and accounted for one-fourth of farm numbers in 1978.

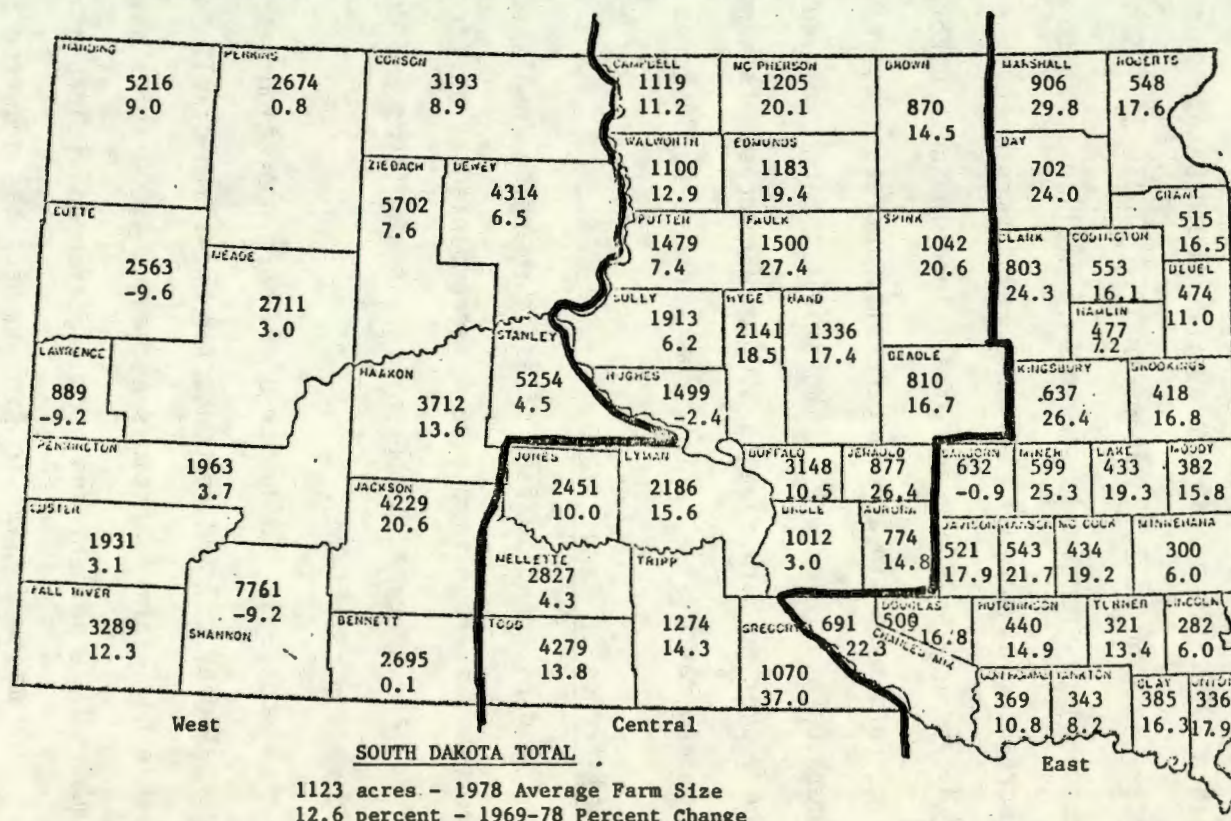
The major decline in farm numbers has occurred for farm operations ranging from 140 to 500 acres. Farms of this size declined 54 percent between 1979 and 1978. Also declining in number are 500 to 1,000 acre farms--a 20 percent reduction during the same period.



FIGURE 2: Average Size (Acres) for South Dakota Census Farms 1978 and Percent Change from 1969.

Top Number: 1978 Average Farm Size (Acres)

Bottom Number: Percent Change Between 1969 and 1978.



Source: US Department of Commerce, Bureau of the Census, U.S. Census of Agriculture So Dak. 1969 and 1978.

Table 5. Average Farm Size in South Dakota, 1928-1978.

Year	Number of farms	Land in farms (thousands of acres)	Average farm size (acres)
1930	83,157	36,470	439
1940	72,454	39,474	545
1950	66,452	44,786	674
1959	55,727	44,850	805
1969	45,726	45,584	997
1978	39,665	44,543	1,123

Source: U.S. Department of Commerce, Bureau of the Census, U.S. Census of Agriculture, South Dakota, Vol. 1, 1978 and 1959 reports. Table 1.



Table 6. South Dakota Farm Size Distribution, 1959-1978.

Farm size-- acres operated	Farm operators						1978/1959 %
	1959		1969		1978		
	No.	%	No.	%	No.	%	
1-139	5,429	9.8	5,687	12.4	6,707	16.9	123.5
140-259	11,423	20.5	7,051	15.4	5,264	13.3	46.1
260-499	18,137	32.6	12,383	27.1	8,468	21.3	46.7
500-999	11,219	20.1	10,534	23.0	8,962	22.6	79.9
1000-1999	5,434	9.8	5,925	13.0	5,987	15.1	110.2
2000 and above	<u>4,018</u>	<u>7.2</u>	<u>4,146</u>	<u>9.1</u>	<u>4,277</u>	<u>10.8</u>	<u>106.4</u>
Total	55,660	100.0	45,726	100.0	39,665	100.0	71.3
Average farm size	805		997		1123		

Source: U.S. Department of Commerce, Bureau of the Census, U.S. Census of Agriculture, Volume 1, South Dakota 1978, 1969, and 1959 reports.



### Regional trends in South Dakota farm size

Regional trends and current (1978) distribution of farm numbers by acre size groups in South Dakota are shown in Table 7.

The trend to larger farm size is most evident in eastern South Dakota counties. Since 1959 the number of farms exceeding 1,000 acres has tripled and accounts for 9 percent of eastern region farms in 1978. Also increasing in numbers are 500 to 1,000 acre farms--mostly in southeastern and east central South Dakota counties. Rapidly declining in numbers are farm operations from 140 to 500 acres in size. The number of farm operations of less than 140 acres has stabilized in most eastern counties. Regardless of size, most farms in eastern South Dakota use a majority of their land for field crops and hay.

In central South Dakota, farm operations exceeding 2,000 acres and those less than 140 acres are increasing in numbers. The number of 1,000 to 2,000 acre farm operations has remained stable while rapid declines are observed for 140 to 1000 acre farm operations. The majority of central South Dakota farmers operate 500 to 2,000 acres while one-sixth operate more than 2,000 acres.

In western South Dakota, 36 percent of farmers and ranchers operate more than 2,000 acres while another 33 percent operate 500 to 2,000 acres. The only farm and ranch size categories with increasing or stable numbers are units exceeding 5,000 acres and very small units of less than 260 acres.

More than one-fourth of South Dakota's farm and ranch land is operated in units exceeding 5,000 acres. The average size of these large units is over 10,000 acres. Most of these units are ranches in central and western South Dakota.

### Cropland and farm size relationships

A trend directly related to increased farm size is the growing number of large-scale crop farming operations. In 1978, over 2,100 farms harvested more



Table 7. Farm Size Distribution by Region in South Dakota, 1978.

Farm size acres operated	Region <sup>a, b</sup>			State
	Western	Central	Eastern	
--thousands of farms--				
1-139	0.8	1.2	4.0	6.7
140-259	0.4	0.9	3.8	5.3
260-499	0.5	1.5	6.4	8.5
500-999	0.8	2.7	5.4	9.0
100-1999	1.1	3.1	1.7	6.0
2000 and above	<u>2.2</u>	<u>1.8</u>	<u>0.3</u>	<u>4.3</u>
Total	5.9	11.2	21.7	39.7
-----				
--1978 farm numbers as percent of 1959 farm numbers by farm size by region--				
1-139	189	146	93	123.5
140-259	95	73	38	46.1
260-499	73	41	47	46.7
500-999	68	47	127	79.9
1000-1999	66	99	275	110.2
2000 and above	82	134	322	106.4
Total	81.7	70.5	66.0	71.3

Source: U.S. Department of Commerce, Bureau of the Census, U.S. Census of Agriculture, South Dakota, 1978 and 1959 reports, Vol. 1.

<sup>a</sup>Regional information compiled from county-level data. In 1978, county farm numbers were 924 farms less than reported for the state of South Dakota. These farms were not only the mail list and have not been distributed to the counties. Most of these farms are very small in terms of acres operated. Percentage change statistics are calculated based on the separate farm number totals reported for counties (region) and for the state.

<sup>b</sup>See Figure 2 for a view of counties included in each region.



than 1,000 acres of cropland and 358 farms harvested more than 2,000 acres. The average number of cropland acres harvested per farm growing crops in 1978 was 390 acres.

The relationship of farm size (acres operated) to cropland harvested and all land in farms is shown in Table 8. Farm operations of 2,000 acres or more account for 51 percent of land in farms and 29 percent of cropland harvested. Farm operations with 500 to 2,000 acres account for one-half of South Dakota cropland harvested and 27 percent of land in farms. Farm operations with 140 to 500 acres account for 10.6 percent of land in farms and 18.4 percent of cropland harvested. Very small farm operations of less than 140 acres have less than 1.5 percent of cropland and total land in farms.

Overall, the proportion of cropland to all land in farms is highest for farm operations of 140 acres to 500 acres and steadily declines for larger farms. However, the average number of harvested cropland acres per farm increases with farm size. The smallest farms (less than 140 acres) are extremely varied in most characteristics except for size--many are rural residences with a few acres of pasture or crops, some are intensive livestock or poultry farms, others are fruit and vegetable farms. Only 56 percent of these farms harvested crops in 1978.

#### Future trends in farm size

In the year 2000, if there are 31,000 farms in South Dakota, average farm size will increase approximately 28 percent to about 1,450 acres. If the other projection of 26,000 farms is more accurate, average farm size will be about 1,730 acres--assuming that land in farms remains constant for the state. This would reflect a 54 percent increase in average farm size from 1978.



Table 8. Farm Size and Cropland Relationships in South Dakota, 1978.

Farm size-- acres operated	Proportion of land in farms	Proportion of cropland harvested	Proportion of farm operators with harvested cropland	Average number of harvested cropland acres per farm with crops	Ratio of cropland harvested to total land in farms
	%	%	%	acres	%
1-139	0.8	1.3	56	47	56
140-259	2.5	4.4	94	124	62
260-259	8.1	14.0	97	237	61
500-999	16.3	25.1	98	398	55
1000-1999	21.1	25.9	98	612	43
2000-4999	23.6	19.0	95	860	29
5000 and over	<u>27.6</u>	<u>10.3</u>	<u>94</u>	<u>1,260</u>	<u>13</u>
Total-South Dakota	100.0	100.0	90	390	35
Total acres <sup>a</sup> (1000)	39,194	13,917			

Source: U.S. Department of Commerce, Bureau of Census, U.S. Census of Agriculture, South Dakota, 1978, Table 33 and 17.

<sup>a</sup>This table excludes Indian reservations, Experiment station farms and cooperative farms. The data in this table reflects 99.9% of cropland harvested but only 88% of all farmland and ranchland in South Dakota. Most of the other rangeland is on Indian reservations.



## INCREASED SALES VOLUME AND CONCENTRATION

Trends in gross farm sales reveals a great deal about economic conditions in farming. Gross farm sales is the total dollar volume of farm product sales before any expenses are deducted. Average gross sales per farm in South Dakota has more than doubled in each of the last two decades--from \$9,200 in 1959 to \$20,900 in 1969 to \$48,100 in 1978. Inflation, which has greatly reduced the dollar value during this period, is the major contributing factor. Economic pressures for increased farm size and output to maintain acceptable profit and net cash flow for family living and farm business investment is another explanation.

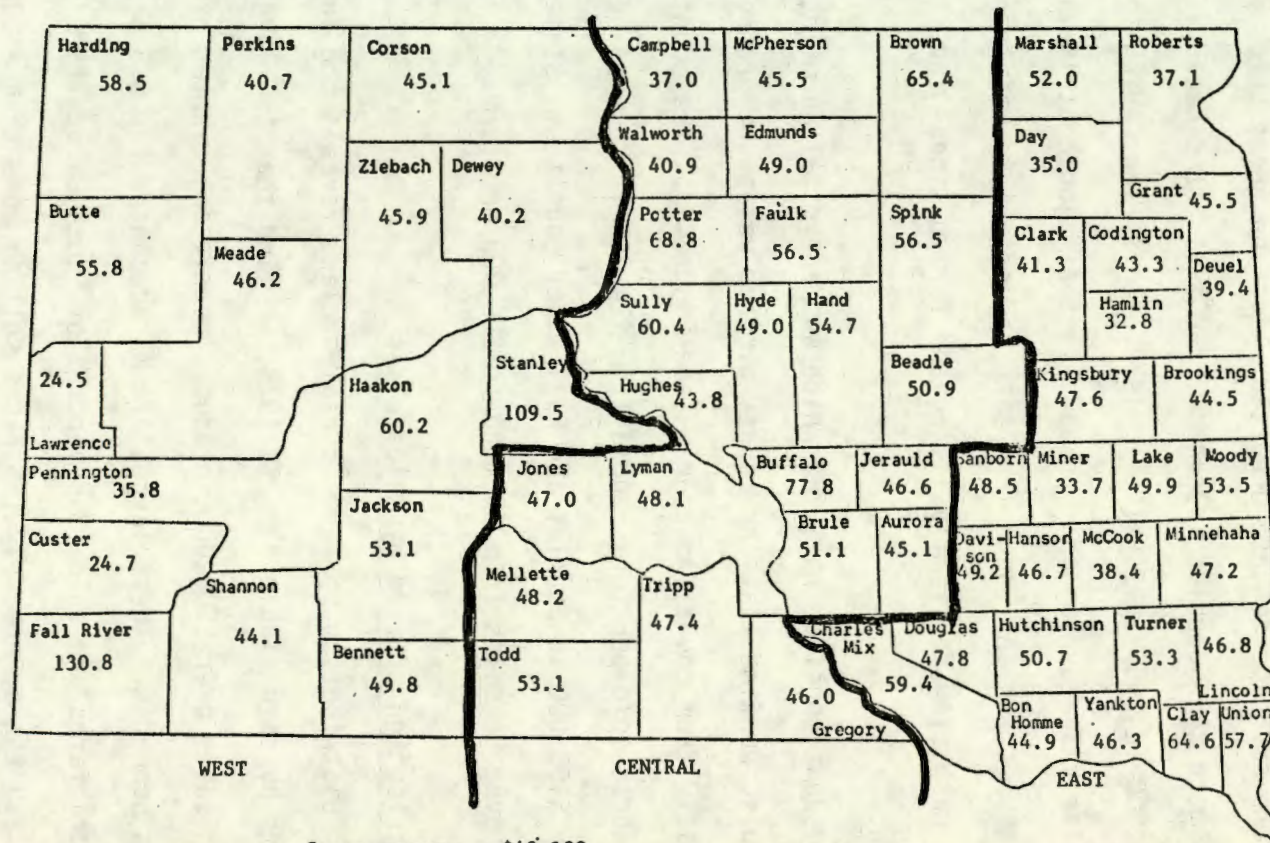
Just considering 1978, which was a typical farm income year for the 1970's, we find that the county average values of products sold per farm vary greatly from county to county (see Figure 3). The county average value of products sold per farm ranged from \$24,000 in Custer and Lawrence counties to over \$100,000 in Stanley and Fall River counties. Statewide, 53 of 66 counties had average sales from \$40,000 to \$60,000 per farm.

### Distribution of farm by sales class

Distribution of farms by sales class reveals the increased disparity of farms by size (Table 9). In 1978, we find that the largest 205 farms, each with sales over \$500,000, produced nearly one quarter of a billion dollars of farm products. These largest farms accounted for 0.5 percent of all South Dakota farms and sold 13.5 percent of South Dakota farm products. By contrast in 1959 there were only 158 farms selling more than \$100,000 of farm products, 0.3 percent of farms selling 5.6 percent of farm products. During both decades,



Figure 3. Average Value of Agricultural Products Sold per Farm, 1978.



State average = \$48,100  
County averages are in thousands of dollars



Table 9. Distribution of Farm Numbers and Farm Product Sales by Sales Class, 1959, 1969, and 1978, South Dakota.

Sales Class Gross farm sales: \$1000 of dollars	1959		1969		1978	
	Number of farms	Sales \$1000	Number of farms	Sales \$1000	Number of farms	Sales \$1000
\$500 and over	} 158	} 28,524	42	} 182,505	205	248,880
200-499			192		777	222,769
100-199			549		2,633	352,149
40-99	973	55,252	3,818	220,004	10,750	663,949
20-39	3,429	92,104	10,285	282,486	9,482	277,122
10-19	10,484	142,948	12,931	188,721	6,413	94,316
5-9	17,954	131,084	8,109	60,569	4,036	29,714
2.5-4.9	12,443	47,875	4,215	15,648	2,594	9,591
Less than 2.5	9,998	12,713	5,529	6,519	2,665	3,533
Total	55,439	510,500	45,670	956,352	39,555	1,902,023
	Percent of farms	Percent of sales	Percent of farms	Percent of sales	Percent of farms	Percent of sales
\$500 and over	} 0.3	} 5.6	0.1	} 19.1	0.5	13.1
200-499			0.4		2.0	11.7
100-199			1.2		6.6	18.5
40-99	1.8	10.8	8.4	23.0	27.2	34.9
20-39	6.2	18.0	22.5	29.6	24.0	14.5
10-19	18.9	28.0	28.3	19.7	16.2	5.0
5-9	32.4	25.7	17.8	6.3	10.2	1.6
2.5-4.9	22.4	9.4	9.2	1.6	6.6	0.5
Less than 2.5	18.0	2.5	12.1	0.7	6.7	0.2
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: U.S. Department of Commerce, Bureau of Census, U.S. Census of Agriculture.  
 Vol. I, South Dakota, 1978 report, Table 34  
 Vol. I, South Dakota, 1969 report, Table 9 and 22  
 Vol. I, South Dakota, 1959 report, Table 17  
 Vol. V, Large-Scale Farming in the United States, 1969 report Table  
 Vol. V, pt. 7, Large-Scale Farming in the United States, 1959 report, Table 6

Census definition of a "farm unit" was consistent in 1959 and 1969 but was changed in 1974. The net effect was to reduce the number of farms reported in the smallest sales category (less than \$2,500) from 4,124 to 2,665 farms. There was no impact on the number of farms in the higher volume sales classes. The impact of the changing farm unit definition on total sales reported is negligible (less than 0.05 percent).

Abnormal farms are excluded from the computations shown.



the highest sales volume farms have increased in numbers at the fastest rates. The greatest decline in farm numbers have been in the smallest sales classes.

The data in Table 9 does not account for impacts of general price inflation or changes in farmers' purchasing power. A rough approximation of this impact can be obtained by adjusting the sales volumes needed to maintain similar purchasing power between each time period. On the average, a farm selling \$40,000 of products in 1959 needed \$45,000 of sales in 1969 and \$94,000 of sales in 1978 to maintain similar purchasing power in each time period.<sup>3/</sup>

Data in Table 10 shows the proportion of farm numbers and sales volume held by four economic classes of farms in 1959, 1969, and 1978. The economic classes are defined by roughly comparable sales volumes in terms of farmers purchasing power in each time period. Sales volume per economic class in 1978 was doubled from sales volume in 1959 and 1969 as follows:

<u>Economic class</u>	<u>Sales volume in 1959 and 1969</u>	<u>Sales volume in 1978</u>
Large	\$100,000 or more	\$200,000 or more
Medium	\$20,000 - \$99,999	\$40,000 - \$199,999
Small	\$5,000 - \$19,999	\$10,000 - \$39,999
Very Small	Less than \$5,000	Less than \$10,000

The net impact of this rough adjustment is to somewhat overstate the relative importance of large and medium economic classes in 1959 and 1969 relative to 1978 conditions. With these caveats in mind, data in Table 10 shows:

-Large farms are rapidly increasing in overall importance. These farms are increasing in total numbers, proportion of farm numbers and rapidly increasing in sales volume and proportion of sales volume.

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<sup>3/</sup>Based on changing values of Index of Prices Paid for Items Used for Production by U.S. Farmers. This measure is a broad index of changes in prices paid for purchased inputs but does not measure changing price levels of items used for family living. The index values for 1959, 1969, and 1978 were 46, 52, and 108 respectively with base year 1977 = 100.



Table 10. Proportion of South Dakota Farm Numbers and Sales Volume by Economic Classes of Farms, Comparable Sales Categories, 1959, 1969, and 1978.

Economic class <sup>a</sup>	Census years					
	1959		1969		1978	
	Farm no.	Sales volume	Farm no.	Sales volume	Farm no.	Sales volume
	-----percent-----					
Large	0.3	5.6	1.7	19.1	2.6	24.8
Medium	8.0	28.8	30.9	52.6	33.8	53.4
Small	51.3	53.7	46.1	26.0	40.2	19.5
Very Small	<u>40.4</u>	<u>11.9</u>	<u>21.3</u>	<u>2.3</u>	<u>23.5</u>	<u>2.3</u>
Total Percent	100.0	100.0	100.0	100.0	100.0	100.0
Total - Farm Number	55,439		45,670		39,555	
Total Sales Volume (millions of dollars)		\$510.5		\$956.3		\$1,902.0

Source: See Table 9.

<sup>a</sup>Economic class definitions are based on rough adjustments in sales volume needed to maintain comparable purchasing powers by farmers in each time period. The adjustment is based on changes in the Index of Prices Paid for Items Used in Production by U.S. Farmers in each time period. The four economic classes of farms are defined as follows:

- Large: 1959 and 1969 sales volume of \$100,000 and over  
1978 sales volume of \$200,000 and over
- Medium: 1959 and 1969 sales volume of \$20,000 to \$39,999  
1978 sales volume of \$40,000 to \$199,999
- Small: 1959 and 1969 sales volume of \$5,000 to \$19,999  
1978 sales volume of \$10,000 to \$39,999
- Very Small: 1959 and 1969 sales volume of less than \$5,000  
1978 sales volume of less than \$10,000

The net impact of this classification system somewhat overstates the importance of large and medium farm classes in 1959 and 1969 relative to 1978.



-Medium farms have remained stable in proportion of farm numbers and sales volume since 1969. These farms have more than one-half of total farm product sales.

-Small farms remain the largest economic class in terms of farm numbers. However their numbers are continuing to decline and economic clout as measured by sales volume is continuing to decline.

-Very small farms stabilized in numbers and proportion of sales volume from 1979 to 1978.

The greatest adjustment is occurring in the small farm and lower portion of the medium sales volume categories. These farms are often not large enough to generate adequate net incomes for most farm families. However, they are large enough to prevent most farm operators from assuming full time off-farm employment to obtain added income. Many farmers in this group are faced with four options: (1) expand to a larger size, usually by borrowing more money, (2) reduce the scope of farm operations and obtain greater amounts of off-farm income, (3) remain the same size and accept inadequate incomes or (4) leave farming.

#### Sales concentration trends

The degree of concentration of sales can be measured by comparing the proportion of farm product sales generated by a specific proportion of farms in each time period. Data in Table 11 shows the proportion of gross farm sales generated by the top 3, 10, 20, 33 and 50 percent of South Dakota farms with sales of \$2,500 and over in 1959, 1969 and 1978. The lowest sales category (less than \$2,500) was omitted to allow more accurate comparisons of sales concentration over time due to the changing definition of farms that mostly affect this sales group.

The major finding is that sales concentration has increased for South Dakota farms. The top 50 percent of farms generated seven-eighths of farm product sales in 1978 compared to three-fourths of farm product sales in 1959.



Table 11. Concentration of Gross Farm Sales by South Dakota Farms Ranked According to Sales, 1959, 1969, and 1978.

Proportion of farms with sales of \$2,500 and over ranked by sales	Proportion of Gross Farm Sales, Cumulative		
	1959	1969	1978
	-----percent-----		
Top 3%	18.1	23.2	25.7
Top 10%	35.2	39.5	48.9
Top 20%	51.9	54.7	63.0
Top 33%	64.3	68.5	75.9
Top 50%	75.4	81.9	87.4

Source: U.S. Department of Commerce, Bureau of Census, Census of Agriculture  
 South Dakota, 1978, Volume 1, Table  
 South Dakota, 1969, Volume 1, Table 13  
 South Dakota, 1959, Volume 1, Table 17  
 Large Scale Farming in the United States, Volume V, part 7, 1959.

These data sources provided more detailed breakdown of farm numbers and sales volume than shown in Table 9 of this report.



Almost all of the increase in sales concentration has been generated by the top 10 percent of South Dakota farms. These largest farms have increased their share of farm product sales from 35 percent in 1959 to 49 percent in 1978. The next (middle) 40 percent of farms have maintained between 38 to 42 percent of total sales during this same period. Meanwhile the bottom 50 percent (smallest) of farms have dropped from one-fourth of farm product sales in 1959 to one-eighth of farm product sales in 1978.

#### South Dakota - U.S. comparisons

Sales volume trends for South Dakota farms are consistent with national trends. The following South Dakota-U.S. comparisons are highlighted:

- Average sales per farm in South Dakota and the United States are similar but the sales class distribution is somewhat different.
- South Dakota has a much lower percentage of very small farms with 1978 sales of less than \$10,000. Over one-half (53 percent) of U.S. farms were in the very small farm sales category compared to 24 percent of South Dakota farms.
- South Dakota has a much higher proportion of small and medium size farms and a lower proportion of large farms.

There are many possible explanations for these differences.

- South Dakota has fewer opportunities for off-farm employment which makes it more difficult to sustain very small farms.
- South Dakota is largely dependent of cow-calf, farmer-feeder, hog, dairy and dryland cash grain enterprises. These enterprises have traditionally been associated with small and medium size farms.
- South Dakota has relatively few enterprises generating multi-million dollar sales (large commercial feedlots, poultry, fruit and vegetable farms) that are common in many Sunbelt states.
- Due to lower rainfall, it takes more acres to generate the same sales volume compared to many Midwestern and Southern states. Since one family unit can only farm so many acres, there is an upper bound on "family farm" sales volume.



Future trends

What does the future hold in terms of sales volume and concentration trends? Barring fundamental shifts in economy policy that would favor smaller farms and businesses, we expect continued increases in sales volume per farm on a real and nominal value basis. Large farms and most medium farms will continue to expand in physical size and sales volume and will obtain a larger share of gross farm receipts. However, only large farms will likely expand in terms of farm numbers. Small farms will continue to decline in numbers and proportion of farm numbers and sales volume. It is possible that very small farms will be stable in number of farms and proportion of farm sales because in most of these cases, farm income represents only a secondary source of income.



## LAND TENURE AND OWNERSHIP TRENDS

The ownership and control of agricultural land has remained controversial throughout our nation's history. The first major land ownership debate in the Midwest began just prior to the Civil War and resulted in the Homestead Act. At issue was the settlement of the public domain in the new western frontier. Should settlement by small 160 acre owner-operated farm be encouraged or should slave and tenant plantations be allowed to settle western lands outside the South? The outcome of the issue was in doubt until the conclusion of the Civil War. As a result much of the land in the western Cornbelt and Great Plains was settled and owned by those who tilled the soil, reflecting the classical agricultural fundamentalist philosophy.

More recently, agriculture has seen the advent of high technology in agricultural production, marketing, and financial management. For example, in the 1970's, farmland was seen as a hedge against inflation. Many non farm investors, retired farmers, and heirs of farmers wished to hold land in their investment portfolio, but did not have the expertise nor the willingness to farm. At the same time, many young and middle aged farm operators possessed the expertise but didn't own enough physical or financial capital to operate on what they considered to be a large enough scale. As a result, the trend to part ownership has increased in recent years.

### Land tenure

Land tenure statistics, compiled by USDA to monitor land ownership, classify farm operators into three main categories:

- Full owners are farm operators who own all of the land that they operate. They may also rent land to other farmers.



-Part owners are farm operators who own some of the land that they operate and also rent or lease additional land.

-Tenants are farm operators who rent or lease all of the land that they operate.

Recent trends in land tenure in South Dakota are shown in Table 12.

Full owners have declined in actual numbers but have increased as a proportion of all farm operators and have increased their proportion of all land in farms. The proportion of all South Dakota cropland harvested on full-owner farms has remained stable (20-22 percent). As a result, cropland harvested as a proportion of all land owned by full owners has declined by one-half. Therefore, full ownership has become less evident in cropland-intensive areas than in the past.

Part owners continue to be the largest tenure class in terms of farm numbers, land in farms and cropland harvested.

Part-owners generally operate larger farm units than full owners and tenants. The average size part-owner farm operation in 1978 was 1,516 acres with 895 acres owned and 620 acres rented. This compares with an average of 849 acres owned by full-owners and 684 acres rented by tenants. The ratio of rented to owned land operated by part owners has slowly increased over time.

Tenants who own no land have rapidly declined in numbers. Tenants have accounted for a declining proportion of all land in farms and proportion of cropland harvested.

Farm tenancy also varies greatly by age of operator and by farm sales volume (Table 13). Full owners tend to be older farmers with relatively low sales volume--50 percent are 55 years or older and 54 percent sold less than \$20,000 in farm products in 1978. Tenants are typically young farmers with small to medium sales volume--53 percent are less than 35 years old and 50 percent sold from \$20,000 to \$100,000 of farm products.



Table 12. Agricultural Land Tenure Trends in South Dakota, 1950-1978.

Tenure class <sup>a</sup>	Number of farms			
	1950	1959	1969	1978
	-----percent-----			
Full owner	31.1	32.0	38.3	38.8
Part owner	38.1	30.8	44.5	45.1
Manager	0.4	0.4	----	----
Tenants	<u>30.4</u>	<u>26.8</u>	<u>17.2</u>	<u>16.1</u>
Total	100.0	100.0	100.0	100.0
Number of farms reporting	66,452	55,727	45,726	39,665
	Land in farms			
	1950	1959	1969	1978
	-----percent-----			
Full owner	16.9	17.0	28.4	29.3
Part owner	61.3	63.8	60.8	60.9
Managers	3.9	2.8	----	----
Tenants	<u>17.9</u>	<u>16.4</u>	<u>10.8</u>	<u>9.8</u>
Total	100.0	100.0	100.0	100.0
	Cropland harvested			
	1950	1959	1969	1978
	-----percent-----			
Full owner	20.2	20.0	21.7	21.5
Part owner	52.4	54.8	63.9	66.6
Manager	0.8	0.8	----	----
Tenants	<u>26.6</u>	<u>24.5</u>	<u>14.4</u>	<u>11.9</u>
Total	100.0	100.0	100.0	100.0



Table 12. continued

	Cropland harvested as proportion of all land in farms			
	1950	1959	1969	1978
	-----percent-----			
Full owner	46.8	37.4	21.2	22.9
Part owner	33.4	27.2	29.1	34.2
Tenants	58.0	47.1	36.8	37.8
All farms	39.1	31.7	27.7	31.3
	Average size of farm/ranch			
	1950	1959	1969	1978
	-----number of acres-----			
Full owner	365	426	740	849
Part owner	1,083	1,260	1,360	1,516
Manager	7,870	5,680	----	----
Tenants	398	494	626	684
All farms	674	805	997	1,123

Source: U.S. Department of Commerce, Bureau of Census, U.S. Census of Agriculture, South Dakota, Vol.1, 1978 and 1959 reports.

Definition of tenure classes:

- Full owner - Farm operator owns all of the land operated.
- Part owner - Farm operator owns some of the land operated and leases or rents additional land.
- Tenant - Farm operator rents or leases all of the land operated.
- Managers - Farm operators that operate land for others and are paid a wage or salary for their services. This tenure class was not listed separately after the 1964 Census of Agriculture. These farms were reclassified in one of the other tenure classes based on land ownership patterns.



Table 13. Relationship of Farm Tenancy in South Dakota to Operator Age and Farm Sales Volume, 1978.

Age of operator years	Farm tenure class <sup>a</sup>			
	Full owner	Part owner	Tenant	All farms
	-----percent of farms-----			
Less than 35	13.0	15.0	52.9	20.3
35-54	35.9	50.6	28.3	41.7
55 and over	<u>51.1</u>	<u>34.4</u>	<u>18.8</u>	<u>38.0</u>
Total	100.0	100.0	100.0	100.0
Farm sales volume	Full owner	Part owner	Tenant	All farms
\$2,500-19,999	53.7	17.4	47.0	35.3
20,000-99,999	41.1	66.7	49.5	54.7
100,000 or over	<u>5.2</u>	<u>15.8</u>	<u>3.5</u>	<u>10.0</u>
Total	100.0	100.0	100.0	100.0
Number of farms	13,366	17,633	5,931	36,890

Source: U.S. Department of Commerce, Bureau of Census, U.S. Census of Agriculture, South Dakota, 1978 Vol. 1, Table and .

<sup>a</sup>This table is based on data for all farms selling \$2,500 or more of farm products in 1978. This includes 93 percent of farms with 99.8 percent of farm product sales.



Part-owners predominate in the middle age group and the higher sales volume classes. Part owners are by far the dominant tenure class among medium and large scale commercial farms of today--especially farms expanding in numbers of acres operated.

#### Land ownership

Compared to land tenure information, relatively little is known about characteristics of farm landlords or about trends in farmer/nonfarmer ownership of farmland. As a result, Congress authorized the U.S. Department of Agriculture to conduct a nationwide survey of land owners in 1978 to find some answers to land ownership patterns. (Prior to 1978, the most recent national survey was conducted in 1946). A follow up farm finance survey of farm operators and farm landlords in 1979 was also conducted. Key survey findings for South Dakota and the U.S. are discussed below and selected data are shown in Table 14. Data are reported for several characteristics by proportion of farm and ranchland owned not by proportion of ownership units.

Over two-thirds (67.9 percent) of South Dakota farm and ranchland is owned by persons operating and working on farms and ranches. South Dakota is one of the top three states in the percentage of farm and ranchland owned by farm and ranch operators. For the United States, 53.6 percent of farm and ranchland is owned by farmers and ranchers.

Retired persons and persons engaged in nonfarm occupations each owned an additional 15 percent of agricultural land in South Dakota. For the U.S., nonfarm and retired persons owned over 40 percent of the nations privately owned agricultural lands.

Farmers tended to own larger tracts of agricultural land than other owners. Nationally farm operators represented one-fourth of agricultural land



Table 14. Agricultural Landownership Facts for South Dakota and the United States, Late 1970's.<sup>a</sup>

Distribution of acres owned, farm and ranchland by:						
I. Occupation:						
	<u>Farming</u>	<u>Nonfarm Employment</u>	<u>Retired</u>	<u>No Response</u>	<u>Total</u>	
	-----percent of acres-----					
South Dakota	69.9	14.9	15.1	2.1	100.0	
United States	53.6	25.1	15.8	5.5	100.0	
-----						
II. Type of Landowner:						
	<u>Sole Proprietor</u>	<u>Husband and Wife</u>	<u>Family Partnership</u>	<u>Family Corporation</u>	<u>All Other</u>	<u>Total</u>
	-----percent of acres-----					
South Dakota	43.0	33.9	15.1	4.5	3.5	100.0
United States	35.8	35.7	12.1	6.6	9.8	100.0
-----						
III. Proportion of Acreage held by:						
	<u>Largest 5% of Owners</u>		<u>Largest 1% of Owners</u>			
South Dakota	38		16			
United States	52		30			
-----						
IV. Proportion of Farmland Acquired by Time Period (Farm Operator Only):						
	<u>Before 1960</u>	<u>1960-1969</u>	<u>1970-1974</u>	<u>1975-1979</u>	<u>Total</u>	
South Dakota	27.1	36.0	18.0	18.9	100.0	
United States	39.5	25.7	16.6	18.2	100.0	

Source: I - III. U.S. Department of Agriculture ESCS Landownership Survey as reported by: D. David Moyer "Who Owns the land? A Preliminary Report for the North Central States?". ESCS Staff Report, NRED 80-11, USDA, Washington, DC, August 1980.

IV. U.S. Department of Commerce, Bureau of Census, U.S. Census of Agriculture 1979 Farm Finance Survey, Vol. 5, Special Report, part 6.

<sup>a</sup>U.S. statistics exclude data for Alaska.



owners but owned 53.6 percent of all agricultural land. Similar relationships hold for South Dakota.

Most farmers tend to operate all of the land that they own. For South Dakota, only 6 to 8 percent of agricultural land owned by farmers and ranchers is rented to others.

Four-fifths of farm land acquired by South Dakota farm operators and nonfarm landowners was purchased, primarily from nonrelatives. Almost one-fifth of farmland acquisition was from gifts or inheritance.

Approximately 3 to 4 percent of South Dakota's agricultural land changes ownership each year. Almost one-fifth of farm acreage owned by farmers was acquired from 1975 to 1979 during years of rapidly rising land prices. Most land purchases by these farm operators were credit-financed by other individuals, Federal Land Bank, or insurance companies.

As of early 1980, five of eight acres of South Dakota farm and ranchland owned by farmers was purchased prior to 1970. A considerable proportion of this land is debt-free.

South Dakota and the United States have similar relationships by type of landowner. Over three-fourths of agricultural land in South Dakota is owned by husband and wife or as a sole proprietor. Twenty percent of agricultural land is owned by family partnerships and family corporations. Nonfamily corporations and partnerships own only 1.3 percent of South Dakota's agricultural land. Foreign ownership of South Dakota farmland is less than 0.1 percent of acreage.

Concentration of farm and ranchland ownership is relatively high in the United States and South Dakota. The largest 1 percent of agricultural landowners own 30 percent of U.S. farmland and 16 percent of South Dakota's



agricultural land. The largest 5 percent own 52 percent and 38 percent respectively of agricultural land in the U.S. and South Dakota. However, the survey did not distinguish between land of varying type, quality, productivity or value.

#### Future trends

Future trends in land ownership and tenure are directly related to who is in the best position to buy farmland and able to make the payments. The principal farmland buyers during the past 30 years have been established farmers who already owned some farmland and perhaps rented additional land. Their decision to buy additional land, usually with borrowed money, was "correct" in hindsight when:

- Credit was readily available at relatively low interest rates and favorable repayment terms
- Farmland values were increasing at or above the rate of inflation adding to the wealth and credit base of farm land owners.
- Land payments for one acre could be financed from earnings generated by one to two acres plus increases in productivity over time.

During this period, it was fairly difficult but not impossible for tenants to buy land and pay for it from farm earnings. Since the late 1970's, interest rates have sharply increased, returns from farming have declined, and land prices have remained stable or declined in many areas. These conditions have made it much more difficult for leveraged farm operators to buy more land and have also made it less attractive for most potential non farm buyers. Regardless of the present "financial storms", expanding farm operators will probably continue to dominate the farmland market.



## FARM CORPORATIONS IN PERSPECTIVE

Corporate farming has been one of the issues raised in the contemporary structure of agriculture debates. Corporate farming means many things to different people. In one sense it refers to a form of legal organization; farms may be organized as sole proprietorship, partnerships or corporations. In another sense, it refers to farms organized as "industrial-type farms" regardless of legal organization.

Data on selected characteristics of farms by type of legal organization is available; the extent of "industrial-type" farming in the U.S. and South Dakota is much more difficult to document.

Data shown in Table 15 and 16 can help evaluate the current status and recent trends for farm corporations.

In South Dakota, the number of farm corporations is rapidly increasing but it is still a small (only 2-3 percent) proportion of all farms. From 1969 to 1978 the number of farm corporations tripled to 817 farm units. Farm corporations are concentrated in larger sales volume classes. In 1978, average sales volume of South Dakota farm corporations exceeded \$250,000 compared to about \$50,000 for all farms. Almost one half of these corporations sold \$100,000 or more of farm products in 1978 compared to 9 percent of all farms. Furthermore farm corporations are increasing their proportion of total sales in the largest sales volume classes.

Most farm corporations in South Dakota are family operated and have less than 10 shareholders. In 1978 only 33 (4 percent) of 817 farm corporations had more than 10 shareholders. Only 9 percent or 70 corporations had stock not entirely held by members of the same family. There was little difference in economic characteristics of these corporations compared to family farm corporations.



Reasons for increased incorporation of family farms are generally related to tax, estate planning and transfer of management responsibilities. In most cases farm corporations are larger-scale family owned and managed farms. Therefore, most South Dakota farm corporations can be described as family-farm corporations.

The proportion of farm sales volume sold by corporations was 11 percent in 1978 and is increasing over time. Sales volume of farm corporations is concentrated in livestock and poultry instead of grains, although the shares of sales are increasing for all major commodities. In 1978 farm corporations in South Dakota sold a majority of all poultry products (51 percent), one fourth of fat cattle (27 percent) and 15 percent of all cattle and calves.

South Dakota trends for partnership, proprietorship and farm corporations are consistent with national agricultural trends. However, farm corporations are more significant for the total nation than for South Dakota agriculture. South Dakota farm partnerships and proprietorships (individual or family) still consist of 89 percent of sales and 98 percent of farm numbers in 1978.

The conclusion drawn from data in Table 15 and 16 is that larger-scale family farms in South Dakota are becoming increasingly sophisticated in organization type, as a response to increasing complexity of management, legal, inheritance and tax issues. Farm corporations are a viable form of legal organization for many family farms today and will likely increase in numbers and relative importance in the next 20 years.



Table 15. Relationship of Farm Corporations to Farm Sales Volume,  
South Dakota, 1978.

Sales Volume per Farm  (\$1,000)	Total Number of Farms	Farm Corporations as a Percent of All Farms in Each Sales Class	Total Farm Corporations	
			Number	Percent of all Farm Corporations
\$500 and above	205	36.6	75	9.2
\$200-499	777	18.5	144	17.6
\$100-199	2,633	6.5	171	20.9
\$40-99	10,190	2.2	236	28.9
Less than 40	<u>25,190</u>	0.8	<u>191</u>	<u>23.4</u>
Total	39,555	2.1	817	100.0

Source: U.S. Department of Commerce, Bureau of the Census, U.S. Census of Agriculture, South Dakota, 1978 report, Table 34.



Table 16. Selected Characteristics of South Dakota Farms by Type of Organization, 1969 and 1978.<sup>a, b</sup>

	Year	Individual of Family	Partnership	Corporation	Other	Total
Number of Farms	1969	35,149	4,850	262	209	40,470
	1978	32,549	3,457	809	95	36,910
<hr/>						
Average Sale Volume Per Farm (thousand)	1969	21.3	31.2	154.2	30.9	23.5
	1978	44.4	67.4	253.5	14.7	51.3
<hr/>						
Proportion of Sales Volume:		-----percent <sup>c</sup> -----				Mil. of \$
All Farm Products	1969	78.8	15.9	4.3	1.0	950.4
	1978	76.1	12.3	10.9	0.7	1,902.0
Cattle and Calves Sold	1979	75.9	17.7	5.9	0.5	503.3
	1978	71.6	13.5	14.7	0.2	874.9
Sheep, Lamb and Wool <sup>d</sup>	1978	79.3	12.4	7.9	0.4	39.6
Hogs and Pigs <sup>d</sup>	1978	78.0	11.5	8.2	2.3	259.3
Dairy Products	1969	83.4	14.4	0.6	1.6	57.3
	1978	83.1	10.4	5.7	0.8	121.2
Poultry and Poultry Prod.	1969	70.9	11.6	6.5	11.0	20.5
	1978	34.9	3.6	50.9	10.6	26.4



Table 16. Continued.

	Year	Individual of Family	Partnership	Corporation	Other	Total
Grain	1969	84.7	13.3	1.5	0.5	174.8
	1978	82.9	11.5	5.3	0.3	488.9

Source: U.S. Department of Commerce, Bureau of Census, U.S. Census of Agriculture, South Dakota, 1969 report, Table 24; 1978 report, Table 30 and 34.

<sup>a</sup>Number of farms and average sale per farm are based on data for farms with more than \$2,500 sales of farm products. This permits more accurate comparison between 1969 and 1978. In 1969 these statistics were not collected for farms with sales less than \$2,500.

<sup>b</sup>Proportion of sales volume statistics for 1969 are based on farms with sales of \$2,500 or more. For 1978 these statistics are based on sales volume of \$1,000 or more because of breakdown of sales from \$1,000 - \$2,500 by type of organization could not be derived. This lowest farm sales class produces less than 0.5 percent of total sales of any farm commodity in South Dakota.

<sup>c</sup>The sum of percents per row equals 100.0%.

<sup>d</sup>1969 data not available for hogs and pigs, sheep, lamb, and wool.



## LIVESTOCK ENTERPRISE SPECIALIZATION AND CONCENTRATION

Increased enterprise specialization and concentration is a fact of life for most farms in today's agriculture. Specialization refers to production emphasis on one or a few enterprises; concentration refers to an increasing proportion of output handled by fewer firms. Both trends are more evident for livestock than for crop enterprises in South Dakota.

One broad-based measure of specialization is the declining number and proportion of farmers and ranchers that produce or sell livestock. In 1959, ten of eleven South Dakota farmers and ranchers (50.7 of 55.7 thousand farms) produced and sold livestock. By 1978, five of six producers (32.7 of 39.6 thousand farms) were involved in livestock enterprises--a 35 percent decline in the number of livestock producers over a 20 year period (Table 17).

Enterprise concentration can be measured by the proportion of output (sales) generated by various enterprise size groups (number of head sold per farm, or similar physical size measures). Concentration data for South Dakota cattle, calves, hogs and pigs and dairy product enterprises for 1969 and 1978 are shown in Table 18. For each enterprise, the proportion of farms and proportion of enterprise sales are shown for various levels of enterprise production per farm in 1969 and 1978.

### Trends for major livestock enterprises

There has been a decline in number and proportion of farmers and ranchers involved in each of the major livestock enterprises in South Dakota. The least reduction has occurred in the number of cattle and calf producers; the greatest reduction has occurred in the number of dairy, swine and poultry producers.



Table 17. Livestock Enterprise Specialization in South Dakota, 1959-1978.

	1959	1969	1978
Number of Farms	55,727	45,726	39,665
Livestock Enterprises	--percent of producers selling livestock or poultry products--		
Any livestock	91.0	88.3	82.6
Cattle and calves	83.5	81.1	73.2
Dairy and dairy products	45.0	23.9 <sup>a</sup>	11.5
Hogs and pigs	58.3	42.4	32.8
Sheep, lambs, and wool	23.7	18.1	11.6
Poultry and poultry products	66.7	25.0 <sup>a</sup>	8.9

Source: U.S. Department of Commerce, Bureau of the Census, U.S. Census of Agriculture, South Dakota, 1959 report, Table 6; 1969 report, Table 7 and 25; 1978 report, Table 18 and 19.

<sup>a</sup>For 1969, proportion of farms with total sales exceeding \$2,500.



Table 18. Concentration of Selected Livestock Enterprises in South Dakota, 1969 and 1978.

Enterprises <sup>a</sup>	1969 <sup>a</sup>		1978	
	Percent of Enterprise Farms	Percent of Number Sold	Percent of Enterprise Farms	Percent of Number Sold
<b>Cattle:</b>				
Number of head sold per farm				
1-49	82.1	22.9	57.0	14.2
50-99	8.7	13.1	21.6	16.0
100-499	8.0	33.5	19.5	39.6
500 and over	<u>1.2</u>	<u>30.5</u>	<u>1.9</u>	<u>30.2</u>
Total	100.0	100.0	100.0	100.0
<b>Calves:</b>				
Number of head sold per farm				
1-49	69.0	32.1	61.5	23.9
50-99	20.1	28.2	32.7	47.6
100-499	10.7	36.0	5.0	20.4
500 and over	<u>0.3</u>	<u>3.7</u>	<u>0.8</u>	<u>8.1</u>
Total	100.0	100.0	100.0	100.0
<b>Hogs and pigs:</b>				
Number of head sold per farm				
1-49	24.9	4.4	23.1	2.5
50-199	53.0	39.7	43.2	21.2
200-499	18.8	37.4	24.6	33.1
500 and over	<u>3.3</u>	<u>18.5</u>	<u>9.1</u>	<u>43.2</u>
Total	100.0	100.0	100.0	100.0
<b>Dairy:</b>				
Number of cows milked per farm				
1-19	61.5	26.1	31.0	8.2
20-49	34.2	54.4	51.4	47.6
50-99	3.8	14.8	14.7	31.6
100 and over	<u>0.5</u>	<u>4.7</u>	<u>2.9</u>	<u>12.6</u>
Total	100.0	100.0	100.0	100.0



Table 18. Continued

Enterprise Totals	Farms	Product Numbers	Farms	Product
	(1,000)	(1,000)	(1,000)	(1,000)
Cattle	27.9	1,263.7	23.5	1,680.5
Calves	27.5	1,322.4	13.6	601.8
Hogs	18.8	2,689.3	13.0	2,891.0
Dairy <sup>c</sup>	8.8	\$55,900	4.5	\$120,060

Source: Compiled from data in the U.S. Census of Agriculture, South Dakota  
1978 report - Tables 20 and 21  
1969 report - Tables 17 and 18

<sup>a</sup>Comparable sales volume data (1969 and 1978) for cattle, calves and hog and pigs are available for number of head sold instead of dollar volume of sales. Comparable dairy product data are available by dollar volume of sales by milk cow inventory per farm.

<sup>b</sup>Comparable livestock sales data per farm for 1969 and 1978 are not available for poultry and poultry products or for sheep, lamb and wool products. Comparable livestock sales data not available for earlier Census period.

<sup>c</sup>For 1969, livestock sales data are reported for farms with gross farm sales of \$2,500 or more. In 1978, livestock sales data available for all farms with gross farm sales of \$1,000 or more.

<sup>d</sup>Dairy cow data shown here excludes sales from farms that did not have any milk cows at the time the Census was taken but had produced milk during the previous year. Dollar sales volume excluded is 2 - 3 percent.



Concentration has also increased for all livestock enterprises as the proportion of enterprise farms with low volume sales has declined. The number and proportion of large-scale enterprises has increased.

#### Cattle and calves

Cattle and calves are still produced by nearly three-fourths of South Dakota farmers and ranchers. This reflects:

1. South Dakota's competitive position in the beef industry
2. The abundant amounts of rangeland, roughage and feed in most regions of South Dakota
3. The absence of major economies of size in cow-calf production and backgrounding operations.
4. The availability of additional family labor has allowed many crop farmers to handle livestock
5. The relative profitability of the cattle industry during a period of consumer demand expansion for beef

Most cattle and calf enterprises are small with less than 100 head sold annually.

Increased specialization has occurred within the cattle industry with a declining proportion of cattle producers involved in all stages of beef production (cow-calf, feeder and finishing operations). Only one-fifth of cattle producers are involved in cattle finishing.

#### Hogs and pigs

Hog production has also become more specialized. In 1959, hogs were produced on three of five South Dakota farms, in 1978 less than one-third were involved in hog and pig production. During this period South Dakota has maintained and slightly increased its relative position in the hog industry. Despite increased specialization most hog operations are small (66 percent of hog producers sell 1-199 hogs and pigs annually) or moderate size (25 percent



sell 200 to 499 hogs and pigs annually) operations. Five of six hog producers run farrow-to-finish operations but an increasing number are specializing in feeder pig-nursery operations.

The necessity for improved management practices in breeding disease control and nutrition for profitable production and the development of confinement housing technology have increased the amount of specialization and average size of operation in this industry.

### Dairy

The dairy production industry has been transformed in 20 years from a large number of farms each milking a few cows to relatively few highly specialized dairy farms. Only one of nine farmers is involved in dairy production and 66 percent of them milk 20 to 100 cows. For 31 percent of South Dakota dairy farmers, milk production is a supplementary or small enterprise, as less than 20 cows are milked. Technological changes in the dairy industry (bulk tanks, automatic feeders, pipelines, parlor systems) continue to favor the trend to medium-size and large-scale dairy operations.

### Sheep and lambs

Sheep and lamb production has declined rapidly throughout the United States from 1950 to the late 1970's. South Dakota has improved its relative position in this industry, but only one of nine farmers and ranchers are still involved in sheep and lamb production. Most sheep and lamb enterprises are small with less than 200 sheep and lambs sold per year.

### Poultry

Poultry production has experienced the greatest decline in farm numbers of any animal enterprise. Twenty years ago two of every three South Dakota



farmers produced eggs or broilers. Today less than 9 percent are involved in the poultry industry.

This industry is also the most highly concentrated of any animal enterprise. In 1978, the largest 100 of the 3,530 South Dakota poultry producers (2.8 percent) sold 85 percent of poultry products from South Dakota (Table 18). Average poultry sales for these farms exceeded \$200,000 per farm. At the other extreme, two-thirds of the producers had average poultry sales of only \$1,000.

The poultry industry is basically divided into two categories; (1) A few large-scale highly specialized commercial producers and (2) many producers who maintain a small farm flock for home consumption and supplementary income reasons.

#### Sales concentration trends

Concentration of sales has been increasing for all livestock enterprises. Data in Table 19 show enterprise concentration by farm size as measured by 1978 gross farm sales.

Small farms are a majority of producers for each enterprise (except dairy). These farmers produce one-sixth to one-fifth of cattle and calves, hogs and pigs and dairy products, 27 percent of sheep and lambs and 9 percent of poultry products.

Medium sales farms generate the greatest total sales volume for each enterprise (except poultry products). Over 70 percent of dairy products sales and 60 percent of hog and pig sales are from these farms. They also generate 40 to 50 percent of cattle and calves, sheep and lamb sales.

A majority of medium size farms have small livestock enterprises with per farm average sales of less than \$20,000. However many farmers are operating larger enterprises with average sales volume of \$60,000 to \$70,000. These



Table 19. Livestock Enterprise Concentration in South Dakota, 1978.<sup>a</sup>

		Farm Sales/Enterprise Class <sup>b</sup>				Total <sup>c</sup>	
		\$40	\$40+	\$40-199	\$200+	Number	Sales Volume
Gross Farm Sales (\$1000)		\$40	\$40	\$40	\$40		
Product Sales (\$1000)		\$40	\$40	\$40	\$40		
							(\$1000)
Cattle and Calves:							
Number of Farms	%	56.4	27.5	13.4	2.7	29,012	-----
Sales Volume	%	16.8	16.8	31.5	34.9	-----	847,851
Average Sales per Farm	\$1000	9.0	18.3	71.0	384.6	-----	30.2
Hogs and Pigs:							
Number of Farms	%	51.2	37.3	9.5	2.0	12,987	-----
Sales Volume	%	20.0	31.6	29.2	19.2	-----	259,316
Average Sales per Farm	\$1000	7.8	17.0	61.5	186.7	-----	20.0
Dairy and Dairy Products:							
Number of Farms	%	41.3	36.9	18.0	1.8	4,660	-----
Sales Volume	%	18.2	30.9	42.2	8.7	-----	121,240
Average Sales per Farm	\$1000	11.5	21.8	61.0	129.7	-----	26.6
Sheep, Lamb, and Wool:							
Number of Farms	%	63.8	33.4	2.1	0.7	4,579	-----
Sales Volume	%	26.9	28.8	15.6	28.7	-----	39,646
Average Sales per Farm	\$1000	3.7	7.6	65.0	355.8	-----	8.7
Poultry and Poultry Products:							
Number of Farms	%	65.0	32.2	1.2	1.6	3,530	-----
Sales Volume	%	9.3	6.2	15.2	69.3	-----	26,367
Average Sales per Farm	\$1000	1.0	14.2	91.4	326.3	-----	7.5



Table 19. Continued.

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Source: U.S. Department of Commerce, Bureau of the Census, U.S. Census of Agriculture, South Dakota, 1978 report, Table 34.

<sup>a</sup>Concentration is shown by comparing number and percent of farms with enterprise sales, sales volume and percent, and average enterprise sales volume per farm for four farm sales--enterprise sales classes. Gross farm sales refers to total farm product sales volume of the farm. Enterprise sales refers only to product sales for that enterprise. Farms not involved in each enterprise are excluded from all computations.

<sup>b</sup>Farm sales/enterprises classes were determined by combining enterprise sales volume of less than \$40,000 and \$40,000 or more with farm sizes based on gross farm sales.

Small farms with gross farm sales of less than \$40,000

Medium farms with gross farm sales of \$40,000 to \$199,000

Large farms with gross farm sales of \$200,000 or more

<sup>c</sup>The sum of percents row equals 100.0%.



farmers tend to be livestock farmers specializing in one enterprise and marketing most of their crops through their livestock.

Large farms number less than 3 percent of producers in any enterprise. These farmers tend to specialize in one or more livestock enterprises each generating more than \$40,000 sales volume. Average sales volume exceeds \$300,000 per large farm producing cattle, sheep or poultry.

Most livestock are marketed from farms selling \$40,000 or more per enterprise. Eighty-five percent of poultry products and two-thirds of cattle and calves were marketed from this enterprise size group. For other enterprises, the proportion marketed varied from 44 to 51 percent.

Additional perspective on enterprise size can be gained by looking at the average number of animals needed to generate a certain amount of sales volume in 1978 using average commodity prices in South Dakota for that year. (Table 20). One can readily see that \$40,000 of enterprise sales was easily within reach of many family farm operations. Enterprise sales of \$200,000 in 1978 was within reach for large-scale specialized family farms--especially for cattle feeding. Dairy, hog and sheep enterprises of this size would often require more labor than could be provided by one family.

A final perspective is offered by viewing the number and proportion of farms and sales volume for the largest scale livestock enterprise operations in South Dakota (Table 21). The physical volume of these operations would suggest a minimum enterprise sales volume of \$100,000 to \$250,000 per farm in 1978. The number of large-scale enterprise farms has been increasing and operations of this magnitude are becoming more common.

Overall increased livestock enterprise specialization and concentration have occurred over time and are continuing. So far most of the specialization and concentration is occurring within family farm operations of various sizes. Growing number of large volume units are occurring for all major livestock enterprises.



Table 20. Average Number of Animals Needed to Achieve Enterprise Sales Volume Levels, South Dakota, 1978.

		Enterprise Sales Volume in 1978 <sup>a</sup>		
		\$10,000	\$40,000	\$200,000
		Number of Animals Needed		
Slaughter steers (1000-1100 lb)	sold	18-21	72-84	360-440
Calves (425-500 lb)	sold	30-38	120-152	600-760
Slaughter hogs (210-240)	sold	90-100	360-400	1800-2000
Slaughter lambs (90-110 lb)	sold	145-175	580-700	2900-3500
Dairy cows 120-140 cwt of milk production	milk	8-10	32-40	160-200

<sup>a</sup>Average prices for South Dakota reported in Agriculture Prices, U.S. Department of Agriculture. Comparison was also made with average per head receipts reported in the 1978 Census of Agriculture for South Dakota. The number of animals needed are approximations for the average or typical situation.

Table 21. Relative Importance of Large-Scale Livestock Enterprises in South Dakota, 1978.

Livestock Enterprise and Scale of Operation	Number of Farms	Enterprise Sales	Average Enterprise Sales per Farm	Proportion of Enterprise Farms	Proportion of Enterprise Sales
		-----\$1000-----		-----percent-----	
Cattle 500 or more head sold	382	239,473	626.9	1.6	33.5
Calves 500 or more head sold	40	8,482	212.0	0.3	5.9
Hogs and pigs 1000 or more head sold	301	55,679	185.0	2.3	21.4
Dairy cows 200-499 cows milked	8	1,911	238.9	0.2	1.6

Source: Compiled from data in U.S. Census of Agriculture, South Dakota, 1978 report, Tables 20 and 21 published by the U.S. Department of Commerce, Bureau of the Census.



## CHANGING FARM FINANCIAL CONDITIONS

The combination of declining farm numbers and rapid growth of capital requirements in agriculture has led to phenomenal growth in capital and credit use per farm. Between 1960 and 1982 the market value of total assets per farm in the United States increased 845 percent from \$53,000 to \$448,000. During this same period average debt per farm increased 1,270 percent from \$6,300 to \$80,000. Equity per farm increased 790 percent from \$46,700 to \$368,000. The aggregate debt to asset ratio increased from 11.9 percent to 17.8 percent.

### Trends in South Dakota farm financial structure

Similar trends in total assets, debt and equity per farm have occurred in South Dakota. Data in Table 22 depict trends in assets, debt and equity for South Dakota farms from 1970 to 1982. A more detailed balance sheet of the South Dakota farm sector for January 1, 1982 is shown in Table 23. The balance sheet provides a snapshot of financial conditions at one point in time. Market value of total farm assets is approaching 20 billion dollars and total farm debt exceeds 4.4 billion dollars. The average South Dakota farm operator (in 1982) controls \$538,000 of assets and has debts of \$120,600.

From 1978 to 1982 the value of assets per farm increased 50 percent while debt per farm increased over 75 percent. Almost one half of the increase in asset values is due to appreciation in land values while all of the rise in debt reflects increased cash flow commitments.

Two thirds of farm asset values consist of farm land and buildings. Machinery and livestock values account for 12 and 9 percent of total farm asset values, respectively.



Table 22. Total Asset, Debt and Equity Trends of South Dakota Farms, Total and Per Farm, 1970-1982.

January 1, year	Total Assets	Total Debt	Total Equity	Debt to Asset Ratio
-----Millions of dollars-----				
1970	6,487	1,244	5,342	19.2
1974	9,660	1,683	7,977	17.4
1978	14,384	2,740	11,644	19.1
1982	19,907	4,464	15,443	22.4
-----Average per farm in thousands of dollars-----				
1970	138.0	26.5	111.6	
1974	214.7	37.4	177.3	
1978	359.6	68.5	291.1	
1982	538.0	120.6	417.4	

Source: U.S. Department of Agriculture,

Economic Indicators of the Farm Sector, State Income and Balance Sheet Statistics, 1981, ECIFS 1-2, Economic Research Service, October 1982

Balance Sheet of the Farm Sector, 1978, Agricultural Information Bulletin 416, June 1978



Farm debt is more heavily weighted to nonreal estate loans--54 percent of total farm debt. Only 39 percent of farm debt is for real estate financing, CCC (Commodity Credit Corporation) loans account for 7 percent of farm debt.

Financial ratios from the balance sheet change slowly over time and provide a rather solid indication of financial health based on the leverage ratio and the current (nonreal estate) and long-term (real estate) debt to asset ratio. The South Dakota farm sector has about \$10 of equity for every \$3 of debt.

Relative to all U.S. farms, the average farm in South Dakota:

- has a slightly greater amount of total assets with a higher proportion of asset values in machinery, crops and livestock and a lesser proportion in real estate.
- employs 50 percent more total debt--which includes a similar amount of real estate debt and almost twice the amount of nonreal estate debt.
- has higher total and nonreal estate debt to asset ratios with a corresponding lesser proportion of equity and higher leverage ratios.
- is more vulnerable to recent adverse financial conditions (higher interest rates, lower commodity prices and low farm incomes) because nonreal estate debt tends to be short-term in nature and must be refinanced at prevailing interest rates.

#### Diversity of farm financial conditions

Aggregate financial statistics do not reveal the diversity of financial conditions found within agriculture. Financial conditions vary considerably between:

- farm operators and landlords
- farm operators with debt and without debt
- young, middle-aged and senior farm operators
- large and small farms
- part owners, tenants and full owners



Table 23. Balance Sheet of the South Dakota Farm Sector, January 1, 1982.

Item	Total	Per Farm	Proportion
	Million \$	Thousand \$	Percent
Total Farm Assets:	19,906.7	538.0	100.0
Real Estate	13,095.0	353.9	65.8
Machinery and			
Motor Vehicles	2,407.4	65.1	12.1
Livestock and Poultry	1,719.3	46.4	8.6
Crops	1,415.8	38.3	7.1
Other <sup>a</sup>	1,269.2	34.3	6.4
Total Farm Debt:	4,463.6	120.6	100.0
Real Estate	1,723.6	46.6	38.6
Nonreal Estate	2,429.0	65.6	54.4
CCC Loans	311.0	8.4	7.0
Equity	15,443.1	417.4	100.0
Financial Ratios:		percent	
Debt/Assets, total		22.4	
Debt/Assets, real estate		13.2	
Debt/Assets, nonreal estate		40.2	
Equity/Assets		77.6	
Leverage (Debt/Equity)		28.9	

Source: U.S. Department of Agriculture, Economic Indicators of the Farm Sector--State Income and Balance Sheet Statistics, 1981, EC1FS 1-2, Economic Research Service, October, 1982.

<sup>a</sup>Other assets are financial assets (deposits, currency, U.S. saving bonds and investments in cooperatives) and household equipment and furnishing.



Data in Tables 24 and 25 illustrates some of the key relationships for farm operators in 1979. We recognize that financial conditions have deteriorated for many farmers since 1979; however, most of the key relationships are likely to be similar today.

Farm operators assume most of the debt in the agriculture sector, but own a smaller share of farm-related assets. Landlords own a substantial share of farm assets but have relatively little farm debt. In 1979, South Dakota farm operators owned two-thirds of the value of farm assets and held 93 to 95 percent of farm debts. Farm operators owned 55 percent of the value of farm real estate and over 95 percent of nonreal estate farm assets; landlords owned the remainder.

South Dakota has the second highest proportion of farm operators with debt among the 50 states. Only Iowa had a higher percentage of farm operators in debt. In 1979, 72 percent of South Dakota farm operators were using borrowed money in their farm business. Only 54 percent of U.S. farm operators used debt capital.

A comparison of financial characteristics for South Dakota farms with debt and without debt indicates farms with debt generally have higher sales volume, more net farm income, greater net worth and total assets and similar levels of off-farm income (Table 24). Average debt per farm for farmers with debt was \$100,000 in 1979 and has increased to about \$165,000 in 1982.<sup>4/</sup> The average debt to asset ratio for indebted farm operators was 28 percent in 1979--much higher than the 19 to 20 percent ratio shown for South Dakota's entire farm sector (Table 22).

Farm operators vary greatly in the amount and proportion of debt capital used in relation to total assets, equity, sales or net income. The proportion

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<sup>4/</sup> The 1982 estimate of \$165,000 assumes that 72 percent of South Dakota farmers use debt capital--the same percentage of farms as in 1979.



Table 24. Financial Profile of South Dakota Farm Operators by Debt Status, 1979.

		South Dakota Farm Operators <sup>a</sup>		
		With Debt	Without Debt	All Operators
Number of farms	1000	27.7	10.9	38.6
	%	71.8	28.2	100.0
-----per farm-----				
Value of agricultural products sold	\$1000	75.6	28.8	62.3
Net cash farm income	\$1000	21.7	10.2	18.5
Off farm income	\$1000	7.1	7.8	7.3
Total farm assets owned	\$1000	357.6	165.0	303.0
Total farm debt, <sup>b</sup>	\$1000	100.4	0	72.6
Equity	\$1000	257.2	165.0	230.4
Debt/Assets, total	%	28.0	0	24.0
Equity/Assets, total	%	72.0	100.0	76.0
Leverage (Debt/Equity)	%	39.0	0	31.5

Source: U.S. Department of Commerce, Bureau of the Census, U.S. Census of Agriculture, 1979 Farm Finance Survey, Volume 5, Special Report, part 6.

The 1979 Farm Finance survey results are based on completed surveys of 1-3 percent of farm operators and landlords in each state. Data reported in this table are population estimates.

<sup>a</sup>Data shown in this table are for South Dakota farm operators only. Farm assets and debts of landlords are excluded. According to this survey, South Dakota farm operators own two-thirds of the value of total farm assets including 55 percent of farm real estate assets and over 95 percent of nonreal estate farm assets. Farm operators are also liable for 93 to 95 percent of farm debts.

<sup>b</sup>Nonfarm debts held by farm operators are not included. Farm debts exclude accounts payable of less than 30 days.



of debt capital used is highest for young farmers, farmers generating \$200,000 or more sales volume, part owners, and farmers located in the Northern Plains and western Cornbelt (including South Dakota). Farm operators using little or no debt capital tend to be senior farmers and farmers selling less than \$10,000 of farm products (Table 25).

Farm operators with debt to asset ratios exceeding 40 percent are moderately to highly leveraged. Many of these farmers are subject to considerable financial risk if net cash income plummets and interest rates increase over a several year period--conditions which have occurred since 1979. These farm operators are required to use their financial and marketing management skills to their best ability, since many of them are in financial situations with little margin for error.

Most farm operators use no debt or relatively low proportions of debt capital (0 to 20 percent of total asset values). In 1979, almost one half of young farmers and large farms were in this low debt ratio category. Seven of every eight senior farmers and five of six farms with sales under \$10,000 were also in this situation. Most farmers in this debt situation are capable of handling financial setbacks and low commodity prices.

Overall, South Dakota has a higher proportion of indebted farmers and highly leveraged farmers than is found in most other states. Farmers most likely to be in this situation are young, have gross sales above \$40,000 and own some of the land that they operate. Farmers least likely to be indebted or have very low amounts of debt have one or more of the following characteristics:

- Gross farm sales of less than \$10,000
- Are senior farmers
- Are tenants or full owners



Table 25. Distribution of Farm Operators by Debt to Asset Ratio by Farm Characteristic, United States, 1979.

Farm Characteristic	Thousands of farms	Total Debt to Asset Ratio <sup>a</sup>				Total
		0-5 percent	6-20 percent	21-40 percent	41 percent and over	
-----percent of farms-----						
United States	2,354	55.9	18.7	13.1	12.3	100.0
West North Central Region <sup>b</sup>	553	48.0	19.4	14.8	17.8	100.0
-----						
Age of Operator:						
Less than 35 years	370	33.1	16.8	19.7	30.4	100.0
35-54 years	1,000	46.4	23.6	17.0	13.0	100.0
55 years and above	984	74.2	14.0	6.8	4.9	100.0
-----						
Gross Farm Sales:						
\$200,000 or more	103	22.8	23.6	24.0	29.6	100.0
\$40,000-199,999	547	35.2	24.8	19.4	20.6	100.0
\$10,000-39,999	529	53.4	20.6	13.2	12.9	100.0
Less than 10,000	1,175	69.6	14.4	9.2	6.7	100.0

Source: U.S. Department of Commerce, Bureau of the Census, U.S. Census of Agriculture, 1979 Farm Finance Survey, Volume 5, Special Report, part 6, Table 81.

The 1979 Farm Finance survey results are based on completed surveys of 1-3 percent of farm operators and landlords in each state. Data reported in this table are population estimates.

<sup>a</sup>Data in this table shows the total debt to asset ratio for farm operators in 1979. Comparable data are not available for landlords. For the United States farm debt is 92 percent of total debt held by farm operators. Farm related assets, including operators dwelling and financial assets, are 94 percent of the value of total assets owned by farm operators. About 17 percent of farm operators total assets consists of the value of their house and financial assets (cash, savings accounts, stocks and bonds, etc.).

<sup>b</sup>North Dakota, South Dakota, Nebraska, Kansas, Missouri, Iowa, and Minnesota are the states located in the West North Central region. Debt to asset ratios of farm operators are not reported by individual state.



### Trends in farm income and expense

Although total capital and debt requirements have risen rapidly, aggregate net farm income in the U.S. and in South Dakota has increased very slowly and exhibits wide year to year swings.

#### U.S. farm income and expenses

From 1960 to 1981, gross farm income increased in nominal dollars from 38.5 billion dollars to 161.2 billion dollars for the United States. Gross farm income has increased in most years above the rate of inflation.

Farm expenses have increased more rapidly than farm receipts. From 1960 to 1969 U.S. farmers on average spent \$72 to \$78 for every \$100 of receipts; by the late 1970's and early 1980's farmers spent \$80 to \$86 per \$100 of gross receipts. Consequently the amount of money left over, net farm income, as a proportion of gross farm receipts has steadily declined over the past 20 years. The input cost structure has greatly changed with the most rapid increases occurring in interest payments and energy intensive inputs (fuel, electricity, fertilizer and pesticides).

Net income is what counts for family living and farm investment and here the trends are less consistent. From 1960 to 1972, U.S. net farm income remained within a relatively narrow range of 10 to 15 billion dollars. From 1972 to 1981 net farm income fluctuated from 18 to 33 billion dollars per year with annual swings ranging from -40 to +70 percent.

#### Variability of South Dakota farm incomes

For South Dakota, gross farm income increased in nominal dollars from 660 million dollars in 1960 to 3075 million dollars in 1981. Trends in production expenses and net farm income are similar to those found in total U.S. agriculture. The main difference is that net farm income has been much more variable in South Dakota.



Annual swings in net farm income have ranged from -65 percent to +95 percent. Net farm income (after inventory adjustment) was a record 1.02 billion in 1973 and only 210 million dollars in 1976, the drought year. Since then net farm income has risen to a high of 621 million dollars in 1979 but declined to 320 million dollars in 1980 rising again to 479 million dollars in 1981 (Table 26). The year to year changes in U.S. and South Dakota net farm income tend to be much smaller than individual farmers have experienced.

Average net farm income per farm has increased more rapidly than aggregate net farm income due to declining farm numbers. However it is subject to the same variability. For example in 1979 average net income per South Dakota farm operation was \$15,935. The average declined to \$8,315 per farm in 1980 and was back to \$12,600 in 1981 (Table 26).

The effect of inflation on net farm income per South Dakota farm is shown in the last column of Table 26. Farm income in 1976 and 1980 were two of the lowest since 1960 in terms of purchasing power per farm. From 1960 to 1970, per farm income (in 1981 dollars) ranged from \$13,000 to \$20,000 and has varied greatly since then.

#### Concentration of farm income

Net farm income is highly concentrated by sales class. For example from 1978 to 1981, 40 percent to 46 percent of gross farm income in the United States was from farms with annual sales of \$200,000 or more. These large farms obtained 55 to 86 percent of net farm income during this same time period. Farms with \$40,000 to 200,000 of sales obtained most of the remaining net farm income. Farms with less than \$40,000 of sales averaged negative farm income or very low positive farm incomes during this recent period. In earlier time periods most of these smaller farms showed positive profits in most years.



Table 26. Farm Income Statistics for South Dakota, 1950-1981.

Year	Gross Farm Income	Product Expenses	Net Farm Income (before inventory adjustment)	Net Change in Farm Inventories	Net Farm Income (after inventory adjustment)	Net Farm Income per Farm	Net Farm Income per Farm
	-----Millions of \$-----					Current \$	1981 \$ <sup>a</sup>
1950	548.2	348.2	200.0	45.8	245.8	3,663	12,907
1955	569.0	394.8	174.1	-48.8	125.3	1,973	6,792
1960	660.0	488.6	171.3	101.3	272.6	4,668	15,058
1965	884.6	622.2	262.4	28.8	291.2	5,600	17,284
1970	1,168.1	838.7	329.4	-10.5	318.9	6,786	18,592
1971	1,195.1	905.0	290.2	60.8	351.0	7,548	19,605
1972	1,465.2	972.9	492.8	21.3	514.0	11,175	27,124
1973	2,045.4	1,280.8	764.6	255.6	1,020.1	22,420	45,477
1974	2,220.2	1,382.5	837.7	-235.5	602.2	13,382	23,854
1975	2,122.9	1,424.4	698.5	-59.6	638.9	14,858	24,159
1976	2,010.2	1,399.4	610.8	-400.4	210.4	5,010	6,649
1977	1,745.4	690.0	54.3	297.8	352.2	8,589	12,706
1978	2,335.0	1,853.9	81.1	25.3	506.4	12,660	17,342
1979	2,541.0	2,165.2	375.8	245.7	621.5	15,937	18,860
1980	2,960.2	2,393.0	567.2	-247.0	320.2	8,317	8,924
1981	3,075.5	2,613.7	461.8	17.0	478.8	12,601	12,601

Source: U.S. Department of Agriculture, Economic Indicators of the Farm Sector, Income and Balance, State Income and Balance Sheet Statistics, 1981, ECIFS 1-2, Economic Research Service, Oct. 1982, Tables 5 & 8.

<sup>a</sup>Index of prices paid by farmers for production items was used to deflate net farm income to real (inflation-adjusted) terms. This index is the broadest index monitoring inflationary impacts of input price changes for farmers.



Net farm income by sales class is not available annually for South Dakota but would be expected to show similar trends.

Some explanations

Farming and ranching are characterized by income instability--especially in South Dakota. Vagaries of weather, pests and disease have always been sources of production instability. Because farm product demand is generally inelastic, relatively small changes in aggregate production generate large changes in prices and incomes. Demand for farm products has become more variable as the role of grain export market has increased and as tastes, preferences, and lifestyles have changed in our domestic market. Finally, farmers are more at risk to financial instability stemming from monetary, fiscal, and regulatory policy changes.

Annual income variation is not as troublesome as the tendency for agriculture to have several years in a row of relatively low returns and incomes. Therefore, in order to live with acceptable levels of income, farmers must rely upon savings, management skills and/or alternative sources of income in order to survive until a good year comes.



## GROWING IMPORTANCE OF OFF-FARM INCOME<sup>5/</sup>

### Off-farm income relationship for U.S. farm families

Income received from nonfarm (off-farm) sources is a major component of net income earned by many farm families. Since 1964, a majority of net income earned by farm families in the U.S. has originated from off-farm sources. These sources of income include in order of importance: wages and salaries, nonfarm business earnings, interest and dividends, pensions and Social Security, and nonfarm property rental income. Approximately three-fifths of off-farm income is earned as wages, salaries and commissions.

Off-farm income is concentrated among U.S. farmers with less than \$40,000 of gross farm sales. For farmers selling less than \$10,000, off-farm income provides an average of 75 to 85 percent of total net income. Off-farm income also exceeds net farm income for farmers selling \$10,000 to \$40,000 of farm products. Most of the nonfarm income received by these families is from wages and salaries followed by retirement incomes. Three of five farm families report a husband and/or wife employed in a nonfarm job--mostly full-time employment. Another one-fifth of small farm operators are 65 years of age or older and many receive retirement incomes. The remaining fifth of farm families in this group are full-time farm operators who are less than 65 years of age and report no off-farm income.

Off-farm income is less important as an income source for most families with larger farm operations in the U.S. (over \$40,000 in gross sales). Wage and salary income remains the most important off-farm income source followed by nonfarm business, interest and dividend income.

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<sup>5/</sup> Information reported in this section is based on data reported in the 1978 Census of Agriculture, the 1979 Farm Finance Survey and the USDA publication Economic Indicators of the Farm Sector, 1981.



Most operators of the larger farm operations work full-time on their own farm. In 1979, only one of five farm operators in this group reported any off-farm employment. Another 14 percent of these farm families received wage and salary income because their spouse worked full-time in a nonfarm job.

Nonfarm income has increased in importance as improved road systems and location of industrial development in smaller cities and towns have made it possible for more farmers and/or their spouses to work in a nonfarm job. Other contributing factors have been improved education and vocational training of farm people, increased employment of women in all occupations and increased non farm investments.

#### Off-farm income trends in South Dakota

South Dakota farmers receive a lower proportion of their family income from nonfarm sources than farmers in any other state. Although, off-farm income is increasing in relative importance, it represents only 25 to 30 percent of net income earned by South Dakota's farm families compared to 50 to 60 percent of net income earned by all U.S. farm families. In 1978, only 20 percent of South Dakota farm operators were employed in a nonfarm job, 100 days or more per year. Nationally, 35 percent of farm operators were employed 100 or more days per year in a nonfarm job.

Nonfarm income is the dominant source of income for very small farms and relatively important for farms with \$10,000 to \$40,000 of sales. For larger South Dakota farms, nonfarm income is only a modest supplement.

#### Implications for South Dakota

The difference in relative importance of off-farm income to farm families in South Dakota and the United States is very significant and has several possible implications.



First, South Dakota farm families and rural communities are more vulnerable to changing farm economic conditions compared to most other states. Likewise, improved farm economic conditions is essential for improved incomes of farm families in South Dakota due to lack of off-farm income opportunities. Also since agriculture represents a higher proportion of the total economy compared with most other states, changing farm economic conditions are quickly felt by the whole South Dakota economy.

Second, off-farm income has been and is therefore likely to continue in importance and become more widespread among South Dakota farm families. However, South Dakota farm families are not likely to have the range of non farm income and employment options that are available in many other states. South Dakota does not have the resources or urban employment base of many states. Also the considerable distances to town, for many western and central South Dakota farmers and ranchers make it difficult for family members to be employed off the farm. Therefore off farm income is not likely to approach the relative importance that it has in other states.

Third, net incomes received by South Dakota farm families are likely to be more variable than net incomes earned by farm families in many other states. This greater variability is primarily due to (1) impacts of weather variability on production in South Dakota and (2) the state's dependence on livestock production and grain exports--two farm sectors noted for price and income stability. In addition, nonfarm income is less variable than net farm income in all regions of the U.S., but nonfarm income represents a smaller proportion of total income of farm families in South Dakota.

Fourth, South Dakota's farmers and rural economy will continue to be relatively more sensitive to changes in government related farm programs compared to other states. These programs include commodity programs, farm credit, taxation and income-assistance programs.



## PROFILE OF SOUTH DAKOTA FARMS BY ECONOMIC CLASS

### Profile of South Dakota farms by economics (sales) class

We have reviewed several trends affecting South Dakota agriculture during the past 20 to 30 years. The overall trend has been decreased farm numbers and increased farm size whether measured by acres or sales volume. Within this overall setting, we have discussed related trends in land ownership and tenure, business organizations, enterprise specialization and concentration, farm finance and incomes, off-farm employment and incomes. One major finding is that most of these trends are related to farm size as measured by volume of agricultural products sold (sales class).

Sales class is probably the best descriptive variable that is readily available to assess structural trends and conditions in the farm sector. Therefore, a profile of South Dakota farm operations by sales class provides a unique perspective by farm size and adds to the understanding of current trends in farm structure.

The profile of farmers discussed in this section classifies farm operations into four sales classes based on 1978 farm product sales volume of:

Large -	\$200,000 or more
Medium -	\$ 40,000 - 199,999
Small -	\$ 10,000 - 39,999
Very small -	Less than \$10,000

Several characteristics of South Dakota farms and farm operators by sales class are shown in Table 27. These characteristics along with information presented throughout this paper are analyzed for each sales class so that a representative profile can be presented.



Table 27. Selected Characteristics of South Dakota Farms and Farm Operators by Economic Class, 1978.

Economic Class: Sales Volume	Large \$200,000 or more	Medium \$40,000- \$199,999	Small \$10,000- \$39,999	Very Small Less than \$10,000	Total
Number of Farms:	982	13,383	15,895	9,295	39,555
<hr/>					
Proportion of Farm Operators in Each Sales Class:					
<u>Age</u>					
Less than 35 years old	11.3	17.8	22.0	24.3	20.8
35-54 years old	59.7	52.3	35.9	32.9	41.4
55 years and older	<u>29.0</u>	<u>29.9</u>	<u>42.1</u>	<u>42.8</u>	<u>37.8</u>
Total	100.0	100.0	100.0	100.0	100.0
<u>Tenure</u>					
Full owner	21.3	21.8	38.3	65.6	38.7
Part owner	73.2	67.3	42.9	14.2	45.2
Tenant	<u>5.5</u>	<u>10.9</u>	<u>18.8</u>	<u>20.2</u>	<u>16.1</u>
Total	100.0	100.0	100.0	100.0	100.0
<u>Business Organization</u>					
Individual or family	59.7	85.5	91.4	92.2	88.8
Partnership	17.6	11.4	8.0	6.9	9.1
Corporation	<u>22.7</u>	<u>3.1</u>	<u>0.6</u>	<u>0.9</u>	<u>2.1</u>
Total	100.0	100.0	100.0	100.0	100.0
<u>Size of Farm (Acres Operated)</u>					
Less than 260	5.0	5.1	25.4	77.3	30.2
260-499	4.7	17.6	29.8	14.1	21.4
500-999	15.6	30.6	26.3	5.6	22.6
1000-1999	21.9	25.7	13.5	2.1	15.1
2000 and over	<u>52.8</u>	<u>21.0</u>	<u>5.0</u>	<u>0.9</u>	<u>10.7</u>
Total	100.0	100.0	100.0	100.0	100.0



Table 27. Continued.

Economic Class: Sales Volume	Large \$200,000 or more	Medium \$40,000- \$199,999	Small \$10,000- \$39,999	Very Small Less than \$10,000	Total
Majority of Sales from					
Livestock	87.3	73.5	60.1	54.4	64.0
Crops	12.7	26.5	39.9	45.6	36.0
Total	100.0	100.0	100.0	100.0	100.0
Other Characteristics					
Farm Operators works 200 or more days in an off-farm job	4.4	3.8	12.6	37.6	15.3
Farm Operators principal occupation is <u>not</u> farming	5.2	4.7	14.3	48.4	18.9
Farm Operators with full- time hired labor	75.0	25.9	6.2	2.6	13.6

Source: U.S. Department of Commerce, Bureau of the Census, 1978, U.S. Census of Agriculture, South Dakota, Table 34.



Large farms (\$200,000 or more of sales)

Large farms are the smallest groups in number but very important in terms of sales, expenditures and financing. In 1978, these farms numbered 982 and only about 200 South Dakota farms had sales exceeding \$500,000. Yet these large farms, 2.5 percent of all South Dakota farms, generated one-fourth (24.8 percent) of gross farm receipts and a similar proportion of farm expenses. Furthermore, more farms are joining the ranks of large farms and current large farms have continued to expand in size.

Although large in size relative to other farms and ranches most large farm operations are operated by family units and have little market power to influence commodity price. These farms are of sufficient size to achieve most economies of size in farming. In addition, three-fourths of these farms employ full-time hired labor and less than 5 percent of farm operators are employed full-time off the farm.

Forty percent of the large farms are organized as partnerships or corporations--a much higher proportion than any other size group. This indicates the growing importance of multi-operator management and maintaining management continuity in these larger farms.

Although some are specialized in cash grain production, most large farms (87%) emphasize livestock production. In general, large farms are more specialized in a single livestock enterprise than other farm sizes--many with single enterprises generating sales of \$200,000 or more. Large farms and ranches sell 70 percent of poultry products, 60 percent of cattle on feed, 30 percent of sheep and lambs, 27 percent of other cattle and 20 percent of hogs and pigs in South Dakota. These farms buy 46 percent of livestock (mostly calves) and 34 percent of feed purchased by all South Dakota farms.



Operators of large farms generally rely on net farm income as their major source of family income. Off-farm income is not a major income source for most farm families in this group. These farm operators usually receive the highest net farm income among all farmers because they generate the most sales volume and control more assets than other farmers.

Most large farm operations are indebted and tend to have higher debt to asset ratios than other farm sizes. A typical large farm operation controls over one million dollars of farm assets, and have farm business debts ranging from \$100,000 to \$500,000.

Medium farms (\$40,000 to \$200,000 of sales)

Medium size farms dominate most phases of South Dakota agriculture and are today's typical commercial family farm. These 13,400 farms are one-third of South Dakota farm numbers and sold 53 percent of its farm products in 1978. In general, these farms achieve most production economies of size in farming and net farm income as a percent of sales is similar for large and medium-size farm operations in most years.

Proprietorships account for 86 percent of the medium size farm operations, 11 percent are partnerships, and 3 percent are family farm corporations. This profile is similar to smaller farms but much different than larger farms.

Medium size farms tend to have similar land tenure arrangements to the larger size farms. Over two-thirds of both groups own some of the land operated and rent or lease the remainder. Less than 22 percent are full-owner farmers and very few farmers in either size group are tenants.

The age distribution of farm operators is similar for medium and large farms. A majority of farm operators are 35 to 54 years old although 30 percent are 55 years and older. Young farmers operate one-sixth of these farms.



Medium-size farms are usually one-family operations relying mostly on family labor and net income generated from farming. Only 26 percent employ full-time hired labor and less than 5 percent of farm operators are employed off-farm full time. There are two key differences in labor resource use between medium size farm operations compared to larger farms or smaller farms. Larger farm operations tend to rely more heavily on hired labor. Smaller farm operations tend to use more operator and family labor resources in nonfarm employment.

A majority of livestock, livestock product and grain sales originate from medium size farm operations. Market shares in 1978 for specific commodities include: calves--58 percent, dairy products--73 percent, hogs and pigs--60 percent, sheep and lambs--43 percent, grains--58 percent.

These farmers also operate a majority of South Dakota's cropland and rangeland and purchase over one-half of most inputs. Livestock receipts are greater than crops as a source of revenue for medium farms. Almost three-fourths of the medium size farm operations receive a majority of revenues from livestock sales. However, many of these farms raise their own feed which is marketed through their livestock.

Medium size farms are capital intensive and most operators use debt capital. A typical medium size farm operation controls \$400,000 to \$1,000,000 of assets and uses \$75,000 to \$250,000 of debt capital. The amount of debt varies greatly by age of operator, tenure class, amount of assets owned and other factors.

#### Small farms (\$10,000 to \$40,000 of sales)

Small farms are still the most numerous farm size class in South Dakota. Their numbers and relative economic importance have been declining. In 1959,



small farms were a majority of South Dakota farms; in 1978 small farms were two-fifths of all farm operations. However, they generated only one-fifth of all agricultural product sales.

In 1978, small farms marketed 27 percent of grains, 30 percent of calves, 15 to 22 percent of dairy products, hogs and sheep and 6 to 7 percent of poultry and fed cattle. Crop sales represent a higher proportion of sales to the small farms than to medium and large farm operations. Two-fifths of these farms obtain a majority of their sales receipts from crops. Production expenses also are concentrated among crop-related inputs--fertilizer, chemicals, petroleum products, seed and machine hire.

One-fifth of small farms are greater than 1,000 acres in size. The remaining smaller farms are evenly divided among those that are less than 260 acres, 260 to 499 acres and 500 to 999 acres in size. Approximately two-fifths of farm operators are part-owners, two-fifths are full-owners and one-fifth are tenants. Part ownership of farm real estate operated is much less common among small farms than medium and large farm operations.

Small farms have a higher percentage of young farmers, but a much higher percentage of senior farm operators than is the case for medium and large farms--42 percent are senior farmers, 36 percent are middle age, and 22 percent are under 35 years of age. This age distribution of farm operators probably explains the higher proportion of full owners in the land tenure patterns of small farms. Senior farmers would more likely be full-owners while young farmers would tend to be tenants or part owners.

Most operators of small farms are primarily employed on their farms, only one-eighth of these operators are employed in a full-time off-farm job. However a higher percentage of spouses are likely employed in off-farm jobs. Off-farm income is the major net income source for many families, but net farm income usually exceeds off-farm income for the entire group.



A much lower proportion of small farm operators are indebted than is the case for large and medium size farm operators. Again, the age profile may partly explain the difference because the senior farmers represent a higher proportion of operators in this group and they tend to have lower debt levels.

Small farms, as recently as 1960, were the mainstay of traditional agriculture in South Dakota. They represented a majority of all farms and nearly three-fifths of small farm operators were middle aged. Most small farms had several crop and livestock enterprises and the farm generated almost all of the net income for the family.

Today's small farms have many of the same characteristics as small farms 20 years ago but one major factor has changed--middle age small farm operators are declining at a very rapid rate compared to young and senior farm operators. The number of middle-age small farm operators is 35 percent of their numbers 20 years ago. The number of senior farmers has actually increased in this size group while young farmers are 60 percent of their former numbers.

Increasingly small farms represent a place to get started or a place to live and work in one's senior or retirement years. The small farm size no longer is well suited for most middle-age operators whose families rely on the farm for most of their income. Economic studies by types of farms indicate that sales volumes generated by medium size farms are needed to achieve most production economies of size. Second, most small farms do not generate sufficient net incomes for what many consider to be acceptable levels of family living. Third, many of these farms have sufficient activities to prevent most farm operators from working full time in an off-farm job. Increasingly farmers in this group are faced with four options:



- Expand to a larger farm size, usually by borrowing more money;
- Reduce the scope of farm operations and obtain greater amounts of off-farm income;
- Remain the same relative size and accept lower returns; or
- Leave farming.

Very small farms (sales of less than \$10,000)

Very small farms have nearly stabilized in farm numbers. These 9,300 farms are nearly one-fourth of all South Dakota farms but generate only 2.3 percent of agricultural product sales volume. Farm operators in this group control about 5 percent of land in farms and cropland harvested. Their farms generate only 1 to 6 percent of livestock and crop sales depending on enterprise and purchase 2 to 6 percent of farm inputs, depending on the item. By most standards, these farms are not economically viable units and cannot generate adequate net farm incomes for family living expenses. Yet, these farm operators are indirectly very important to the economic and social fabric of rural communities in South Dakota. Furthermore, their numbers appear to be stabilizing unlike their small farm operator counterparts.

Over three-fourths of very small farms operate less than 260 acres and very few exceed 500 acres. Two-thirds of these operators own all of the land that they farm. Another one-fifth rent all land farmed while one in seven combines owned and rented land in their farm operations.

The age distribution of these farm operators are similar to small farm operators--over two-fifths are senior farm operators, one-third are middle-age farmer operators and one-fourth are young farmers. Three of eight farm operators are employed full-time in off-farm jobs. Many families in this size group are two wage-earner families while most other families have one off-farm wage earner or rely on retirement income as a major source of family income.



However, a minority (actual magnitude is not known) rely on net farm income as their major source of family income.

It is likely that less than one-half of these farm operators are indebted for farm operating or capital expenditures. A typical indebted farm operator in this size group would control \$100,000 to \$200,000 of assets and have farm business debts of less than \$40,000.

Most operators of very small farms are in good financial shape and are able to enjoy a modest rural-oriented lifestyle. For most families the majority of current income originates from off-farm employment, or from past investments, social security and other retirement programs.

Rural residents engaging in some farming activity may accurately describe most families living on very small farms in South Dakota today. These farmers are important to continued viability of many rural communities, but their continued existence depends as much on retirement benefits and economic conditions of businesses in rural communities as on direct receipts from farming. In a sense, these farmers remain dependent on the rural economy but their major source of family earnings is indirectly channeled through payrolls of businesses located in South Dakota communities.



## IMPLICATIONS OF THE STRUCTURAL TRENDS

Several trends affecting South Dakota agriculture during the past 20 to 30 years have been reviewed. In general, these trends raise several implications for (1) how we view "family farms", (2) potential for young people to enter farming, (3) the future economic organization of food production and marketing, (4) the politics of agriculture and future of farm programs, and (5) economic adjustment in South Dakota rural communities and the state's economy.

### Family farm concepts

What we call family farms has dramatically changed over the years. There is no question that our urban society has held the concept of a pastoral family farm in high esteem, partly because many may have grown up on small farms or had parents who did. The pastoral family farm is conceptualized as a small, independent, diversified, self-sufficient, family operated unit that provides most of the family's material needs.

The structural trends reviewed indicate that pastoral family farms are largely gone except as hobby farms or as 4-H projects. They are no longer efficient and do not produce what most farm families would consider to be acceptable income levels.

The pastoral family farms have been replaced by fewer modern commercial family farms and many other low resource farmers. Commercial family farms produce about 78 percent of agricultural products in South Dakota but account for about 36 percent of the farm units. The small and very small low-resource farms include more than 64 percent of the farm units but account for only 22 percent of the farm output. These farms include many retirees, hobby farms, young part-time farmers and low resource full-time farmers.



The modern commercial family farms that produce most of our food are anything but self-sufficient, diversified, or independent. Most do not own all of the land that they farm. Financially, they have relied more heavily on borrowed funds particularly for short term operating capital. This adds debt service to the cost of production and increases vulnerability to higher interest rates resulting from tight monetary policies. They rely on international markets that are subject to shifts in foreign policy and world weather conditions; they are more specialized and concentrated into capital intensive enterprises; plus they operate on narrower profit margins; all of which tend to magnify the impact of adverse commodity prices. Finally, they have become more sophisticated and profit oriented in their marketing and management concepts as signified by increasing size of operations and the use of incorporation on many larger family operated units. Farming has become big business for many farm families in addition to being a way of life.

#### Implications for young farmers

The average size farm in South Dakota requires more than a half million dollars in assets. A farm with average gross receipts of \$40,000 requires roughly \$250,000 in assets. Therefore, its very difficult to start farming on your own unless you inherit a farm or marry someone who owns a farm. However, many young farmers have been able to work within and gradually assume management of a continuing family operation or neighboring farm. Increased incorporation reflects an increased interest in intergenerational transfer mechanisms on many of these family oriented farm units.

The contemporary farm income trends indicate increased variability during the 1970's compared to the 1950's and 60's. If these trends continue, farm income will be characterized by a few exceptionally good years preceeded and followed by several poor years in a row. Therefore, initial success in



farming, or lack thereof, may simply be attributed to one's timing in entering this profession. The past three years have not been particularly favorable income years for those who entered farming on a highly leveraged basis. However, those who consider farm entry close to the end of the current recession in agriculture (whenever that might be), are more likely to realize opportunities to increase income from improved commodity prices, to finance debt at lower real interest rates, and to buy equipment and maybe even land at lower prices.

#### The market structure problem

The structural trends indicate that concentration and specialization, particularly in livestock production, have continued. For example, the largest 100 poultry farms in South Dakota account for 3 percent of all farms with poultry but average over \$200,000 in gross sales per farm and account for 85 percent of poultry products sold in the state. As agricultural production becomes more concentrated among fewer producers, economic feasibility of direct coordination between processors and large producers increases relative to the traditional indirect coordination system embodied in a regional open market. All large poultry producers are either under contract or are integrated with a processor-distributor. There is no open market alternative available. Therefore, the future control of the key production decisions may likely be vested in those who control farm markets.

Farmers are faced with four basic market structure options:

- (1) Organize to increase direct coordination between processors and groups of farmers. Examples include cooperatives, marketing associations, and collective bargaining units;
- (2) Integrate to increase direct coordination between processors and individual farmers by direct contracts, joint ventures or by employer-employee relationships;



- (3) Revive the Open Markets: Legally require that a percent of production be sold on the open market or make open marketing more efficient through electronic communication and other means; and
- (4) Government marketing of farm products by a government agency or commission that determines allocation and price of farm commodities and food.

Although currently a mixture of market structure options exist, it is important to understand that as individual farmers integrate with food processing firms, the potential viability of the remaining options is reduced. Thus, the decision will likely become irreversible at some future date.

#### Implications for farm and food policy

Declining farm numbers mean declining farm votes. The farm population represents less than 20 percent of the total population in South Dakota and less than 3 percent nationally. In one sense farmers are in a 97 to 3 ball game politically.

For the past century, a political coalition known as the "Farm Bloc" controlled the agricultural agenda of Congress and set farm policy. The Farm Bloc primarily included many midwestern congressmen and southern democrats who represented agricultural states that were interested in commodity prices and farm income.

Reapportionment has shifted many seats in the U.S. House of Representatives from agricultural states like South Dakota to more urban areas. Most farm senators now represent large urban areas in addition to rural constituents. So, Congress will become more urban as farm numbers decline. The last farm bill, known as The Agriculture and Food Act of 1981, passed the House of Representatives by two votes. Those left in the old Farm Bloc in the newly reapportioned Congress will be forced to develop new coalitions in order to be politically successful on such farm legislation in the future.



Farm commodity programs have primarily influenced incomes of moderate and large farm producers because payments have been distributed based on volume of production. Due to lack of volume, small farm producers have not received most benefits of farm commodity programs. As fewer farmers produce more of our food, consumer and urban interests are faced with a new dilemma. Some will ask, "Why should we have any farm price and income supports since food production has become big business and we do not need more tax dollars to support big business?" Others who want to "protect" the nation's food supply from too much instability, will suggest that program benefits should be channeled to the few largest commercial farms that produce most of the nation's food. Those who wish to protect small and medium size family farm systems may focus on credit, tax and commodity legislation and propose "targeting" program benefits to these producers. This direction would require substantial public policy changes. As a result, current type of farm programs are very much in doubt as future agricultural policy.

#### Implications for rural communities and the South Dakota economy

As farm numbers continue to decline and as their financial position becomes more vulnerable to economic conditions beyond the farm gate, how should rural communities, which are largely dependent on agricultural commerce, adjust economically? A certain number of customers is required for a business to survive. Many rural communities will be faced with increasing prices or declining local services as their customer population shrinks and as farm income becomes more variable. This, in turn will increase the cost of living for all remaining residents and the cost of production for remaining local farmers.

Rural communities faced with this problem have four basic options:

- (1) Decline economically as the population base declines;



- (2) Attract a larger proportion of local residents to trade locally;
- (3) Expand the trade area by providing services to surrounding communities to off-set declining farm numbers; and
- (4) Develop alternative manufacturing or production sectors which do not depend upon the number of farm operators in the local area.

The latter three options require some investment of time and money. So, the solution selected will vary depending on the resources, opportunities, leadership, and values of each individual community.

The South Dakota economy faces much of the same dilemma as the rural communities. The state's economic performance will continue to be heavily influenced by the agricultural sector. As farm income becomes more vulnerable to economic conditions outside of the state and nation so does the state's total economic activity. Alternative employment opportunities in manufacturing, processing, and services provide diversification in sources of income for many farm families, but also for the state's economy as a whole. In addition, the net outmigration of young people who do not enter farming would likely be slowed by additional competitive employment alternatives.

#### Concluding observations

In summary, we have reviewed several structural trends and implications of these trends for South Dakota agriculture. The overall trend has been decreased farm numbers and increased farm size whether measured in acres or sales volume. Within this setting have been related trends in land ownership and tenure, business organization, enterprise specialization and concentration, farm finance and income, and off-farm employment. The implications suggest a more technical and sophisticated family farm unit exists today than in the past, but one that is more economically vulnerable to changing conditions



in markets and finance. Young entrants will continue to have a tough go in farming particularly without support of an established operation. The structural trends are likely to lead to changes in commodity market structure and in the politics of farm and food policy. In turn, rural communities and the South Dakota economy will continue to be more vulnerable than in other states to international conditions and farm policy decisions that affect the South Dakota farm economy.



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