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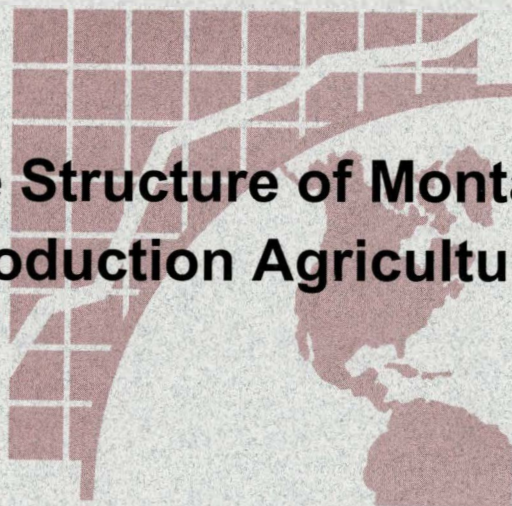
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Montana State University
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Objective Analysis
for Informed
Decision Making

The Structure of Montana Production Agriculture



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James B. Johnson
and
Gary W. Brester

Policy Issues Paper No. 13

May 2001

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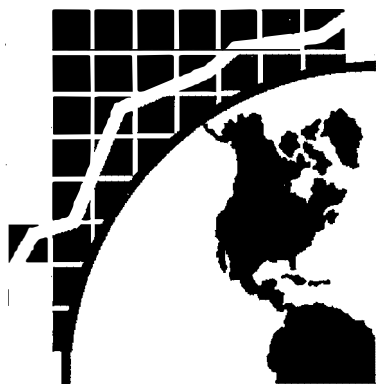
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The Structure of Montana Production Agriculture

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Montana State University—Bozeman

Policy Issues Paper No. 13
May 2001



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S U M M A R Y

The Structure of Montana Production Agriculture

by James B. Johnson and Gary W. Brester

Policy Issues Paper No. 13

The total number of Montana farms and ranches has remained relatively stable at approximately 24,000 during the 15-year period from 1982 to 1997. Farms and ranches have varied in average size from 2,400 to 2,600 acres during this period.

The structure of production agriculture can be characterized in several ways. In this paper, Census of Agriculture data are used to classify farms and ranches by acreage, value of sales categories, types of business organization, and particular definitions of "family farms" and "small family farms."

The concentration of sales in the Montana agricultural production sector continued over the 1982-to-1997 period. Some 5,357 farms and ranches, each with sales of \$100,000 or more, accounted for 77 percent of the total value of sales in 1997. In 1982 the 4,244 farms and ranches with sales of \$100,000 or more accounted for about 68 percent of the total value of Montana agricultural sales.

The number of Montana farms and ranches with greater than 1,000 acres has remained relatively constant over the 15-year period from 1982 to 1997. The 10,500 farms and ranches of this size accounted for about 80 percent of the total value of Montana's agricultural sales in 1997.

An estimated 18 percent of Montana's farms and ranches had less than 50 acres of land in 1997. These 4,400 farms and ranches accounted for 2 to 3 percent of the total annual value of Montana agricultural sales.

In 1997 an estimated 22 percent of Montana's farms and ranches had annual value of sales of more than \$100,000 sales from these farms and ranches accounted for about 77 percent of the total value of Montana's agricultural sales. The number of Montana farms and ranches with sales in excess of \$100,000 increased from 4,240 farms and ranches in 1982 (with nearly 68 percent share of total sales) to nearly 5,400 farms and ranches in 1997. A considerable portion of the increase in the share of total sales and increased farm and ranch numbers in the higher value of sales categories is attributable to price inflation over the 15-year period, as Census of Agriculture sales data are reported in nominal dollars.

The number of farms and ranches with sales over \$250,000 increased by 75 percent from 1982 to 1997 (from 978 to 1,661) and accounted for just

over 46 percent of the total values of Montana agricultural sales in 1997. In 1997 an estimated 38 percent of Montana's farms and ranches had sales of less than \$10,000. These farms accounted for only 1.5 percent of all agricultural sales.

Sales of agricultural products constituted 89 percent of the total agricultural revenues received by Montana farms and ranches in 1997. Government payments to agriculture and other farm-related income constituted 8.4 and 2.6 percent of total agricultural revenues, respectively.

In 1997 just over 77 percent of Montana farms and ranches were sole proprietorships with an additional 8.5 percent of Montana farms and ranches having a partnership form of business organization. An estimated 12 percent of the farms and ranches were family-held corporations. Just less than 2 percent of Montana's farms and ranches are not family-owned businesses.

There are administrative, bureaucratic, and political reasons to address the changing structure of production agriculture in the United States. In 1998 a report issued by the National Commission on Small Farms, *A Time to Act*, defined small farms as "farms with less than \$250,000 gross receipts annually on which day-to-day labor and management are provided by the farmer and/or the farm family that owns the production or owns, or leases, the productive assets." In the same year, the Economic Research Service, a USDA agency, put forth the following definition of a family farm: "Family farms are those organized as proprietorships, partnerships, and family corporations. Family farms are closely held (legally controlled) by their operator or the operator's household."

Under these definitions an estimated 98 percent, or 23,814, of Montana's 24,279 farms and ranches were family farms in 1997. Furthermore, 22,195, or 91 percent, of Montana's farms and ranches fit the definition of small family farms. Family farms accounted for nearly 97 percent of agricultural sales in Montana in 1997.

In 1997, 3,532 farms and ranches, 25 percent of the Montana farms and ranches selling cattle and calves, accounted for 75 percent of the total value of cattle and calves sold in the state. An estimated 3,722 farms and ranches, 41 percent of the Montana farm and ranches selling grain, accounted for 75 percent of the total value of grains marketed. An estimated 142 operations, 24 percent of the farms and ranches selling hogs, accounted for 75 percent of the value of hogs and pigs marketed in 1997. An estimated 443 farms and ranches, 22 percent of the farm and ranches marketing sheep, lamb, and wool, accounted for 75 percent of the total value of sheep, lamb, and wool sales in Montana during 1997.



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The Structure of Montana Production Agriculture

Policy Issues Paper No. 13

Introduction

The Montana agriculture production subsector is becoming characterized by larger farms and ranches that are increasingly accounting for a greater portion of the total value of agricultural sales. This paper provides a discussion of the changes in the structure of Montana's agricultural production subsector over the 15-year period from 1982 to 1997 based on an interpretation of Census of Agriculture data. Readers are advised that census data are generally not suitable for the types of statistical analyses necessary for hypothesis testing. But probable explanations for shifts in the structural characteristics of the agricultural production subsector are offered. The probable explanations are based on other information beyond Census of Agriculture data that was available to the authors.

The number of farms and ranches was relatively stable between 1982 and 1997.

Farm and Ranch Numbers and Distribution by Size

The number of farms and ranches in Montana was relatively stable between 1982 and 1997, remaining near 24,000 farms (Table 1). There was a small increase in farm and ranch numbers between 1982 and 1987, partly attributable to the United States Department of Agriculture respecifying payment limitations per operation for commodity programs such as those for wheat and barley. This is thought to have caused the redefinitions of some farms, which led to an increase in overall farm numbers. Additionally, there was some increase in farm and ranch numbers attributable to the fragmentation of agricultural properties near larger towns in central and western Montana. The decline in farm and ranch numbers between 1987 and 1992 was partly attributable to a Census of Agriculture reporting convention that did not consider whole-farm participants in the Conservation Reserve Program (CRP) as farms. That is, if a farm had all of its cropland enrolled in CRP and had no other farmland, then it was not considered a farm. In 1997 such operations were reclassified as farms, which partly accounts for the increase in farm and ranch numbers between 1992 and 1997.

Table 1. Number and Average Size of Montana Farms and Ranches

Characteristic	1982	1987	1992	1997
Number of Farms and Ranches	23,570	24,568	22,821	24,279
Average Size (Farmland Acres)	2,568	2,451	2,613	2,414

The average Montana farm and ranch size during the 15-year period from 1982 to 1997 has been relatively stable, ranging between 2,400 and 2,600 farmland acres. The distribution of farm and ranch numbers by size, measured in farmland acres, has been relatively stable for farms and ranches in the larger size categories over the 15-year period (Table 2). Around 55 percent of the farms and ranches had 500 or more acres during this period. Over this period, there was an increase in the farm and ranch numbers in those categories of 10 to 499 farmland acres. There is no apparent trend toward fewer but larger farms and ranches in Montana when measured in farmland acres. However, there has been fragmentation of farms and ranches located near Montana's larger towns. This is reflected in the larger number of farms and ranches in recent years in the 10 to 49, 50 to 179, and 180 to 499 farmland area categories.

Table 2. Number and Percent of Montana Farms and Ranches by Farmland Categories, 1982 to 1997

Farms and Ranches (Farmland Acre Categories)	Census Year			
	1982	1987	1992	1997
----- Number of Farms and Ranches -----				
1 to 9	1,551	1,940	1,209	898
10 to 49	2,673	2,745	2,804	3,570
50 to 179	3,080	3,019	3,061	3,575
180 to 499	3,097	3,315	2,964	3,372
500 to 999	2,640	2,737	2,521	2,675
1000 to 1,999	3,345	3,460	3,040	3,127
2,000 or more	7,184	7,352	7,222	7,062
TOTAL	23,570	24,568	22,821	24,279
----- Percent of Farms and Ranches (%) -----				
1 to 9	6.6	7.9	5.3	3.7
10 to 49	11.3	11.2	12.3	14.7
50 to 179	13.1	12.3	13.4	14.7
180 to 499	13.1	13.5	13.0	13.9
500 to 999	11.2	11.1	11.1	11.0
1,000 to 1,999	14.2	14.1	13.3	12.9
2,000 or more	30.5	29.9	31.6	29.1
TOTAL	100.0	100.0	100.0	100.0

In 1997 farms and ranches with 1,000 or more farmland acres accounted for about 80 percent of the market value of agricultural sales (Table 3). From 1982 to 1997, there was only a slight change in the distribution of the market value of agricultural sales by farm and ranch size categories.

Table 3. Market Value of Agricultural Sales, by Size of Farm and Ranch Categories, 1982 to 1997

Farm and Ranch Size (Farmland Acre Categories)	Census Year			
	1982	1987	1992	1997
----- Market Value (\$1,000) -----				
1 to 9	20,855	31,476	27,939	17,722
10 to 49	22,866	21,310	20,434	26,669
50 to 179	56,952	58,155	59,613	60,592
180 to 499	115,077	130,295	114,251	120,081
500 to 999	120,824	141,948	148,298	145,621
1,000 to 1,999	198,398	193,762	206,316	226,665
2,000 or more	1,001,530	968,340	1,153,386	1,273,383
TOTAL*	1,536,503	1,547,286	1,730,237	1,870,733
----- Percent of Market Value (%) -----				
1 to 9	1.4	2.0	1.6	1.0
10 to 49	1.5	1.4	1.2	1.4
50 to 179	3.7	3.8	3.4	3.2
180 to 499	7.5	8.4	6.6	6.4
500 to 999	7.9	9.2	8.6	7.8
1,000 to 1,999	12.9	12.5	11.9	12.1
2,000 or more	65.1	62.7	66.7	68.1
TOTAL	100.0	100.0	100.0	100.0

*All sales values are in nominal dollars.

Farms and ranches with 1,000 or more farmland acres account for about 80 percent of the market value of agricultural sales.

The largest portion of gross farm and ranch income accruing to farm and ranch operators measured by the Census of Agriculture is market value of crop and livestock sales. Other sources of farm and ranch income are government payments and other farm-related income. Other farm-related income includes receipts from custom work, gross rent from crop and range lands, the sale of forest products, and miscellaneous sources, such as patronage dividends from cooperatives and receipts from recreation services (Table 4). In 1997 an estimated 89 percent of farm and ranch income received by farm and ranch operators was from the market value of sales. The market value of sales and government payments to farms and ranches was concentrated in those operations with 1,000 or more farmland acres. Also, over 65 percent of the other farm-related income accrued to farm and ranch operations with 1,000 or more acres of cropland.

Table 4. Total Market Value of Sales, Government Payments, and Other Farm-Related Income by Size of Farm and Ranch Categories, 1997

Farm and Ranch Size (Farmland Acre Categories)	Market Value of Sales		Government Payments		Other Farm-Related Income	
	(\$1,000)	Percent of Total (%)	(\$1,000)	Percent of Total (%)	(\$1,000)	Percent of Total (%)
1 to 9	17,722	1.0	159	0.1	454	0.8
10 to 49	26,669	1.4	421	0.2	2,252	4.2
50 to 179	60,592	3.2	1,930	1.1	3,726	6.9
180 to 499	120,081	6.4	7,388	4.2	6,542	12.1
500 to 999	145,621	7.8	16,236	9.2	5,793	10.7
1,000 to 1,999	226,665	12.1	33,126	18.7	7,542	13.9
2,000 and more	1,273,383	68.1	117,878	66.5	27,795	51.4
TOTAL	1,870,733	100.0	177,138	100.0	54,104	100.0

Farms and Ranches by Market Value of Sales Categories

The largest portion of gross farm and ranch income measured by the Census of Agriculture is the market value of sales. Over the 15-year period from 1982 to 1997, the total annual market value of sales from Montana farms and ranches has ranged from approximately \$1.5 to \$1.9 billion, in nominal dollars.

In 1997 an estimated 77 percent of the total value of sales originated from farms and ranches with \$100,000 or more in sales. From 1985 to 1997 the proportion of total sales represented by farms and ranches with \$100,000 or more in sales increased from about 68 to just over 77 percent. Over time, the value of agricultural sales is increasingly becoming concentrated in the larger sales categories (Table 5).

In 1997 an estimated 77 percent of the market value of sales originated from farms and ranches with \$100,000 or more in sales.

Table 5. Market Value of Agricultural Sales and Percent of Total Sales by Value of Sales Categories, 1982 to 1997

Value of Sales Categories	Census Year			
	1982	1987	1992	1997
----- Market Value (\$1,000) -----				
Less than \$2,500	3,681	3,756	3,217	3,441
\$2,500 to 4,999	6,474	7,248	6,397	7,284
\$5,000 to 9,999	16,506	17,167	15,397	16,568
\$10,000 to 24,999	61,398	64,842	56,448	55,965
\$25,000 to 49,999	130,517	133,669	110,688	102,814
\$50,000 to 99,999	281,273	291,553	252,596	240,368
\$100,000 to 249,999	489,191	489,326	541,038	576,605
\$250,000 to 499,999	238,844	232,976	327,932	394,603
\$500,000 or more	308,619	306,749	416,524	473,085
TOTAL	1,536,503	1,547,286	1,730,237	1,870,733
----- Percent of Market Value (%) -----				
Less than \$2,500	0.2	0.2	0.2	0.2
\$2,500 to 4,999	0.4	0.5	0.3	0.4
\$5,000 to 9,999	1.1	1.1	0.9	0.9
\$10,000 to 24,999	4.0	4.2	3.3	3.0
\$25,000 to 49,999	8.5	8.6	6.4	5.5
\$50,000 to 99,999	18.3	18.9	14.6	12.9
\$100,000 to 249,999	31.8	31.6	31.3	30.8
\$250,000 to 499,999	15.6	15.1	18.9	21.1
\$500,000 or more	20.1	19.8	24.1	25.2
TOTAL	100.0	100.0	100.0	100.0

5,357 Montana farms and ranches accounted for 77 percent of the total value of agricultural sales in 1997.

The number of farms that have less than \$10,000 in annual sales has fluctuated over the 15-year period (Table 6). These farms and ranches constituted more than 38 percent of all Montana agricultural operations in 1997 but accounted for less than 2 percent of the 1997 total value of sales from Montana farms and ranches.

Table 6. Number and Percentage of Montana Farms and Ranches by Value of Sales Categories, 1982 to 1997

Value of Sales Categories	Census Year			
	1982	1987	1992	1997
----- Number of Farms and Ranches -----				
Less than \$2,500	3,914	4,320	4,073	4,996
\$2,500 to 4,999	1,795	2,006	1,764	2,024
\$5,000 to 9,999	2,295	2,374	2,131	2,308
\$10,000 to 24,999	3,703	3,912	3,413	3,415
\$25,000 to 49,999	3,592	3,695	3,051	2,839
\$50,000 to 99,999	3,928	4,064	3,528	3,340
\$100,000 to 249,999	3,266	3,253	3,511	3,696
\$250,000 to 499,999	715	692	981	1,182
\$500,000 or more	263	252	369	479
TOTAL	23,471	24,568	22,821	24,279
----- Percent of Farms and Ranches (%) -----				
Less than \$2,500	16.7	17.6	17.8	20.6
\$2,500 to 4,999	7.7	8.2	7.7	8.3
\$5,000 to 9,999	9.8	9.7	9.3	9.5
\$10,000 to 24,999	15.8	15.9	15.0	14.1
\$25,000 to 49,999	15.3	15.0	13.4	11.7
\$50,000 to 99,999	16.6	16.5	15.5	13.7
\$100,000 to 249,999	13.9	13.2	15.3	15.2
\$250,000 to 499,999	3.1	2.9	4.4	4.9
\$500,000 or more	1.1	1.0	1.6	2.0
TOTAL	100.0	100.0	100.0	100.0

The number and percentage of farms and ranches with a value of sales of \$100,000 or more have increased from 1982 to 1997. In 1997 an estimated 22 percent of Montana's 24,279 farms and ranches had sales of \$100,000 or more. These 5,357 farms accounted for 77 percent of the total value of agricultural sales in Montana in 1997 (Tables 5, 6). Of these farms, 87 percent were farms and ranches with 1,000 or more farmland acres (Table 7).

Table 7. Number and Percentage of Farms and Ranches by Farm and Ranch Categories, by Market Value of Sales Categories, 1997

Farm and Ranch Size (Farmland Acre Categories)	Market Value of Sales Categories (\$)								
	Less than \$2,500	\$2,500 to 4,999	\$5,000 to 9,999	\$10,000 to 24,999	\$25,000 to 49,999	\$50,000 to 99,999	\$100,000 to 249,999	\$250,000 to 449,999	More than \$500,000
----- Number of Farms and Ranches -----									
1 to 9	459	151	100	70	37	34	35	7	5
10 to 49	1,891	754	500	290	76	24	22	6	7
50 to 179	992	638	786	781	248	71	37	17	5
180 to 499	704	271	459	884	513	312	173	37	19
500 to 999	436	108	229	613	578	371	239	65	36
1,000 to 1,999	310	63	139	474	702	822	511	69	37
2,000 or more	204	39	95	303	685	1,706	2,679	981	370
TOTAL	4,996	2,024	2,308	3,415	2,839	3,340	3,696	1,182	479
----- Percent of Farms and Ranches (%) -----									
1 to 9	9.2	7.5	4.3	2.0	1.3	1.0	0.9	0.5	1.0
10 to 49	37.8	37.3	21.7	8.5	2.7	0.7	0.5	0.5	1.5
50 to 179	19.9	31.5	34.1	22.9	8.7	2.1	1.0	1.4	1.0
180 to 499	14.1	13.4	19.9	25.9	18.1	9.4	4.7	3.1	4.0
500 to 999	8.7	5.3	9.9	18.0	20.4	11.1	6.5	5.5	7.5
1,000 to 1,999	6.2	3.1	6.0	13.9	24.7	24.6	13.8	5.8	7.7
2,000 or more	4.1	1.9	4.1	8.8	24.1	51.1	72.6	83.2	77.3
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

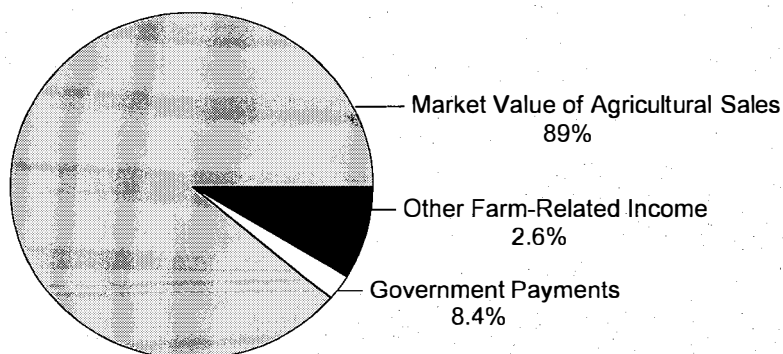
In 1997 the market value of agricultural sales were nearly evenly distributed between crop and livestock commodities.

To summarize, farms and ranches with 1997 value of sales of \$10,000 or less constituted 38 percent of all Montana farms and ranches but accounted for only 2 percent of the total value of sales. In the same year, 5,357 Montana farms and ranches with value of sales of \$100,000 or more accounted for 77 percent of the total market value of agricultural sales. During the 15-year period from 1982 to 1997, the proportion of the total value of agricultural sales in Montana marketed by farms and ranches with \$100,000 or more in annual sales increased from about 68 percent to just over 77 percent of the total market value of sales.

Government Payments and Other Farm-Related Income by Market Value of Sales Categories

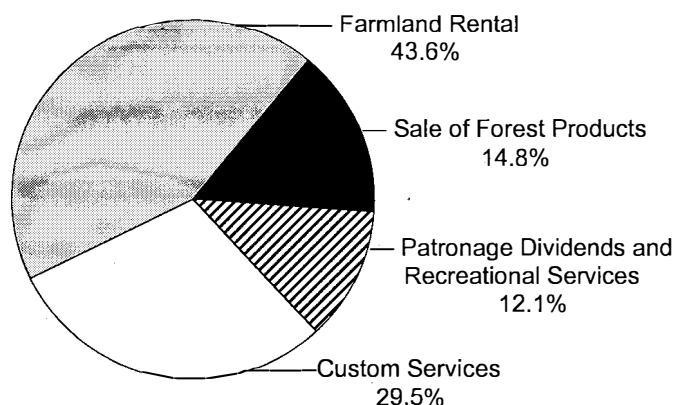
The market value of sales of agricultural products in 1997 was estimated to be \$1,870,733,000. Government payments to farm and ranch operators in that year were \$177,138,000. Other sources of farm-related income totaled \$54,104,000. The market value of sales dominated total agricultural income in 1997 (Figure 1).

Figure 1. Sources of Montana Farm and Ranch Income, 1997



In 1997 like many other years, the market value of Montana agricultural sales were nearly evenly distributed between crop and livestock commodities. Government payments included market transition payments for crops such as wheat and barley and conservation payments such as those paid to farm and ranch operators holding contracts in the Conservation Reserve Program. Other farm-related income originated from custom work, farmland rental, sales of forest products, and miscellaneous sources including patronage dividend from cooperatives and proceeds from farm and ranch recreational services. The largest portion of farm-related income is from farmland rental (Figure 2).

Figure 2. Sources of Other Farm-Related Income, 1997



Similar to the sale of agricultural products, government payments are concentrated in the upper sales categories. In 1997, 51 percent of government payments were paid to the 22 percent of all farms with sales of \$100,000 or more (Table 8).

Table 8. Government Payments and Other Farm-Related Income by Value of Sales Categories, 1997

Value of Sales Categories	Government Payments		Other Income	
	(\$1,000)	Percent of Total (%)	(\$1,000)	Percent of Total (%)
Less than \$2,500	25,411	14.3	9,025	16.7
\$2,500 to 4,999	2,188	1.2	1,600	2.9
\$5,000 to 9,999	4,367	2.4	1,944	3.7
\$10,000 to 24,999	11,268	6.4	5,178	9.6
\$25,000 to 49,999	15,941	8.9	4,942	9.1
\$50,000 to 99,999	27,634	15.6	6,466	11.9
\$100,000 to 249,999	52,160	29.4	14,183	26.2
\$250,000 to 499,999	25,606	14.5	6,049	11.2
\$500,000 or more	12,563	7.3	4,717	8.7
TOTAL	177,138	100.0	54,104	100.0

Likewise, 46 percent of other farm-related income was received by the 22 percent of all farms with sales of \$100,000 or more. Although concentrated in the larger value of sales categories, government payments and other farm-related income are not as concentrated as the value of sales. Less concentration of government and other farm-related income in the upper sales categories appears largely attributable to land rental payments accumulating to operations classified as farms. These farms have most or all of their cropland in CRP or most of their farmland rented to other farms and ranches. An estimated 14 percent of total government payments were received by farm

Farming was the principal occupation of 65 percent of all farms and ranch operations in 1997.

and ranch managers reporting less than \$2,500 in sales. Likewise, nearly 17 percent of other farm-related income accrued to farms and ranches in that sales category. This probably reflects the fact that many of these farms and ranches were receiving payments for farmland rented to other farms and ranches.

Non-Agricultural Sources of Farm and Ranch Family Income

Farm and ranch operators are not asked by the Census of Agriculture about non-agricultural sources of family income. But operators were asked to classify themselves by principal occupation. They were asked, "At which occupation did the farm (or ranch) operator spend the majority (50 percent or more) of his/her worktime in 1997?" If they indicated that 50 percent or more of their worktime was spent farming, their occupation was designated "farming." All other responses were designated as "other."

An estimated 65 percent of all operations considered farms (or ranches) by Census of Agriculture definitions were managed by operators who considered farming to be their principal occupation (Table 9).

Table 9. Farms by Principal Occupation and Value of Sales Categories, 1997

Value of Agricultural Sales	Principal Occupation			Percent with Farming as Principal Occupation
	Farming	Other	Total	
Less than \$2,500	1,493	3,503	4,996	29.8
\$2,500 to 4,999	754	1,270	2,024	37.2
\$5,000 to 9,999	1,092	1,206	2,308	47.3
\$10,000 to 24,999	2,071	1,344	3,415	60.6
\$25,000 to 49,999	2,203	636	2,839	77.6
\$50,000 to 99,999	2,987	353	3,340	89.2
\$100,000 to 249,999	3,519	177	3,696	95.2
\$250,000 to 499,999	1,132	50	1,182	95.7
\$500,000 or more	452	27	479	94.4
TOTAL	15,703	8,576	24,279	64.7

The proportion of operators who considered something other than farming as their principal occupation increased as the value of agricultural sales decreased. Operators with levels of income from sales in the less than \$2,500, \$2,500 to \$4,999, and \$5,000 to \$9,999 values of sales categories were more likely to devote 50 percent or more of their worktime to some other occupation. Family income for these operators was likely to be the combination of some net farm income and income from non-farm sources. Ninety-three percent of the operators with annual market value of sales of \$50,000 or more considered farming to be their principal occupation. The family incomes of these operators were likely largely derived from agricultural sales, government payments, and other farm-related income.

Nearly 65 percent of the operators who denoted an occupation other than farming indicated that they worked off their farms and ranches more than 200 days per year (Table 10). This would suggest that a substantial portion of their family incomes was derived from their non-farm occupations. In contrast, only about 5 percent of those who considered farming as their principal occupation worked off their farms and ranches more than 200 days per year. Their off-farm income from employment likely does not contribute substantially to their total family income.

Table 10. Principal Occupation of Farm and Ranch Operators by Number of Days Worked Off-Farm, 1997

Days Worked Off Farm or Ranch	Principal Occupation			
	Farming		Other	
	Number of Operators	Percent of Operators	Number of Operators	Percent of Operators
None	10,052	64.0	1,268	14.8
1 to 99	2,311	14.7	549	6.4
100 to 199	887	5.7	1,211	14.1
200 or more	774	4.9	5,548	64.7
Not reported	1,679	10.7	0	0.0
TOTAL	15,703	100.0	8,576	100.0

Nearly 65 percent of the farm and ranch operators with a principal occupation other than farming worked off the farm or ranch 200 or more days in 1997.

Summary of Sources of Income by Value of Sales Categories

In 1997 agricultural sales were concentrated on farms and ranches with annual sales of \$100,000 or more (Table 11). Likewise, the majority of government payments accrue to farms and ranches with this level of sales. Most of the operators of farms and ranches in these larger sales categories considered farming to be their principal occupation.

Farms and ranches with value of sales less than \$10,000 received less than 2 percent of total agricultural sales in 1997. However, these farm and ranch operators received about 18 percent of the government payments to agriculture and more than 22 percent of other farm-related income. Probably most of the government payments were CRP payments, and much of the other farm-related income was rent from farmland leased to others. Many of the operators on farms in the lower sales categories considered their principal occupation to be something other than farming.

About 21 percent of total sales of agricultural products accrued to farms and ranches with annual sales between \$10,000 and \$100,000 in 1997. These farms and ranches also received about 30 percent of both government payments and other farm-related income. About 40 percent of farm and ranch operators in the \$10,000 to \$24,999 sales category were employed in other occupations. In contrast, only 11 percent of the farm and ranch operators in the \$50,000 to \$99,999 sales category were employed in other occupations.

Table 11. Sources of Income for Farms and Ranches by Value of Sales Category Reported as Percentage of the Totals by Income Source and Percent of Producers in Other Occupations, 1997

Value of Sales Categories	Percent of:			
	Market Value of Sales	Government Payments	Other Farm-Related Income	Percent of Operators in Other Occupations
Less than \$2,500	0.2	14.3	16.7	70.2
\$2,500 to 4,999	0.4	1.2	2.9	62.8
\$5,000 to 9,999	0.9	2.4	3.7	52.7
\$10,000 to 24,999	3.0	6.4	9.6	39.4
\$25,000 to 49,999	5.5	8.9	9.1	22.4
\$50,000 to 99,999	12.9	15.6	11.9	10.8
\$100,000 to 249,999	30.8	29.4	26.2	4.8
\$250,000 to 499,999	21.1	14.5	11.2	4.3
\$500,000 or more	25.2	7.3	8.7	5.6
TOTAL	100.0	100.0	100.0	100.0

Farm and Ranch Ownership

Who owns Montana's farms and ranches and what types of business organization do these farms and ranches reflect? In general, families own most of Montana's farms and ranches, through a variety of business organizations including sole proprietorships, partnerships, and family-held corporations.

The types of business organization reported in the Census of Agriculture include the following: (1) individual or family; (2) partnerships; (3) family corporations; (4) non-family corporations; and (5) other. Farms and ranches in the family or individual category are generally sole proprietorships. Partnerships may be between/among family members or between/among non-family members. Some family farm and ranch operations have been organized under a corporate structure for business reasons; corporate structures allow for an orderly intergenerational transfer of assets, reductions in the business liability of individual stockholders, and certain tax advantages. Farms and ranches operated as non-family-held corporations allow unrelated stockholders to participate in farm and ranch ownership, often with hired management and a hired labor force. The "other" category includes institutional farms and ranches, such as experiment farms, and those managed as part of an estate or a trust.

The individual or family (sole proprietorship) form of business organization is the dominant form of organization for Montana farms and ranches (Figure 3). This form is also dominant in all size categories (Table 12). The proportion of farms and ranches with partnerships or closely-held corporate structures increases with farm and ranch size.

Nearly 98 percent of Montana's farms and ranches are family operations.

Figure 3. Proportions of Montana Farms and Ranches by Form of Business Organization, 1997

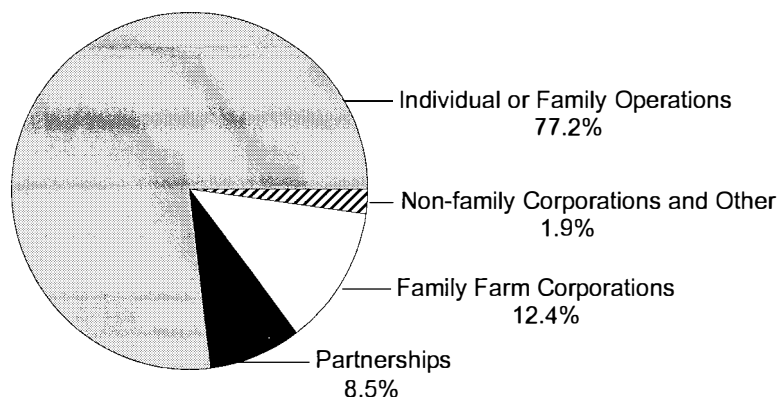


Table 12. Farm and Ranch Numbers and Percentage of Farms and Ranches by Type of Organization and Farm and Ranch Size Categories, 1997

Farm and Ranch Size (Farmland Acre Categories)	Type of Organization							
	Individual Family	Partnership	Family Corporation (stockholders)		Non-Family Corporation (stockholders)		Other	Total
			≤10	>10	≤10	>10		
-----Number of Farms and Ranches-----								
1 to 9	801	45	39	0	5	0	8	898
10 to 49	3,327	127	76	1	10	0	29	3,570
50 to 179	3,190	195	123	2	10	1	54	3,575
180 to 499	2,822	277	207	3	13	1	49	3,372
500 to 999	2,158	255	212	0	11	3	36	2,675
1,000 to 1,999	2,385	277	407	2	17	0	39	3,127
2,000 or more	4,068	889	1,879	47	45	7	127	7,062
-----Percent of Type of Organization by Size (%)-----								
1 to 9	89.2	5.0	4.3	0.0	0.6	0.0	0.9	100.0
10 to 49	93.2	3.6	2.1	<0.1	0.3	0.0	0.8	100.0
50 to 179	89.2	5.5	3.5	<0.1	0.3	<0.1	1.5	100.0
180 to 499	83.8	8.2	6.1	<0.1	0.4	<0.1	1.5	100.0
500 to 999	80.7	9.5	7.9	0.0	0.4	0.1	1.4	100.0
1,000 to 1,999	76.3	8.9	13.0	<0.1	0.5	0.0	1.3	100.0
2,000 or more	57.6	12.5	26.6	0.7	0.7	0.1	1.8	100.0

Over time there has been a slight decline in the percentage of farms and ranches operated as sole proprietorships—family or individual farms and ranches (Table 13). During the period from 1982 to 1997, there was a slight increase in the percentage of Montana's farms and ranches organized as family-held corporations with fewer than ten stockholders.

Table 13. Types of Farm and Ranch Organization, 1982 to 1997

Type of Farm Organization	Census Year			
	1982	1987	1992	1997
----- Farm Numbers -----				
Individual or Family	18,842	19,506	17,723	18,751
Partnership	2,099	2,147	2,046	2,065
Family-Held Corporation, ≤ 10	2,164	2,520	2,593	2,943
Family-Held Corporation, > 10	76	59	76	55
Non-Family-Held Corporation, ≤ 10	72	64	107	111
Non-Family-Held Corporation, > 10	24	13	22	12
Other	293	259	254	342
TOTAL	23,570	24,568	22,821	24,279
----- Percent of Farms (%) -----				
Individual or Family	80.0	79.4	77.6	77.2
Partnership	8.9	8.7	9.0	8.5
Family-Held Corporation, ≤ 10	9.2	10.2	11.4	12.1
Family-Held Corporation, > 10	0.3	0.2	0.3	0.3
Non-Family-Held Corporation, ≤ 10	0.3	0.3	0.5	>0.4
Non-Family-Held Corporation, > 10	0.1	0.1	0.1	<0.1
Other	1.2	1.1	1.1	1.4
TOTAL	100.0	100.0	100.0	100.0

Non-family forms of business organization are not and have not been prevalent in Montana. Historically, less than one-half of 1 percent of all farms and ranches in Montana have had a non-family corporate form of business organization. Less than 1.5 percent of all farms and ranches in Montana are considered as "other," reflecting management as part of an estate or a trust (or institutional farms and ranches).

The vast majority of farms and ranches with annual sales of less than \$250,000 are individual or family operations—sole proprietorships (Table 14). An estimated 36 percent of farms and ranches with sales of \$250,000 or more are closely-held family corporations, with an additional 20 percent of operations at these sales levels organized as partnerships.

Family Farms and Small Family Farms

Occasionally there are administrative, bureaucratic, or political reasons to address the changing structure of production agriculture in the United States. In 1979 former Secretary of Agriculture Bob Bergland initiated a study of the structure of production agriculture. In the study's final report it was stated: "... unless the present policies and programs are changed so they counter, instead of reinforce or accelerate the trends towards ever-larger farming operations, the result will be a few large farms controlling food production in only a few years."

In 1979 there were about 2,300,000 farms by Census of Agriculture definition in the United States. In 1997 there were approximately 2,000,000 farms, a decline of 300,000 farms over two decades. Production of agricultural commodities now occurs on fewer farms than in the late 1970s.

Partly in response to changes in the structure of the production agriculture sector over the past two decades, Secretary of Agriculture Dan Glickman appointed a National Commission on Small Farms in 1997 to examine the status of small farms in the United States. The final report of this commission, *A Time to Act*, was issued in early 1998.

The National Commission on Small Farms defined small family farms as "farms with less than \$250,000 gross receipts annually on which day-to-day labor and management are provided by the farmer and/or the farm family that owns the production or owns, or leases, the productive assets."

In response to findings in *A Time to Act*, the Economic Research Service, a USDA agency, initiated a research effort that involved primary data collection to classify farms for policy analyses. The Economic Research Service typology is based on the occupation of operators and the sales classes of farms. (Information of operator occupation obtained in its primary data collection allows more refined classifications than possible from Census of Agriculture data.) The Economic Research Service put forth the following definition of a family farm: "Family farms are those organized as proprietorships, partnerships, and family corporations. Family farms are closely held (legally controlled) by their operator and the operator's household."

The Economic Research Service used the above-referenced asset control and management criteria to delineate large family farms as those with annual sales between \$250,000 and \$500,000 and very large family farms as those with annual sales of \$500,000 or more.

Table 14. Farm and Ranch Numbers and Percent of Farms and Ranches by Type of Organization and Value of Sales Categories, 1997

Value of Sales Categories	Type of Organization							Total
	Individual /Family	Partnership	Family Corporation (stockholders)		Non-Family Corporation (stockholders)		Other	
			≤10	>10	≤10	>10		
			----- Number of Farms and Ranches -----					
Less than \$2,500	4,333	276	229	3	23	2	130	4,996
\$2,500 to 4,999	1,832	97	46	2	8	0	39	2,024
\$5,000 to 9,999	2,056	144	77	0	8	1	22	2,308
\$10,000 to 24,999	2,958	257	148	0	8	0	44	3,415
\$25,000 to 49,999	2,292	253	247	3	8	1	35	2,839
\$50,000 to 99,999	2,445	288	548	7	17	2	33	3,340
\$100,000 to 249,999	2,170	424	1,051	9	19	0	23	3,696
\$250,000 to 499,999	520	213	419	14	6	0	10	1,182
\$500,000 or more	145	113	178	17	14	6	6	479
----- Percent of Type of Organization by Market Value of Sales (%)-----								
Less than \$2,500	86.8	5.5	4.6	<0.1	0.5	<0.1	2.6	100.0
\$2,500 to 4,999	90.5	4.8	2.3	<0.1	0.4	0.0	2.0	100.0
\$5,000 to 9,999	89.2	6.2	3.3	0.0	0.4	<0.1	0.9	100.0
\$10,000 to 24,999	86.7	7.5	4.3	0.0	0.2	0.0	1.3	100.0
\$25,000 to 49,999	80.8	8.9	8.7	0.1	0.3	<0.1	1.2	100.0
\$50,000 to 99,999	73.2	8.6	16.4	0.2	0.5	0.1	1.0	100.0
\$100,000 to 249,999	58.8	11.5	28.4	0.2	0.5	0.0	0.6	100.0
\$250,000 to 499,999	44.1	18.0	35.4	1.2	0.5	0.0	0.8	100.0
\$500,000 or more	30.4	23.6	37.2	3.5	2.9	1.2	1.2	100.0

**Family farms account
for nearly 97 percent
of the total value of
agricultural sales.**

By definitions for small, large, and very large family farms put forth by the National Commission on Small Farms and the Economic Research Service, just over 98 percent of all Montana farms and ranches are considered family farms (Table 15). That is, these are proprietorships, partnerships, and family corporations closely held and controlled by their operators and the operators' households. An estimated 91 percent of all Montana farms and ranches are small family farms, farms and ranches that met the previously ascribed asset and operator control criteria and have sales of less than \$250,000 (Table 15). Only about 2 percent of Montana's farms and ranches have asset control and management structures that lead the operations to be classified as non-family farms and ranches.

Table 15. Family and Non-family Montana Farms and Ranches, 1997

Type of Organization	Number of Farms and Ranches	Percent of All Farms and Ranches
Family Farms and Ranches:		
Small	22,195	91.40
Large	1,166	4.80
Very Large	453	1.90
Subtotal	(23,814)	(98.10)
Non-family Farms and Ranches:		
Corporation, ≤ 10	111	0.46
Corporation, > 10	12	0.04
Other operations	342	1.40
Subtotal	(465)	(1.90)
All Farms and Ranches	24, 279	100.00

Family farms account for nearly 97 percent of agricultural sales from Montana farms and ranches (Table 16). A little more than 3 percent of the total value of sales arising from all Montana farms and ranches are from other than family farms and ranches.

Table 16. Value of Sales from Montana Family and Non-family Farms and Ranches, 1997

Type of Organization	Value of Sales (\$1,000)	Percent of All Sales
Family Farms and Ranches:	1, 811,766	96.85*
Non-family Farms and Ranches:	(58,966)	(3.15)
Corporation, ≤ 10	23,633	1.26
Corporation, > 10	15,744	0.84
Other Operations	19,559	1.05
All Farms and Ranches	1,870,732	100.00

*Collectively, family farms and ranches account for nearly 97 percent of all sales. Published Census of Agriculture data do not allow the direct calculation of percentage of sales by small farm, large farm, and very large farm classifications.

Proportion of Value of Sales by Commodity

Over 2,000 Montana farms and ranches sold sheep, lambs, and wool in 1997. An estimated 22 percent of these farms and ranches accounted for 75 percent of the total value of sales for these commodities. An estimated 24 percent of the Montana farms and ranches selling hogs and pigs accounted for 75 percent of the value of hog sales (Table 17).

Grain and cattle and calves are Montana's major commodities, measured in terms of the total value of sales. In 1997 an estimated 25 percent of all Montana farms and ranches selling cattle and calves, 3,532 operations, accounted for 75 percent of the total value of cattle and calf sales. Forty-one percent of Montana farms selling grain, 3,722 farms, accounted for 75 percent of the total value of grain sales in Montana in 1997.

3,532 Montana farms and ranches accounted for 75 percent of the total value of cattle and calf sales in 1997.

From 1987 to 1997, the numbers of farms and ranches reported to have sales of grain, hogs and pigs, and sheep, lambs, and wool declined (Table 18). There was a 55 percent decline in hog and pig operations, but the number of farms and ranches reporting sales of cattle and calves remained stable. Farms reporting grain sales declined by about 22 percent. The number of farms and ranches that received government payments increased over the same decade. This is likely attributable to rule changes subsequent to the passage of the 1996 Federal Agriculture Improvement and Reform Act, which disassociated government income transfers from production for such crops as wheat, barley, and corn. In part, this enticed some producers to participate in the program because they could receive income transfers from historical wheat, corn, and barley bases while exercising near complete planting flexibility. This was particularly the case for some irrigated farms with small crop acreage bases.

Probable Explanations for Structural Shifts

The concentration of sales in the agricultural production sector continued over the 1982-to-1997 period. Some 5,357 farms and ranches, each with sales of \$100,000 or more during 1997, accounted for just over 77 percent of the total value of Montana agricultural sales. In 1982 the 4,244 farms and ranches with sales of \$100,000 or more accounted for only about 68 percent of the total value of Montana agricultural sales.

The most notable shift in farm and ranch numbers was in the number of farms and ranches with sales of particular commodities. The number of farms that reported grain sales declined over the 1987-to-1997 period. In part this decline reflected whole farm participation in the Conservation Reserve Program (CRP) where some farm operators enrolled all cropland previously used for grain production in long term CRP contracts. The number of farms reporting sales of hogs and pigs declined by 55 percent from the 1987-to-1997 period. This decline reflected a drop in hog inventory and market hog numbers in Montana over that period partly attributable to increased vertical integration in the U.S. hog industry and the demise of hog packing firms in Montana. The number of farms and ranches selling sheep, lambs, and wool declined between 1992 and 1997 partly due to the discontinuance of the

Table 17. Farms and Ranches Reporting Sales of Agricultural Products, and Number of Farms and Ranches Accounting for Varying Proportions of Total Sales, 1997

Commodity	Total Farms and Ranches with Sales	Farms Accounting for ...				Farms and Ranches with 75 Percent of Sales as Percent of Total Farms and Ranches
		10 Percent of Sales (%)	25 Percent of Sales (%)	50 Percent of Sales (%)	75 Percent of Sales (%)	
Grain	9,007	54	340	1,483	3,722	41
Cattle and Calves	14,055	73	364	1,406	3,532	25
Hogs and Pigs	595	25	44	82	142	24
Sheep, Lambs, and Wool	2,003	10	33	161	443	22
Government Payments	12,008	63	351	1,545	3,934	33

Table 18. Number of Farms and Ranches with Sales of Selected Agricultural Commodities, 1987 to 1997

Commodity	Number of Farms		
	1987	1992	1997
Grain	11,548	9,524	9,007
Cattle and Calves	14,718	13,628	14,055
Hogs and Pigs	1,313	1,030	595
Sheep, Lambs, and Wool	2,692	2,609	2,003
Government Payments	10,903	10,331	12,008

federal wool incentive program, an important revenue source for farms and ranches producing sheep.

Montana farm and ranch managers operate in commodity marketing systems that are highly competitive. Because of domestic and foreign supply responses to changes in world market prices, a competitive industry will not experience a sustained commodity price level in excess of long term average production costs.

Production costs are influenced by input prices and the adoption of improved technologies. There have been substantial improvements in information, transportation and production technologies that have been adopted on Montana farms and ranches. Per unit real costs of agricultural production continue to decline. Likewise, real agricultural commodity prices continue to decline—resulting in constant-to-declining real net returns per acre or per animal unit.

Some farm and ranch operators who are intent on generating most of their family income from agricultural production have responded to constant or declining per acre or per animal unit net returns by increasing the total value of sales from their operations. Other farm and ranch managers have responded by deriving more of their family income from non-farm sources such as off-farm employment.

There will be continued pressure on those farm and ranch families deriving most of their family income from agricultural production to increase the total value of sales from their operations to offset declining per acre or per animal unit profit margins.



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