

CHANGES IN COSTS AND RETURNS OF NORTH DAKOTA AGRICULTURE

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Changes in income and expenditures of North Dakota agriculture over the period 1965-67 to 1974-76 are of interest to people associated with agriculture. Net income to North Dakota agriculture and net income per farm increased in 1974-76 over the 1965-67 period. The increase also was true after the net farm income was adjusted for changes in the purchasing power of the dollar.

What changes have occurred in income and expenditures of North Dakota farmers during the last decade? This article compared data from the 1965-67 period with the 1974-76 period to show what the changes have been.

Returns From Crops and Livestock

Both the prices received and paid were stable during the 1965-67 period. In contrast, 1974-76 was a period when prices received and paid were rapidly changing. Prices paid rose sharply during the period. Prices received began at a high level in 1974 and then decreased by the end of 1976.

Total realized gross income rose from \$895,835,000 to \$2,117,579,000 during the two time periods compared. This was an increase of 136 per cent. Wheat sales contributed 27 per cent to the total income of farmers in the first period and 47 per cent in the second period. This change was due to the larger acreage planted to wheat and the rise in wheat prices in the second period.

Income received from crop marketing grew from \$449,171,000 to \$1,504,631,000 — or 235 per cent during the period (Table 1). The largest growths were in sales of sunflower and dry beans, which have increased

more than 10 times. The acreages, as well as the prices, increased between the two periods. Sunflower acreage climbed from 67,167 to 513,667 — about seven times. The oil type sunflower was first grown on a commercial scale in 1967. In the 10-year period it has become established as a major cash crop in North Dakota. The acreage of dry beans grew from 23,667 to 135,000 acres, or a 470 per cent rise.

Wheat, which is the major source of income, increased over 300 per cent. The acreage of wheat increased 51 per cent and the price per bushel rose 163 per cent during this 10-year period. The average yield was about the same in both periods. Cash receipts from the sale of barley, the second most important cash crop, more than doubled between the two time periods. The increase in cash receipts was accounted for entirely by the rise in prices, as the planted acreage declined 21 per cent and the yield was 2 per cent lower in the later period.

Conditions were different between the two time periods for livestock than it was for crops. Income from all livestock products increased from \$266,674,000 to \$462,626,000, a rise of 73 per cent (Table 1). Livestock income was 30 per cent of total farm income in the initial period, but declined to only 22 per cent in the second period. Prices of livestock and livestock products increased only 71 per cent compared to 101 per cent for

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Table 1. Realized Gross Income From Farming, North Dakota Averages, 1965-67 and 1974-76

Item	1965-67		1974-76		Per Cent Change 1965-67
	\$1,000	Per Cent of Total	\$1,000	Per Cent of Total	1974-76
Cash Receipts From Marketings					
Crops:					
Wheat	241,682	27.0	995,363	47.0	312
Barley	74,922	8.4	170,938	8.1	128
Oats	19,947	2.2	32,577	1.5	63
Hay	5,719	0.6	16,005	0.8	180
Flaxseed	41,431	4.6	43,622	2.1	5
Soybeans	10,015	1.1	17,599	0.8	76
Sunflower	3,255	0.3	58,378	2.8	1,693
Potatoes	22,305	2.5	64,870	3.1	191
Dry Beans	1,583	0.2	17,767	0.8	1,022
Sugarbeets	10,439	1.2	51,035	2.4	389
Other Crops	17,873	2.0	36,478	1.7	104
All Crops	449,171	50.1	1,504,631	71.1	235
Livestock Products:					
Cattle and Calves	186,010	20.7	333,333	15.7	79
Hogs	22,089	2.5	39,650	1.9	80
Sheep and Lambs	6,853	0.8	6,818	0.3	-1
Milk, Wholesale	19,986	2.2	63,264	3.0	217
Butterfat	17,173	1.9	1,651	0.1	-90
Milk, Retail	772	0.1	817	*	6
Eggs	5,997	0.7	3,770	0.2	-37
Turkeys	4,222	0.5	4,804	0.2	14
Chickens	166	*	152	*	-8
Wool	1,753	0.2	1,231	0.1	-30
Honey and Beeswax	699	0.1	5,005	0.2	616
Other Livestock Products	1,044	0.1	2,131	0.1	104
All Livestock Products	266,764	29.8	462,626	21.8	73
Total Crop and Livestock Products	715,935	79.9	1,967,257	92.9	175
Government Payments	128,200	14.3	26,189	1.2	-80
Value of Home Consumption and Rental Value of Farm Dwelling					
	45,367	5.1	103,800	4.9	129
Other Farm Income	6,333	0.7	20,333	1.0	221
Total Realized Gross Farm Income	895,835	100.0	2,117,579	100.00	136

*Less than .05 of 1 per cent.

SOURCES: United States Department of Agriculture, Economic Research Service, *Farm Income, State Estimates, 1949-67*, FIS 211 Supplement, Washington, D.C., August, 1968.

United States Department of Agriculture, Economic Research Service, *State Farm Income Statistics*, Supplement to Statistical Bulletin No. 576, Washington, D.C., September, 1977.

crops during the period. Crop production increased more than livestock, partly in response to the relatively higher prices compared to most livestock products. The income from sheep, lambs, wool, butterfat, chickens, and eggs was less in the second period compared to the first. The shift in sales of dairy products from the sale of butterfat to whole milk continued.

Sales of combined crop and livestock products increased from \$715,935,000 in 1965-67 to an average of \$1,967,257,000 in 1974-76, a growth of 175 per cent. During the first period, income from sales of these products contributed 80 per cent to the total income of farmers, while in the later period the proportion increased to 93 per cent. This was due largely to the rise in product prices and an 80 per cent decline in government payments.

Gross rental from dwellings and value of home consumption was up 129 per cent. This increase is due principally to prices going up between the two time periods,

and farm families today depend more on purchased foods than formerly.

Farm Production Expenditures

All items included in the farm production expenditures, except livestock purchases, rose between the two periods. The largest growth was in the expenditure for fertilizers, which increased over four times (Table 2).

It is estimated that 247,196 tons of fertilizer were purchased in 1965-67, compared to 536,000 tons in 1974-76, a 117 per cent increment.

Another item among current operating expenditures in Table 2 that should be mentioned is the seed expenditure. This item increased over threefold. This was mainly due to the larger acreage cropped and the rise in seed prices.

Depreciation of capital items, one of the fixed expenditures, changed from an annual average of

Table 2. Farm Production Expenditures, North Dakota Averages, 1965-67 and 1974-76

Production Expenses	1965-67		1974-76		Per Cent Change 1965-67 to 1974-76
	\$1,000	Per Cent of Total	\$1,000	Per Cent of Total	
Current Operating Expenses:					
Feed	28,700	4.9	57,700	4.0	101
Livestock	13,900	2.4	11,200	0.8	-19
Seed	14,300	2.5	62,700	4.3	338
Fertilizer	22,000	3.8	116,000	8.0	427
Repairs and Operation of Capital Items	123,900	21.2	215,100	14.8	74
Hired Labor	23,800	4.1	62,200	4.3	161
Miscellaneous	67,800	11.6	215,100	14.8	217
Total Current Operating Expenses	294,400	50.5	740,000	51.0	151
Fixed Expenses:					
Depreciation and Other Consumption of Farm Capital	148,500	25.5	360,600	24.9	143
Taxes on Farm Property	41,500	7.1	59,100	4.1	42
Interest on Farm Mortgage Debt	20,600	3.5	55,500	3.8	169
Net Rent to Nonoperator Landlord	78,100	13.4	235,800	16.2	202
Total Fixed Expenses	288,700	49.5	711,000	49.0	146
Total Production Expenses	583,100	100.0	1,451,000	100.0	149

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\$148,500,000 to \$360,600,000 — an increase of about 143 per cent. The rise in depreciation was a result of the growth in the number, size, and cost of capital goods.

Indebtedness

A growth occurred in farm mortgage debt. It rose from \$379,135,000 in 1965-67 to \$758,975,000 in 1974-76 — a rise of 100 per cent. The interest rate rose from 5.4 per cent to about 7.3 per cent, resulting in interest payments advancing from \$20,600,000 to \$55,500,000, an increase of 169 per cent. Land values also went up 178 per cent during this same period. The current operating and fixed expenditures increased at about the same rate — 151 and 146 per cent, respectively.

Net Farm Income

Realized net farm income is obtained by subtracting total production expenditures from realized gross income (Table 3). Net farm income is arrived at by adjusting realized net farm income for changes in inventories. Net farm income amounted to \$312,135,000 in 1965-67 and \$716,979,000 in 1974-76 — an increase of 144 per cent (Table 3).

The net income data in Table 3 are expressed in terms of both totals for North Dakota agriculture and per farm. The decline in the number of farms from 48,833 in 1965-67 to 41,000 in 1974-76, a drop of 16 per cent,

results in marked percentage changes when the data are presented on a per farm basis. For example, receipts from marketing of crops increased 235 per cent on a total basis and 299 per cent on a per farm basis. Net income on a per farm basis rose from \$6,392 to \$18,586, or a 191 per cent increase, compared to the use of totals which resulted in a 144 per cent advance.

North Dakota agriculture grew economically during the study period as indicated by the rise in net farm income. While the net farm income to North Dakota agriculture as a whole increased, the number of farms decreased which resulted in the total net farm income being distributed among fewer farms in the 1974-76 period. Although production expenditures consumed a slightly higher proportion of realized gross farm income in 1974-76 than formerly, net farm income after allowing for production expenditures and changes in inventory still showed an increase in 1974-76 over the 1965-67 period.

The data in Tables 1, 2, and 3 overstate the growth in real output occurring between 1965-67 and 1974-76. A considerable portion of the sharp rise to 1974-76 was due to accelerated inflation. Adjusting for the declining purchasing power of the dollar reduces the real increase in total net farm income from 144 per cent to about 49 per cent. On a per farm basis the increase in net farm income drops from 191 to 77 per cent. North Dakota agriculture still showed economic growth between the two time periods after adjusting for changes in purchasing power.

Table 3. Net income from farming, North Dakota, averages, 1965-67 and 1974-76

Item	Total			Per Farm		
	1965-67 \$1,000	1974-76 \$1,000	Per Cent Change	1965-67 Dollars	1974-76 Dollars	Per Cent Change
Receipts From Marketing:						
Crops	449,171	1,504,631	235	\$9,198	\$36,698	299
Livestock Products	266,764	462,620	73	5,463	11,284	107
Total Receipts from Marketing	715,935	1,967,257	175	14,661	47,982	227
Government Payments	128,200	26,189	-80	2,625	639	-76
Value of Home Consumption, Farm Dwelling, and Other	51,700	124,133	140	1,059	3,028	186
TOTAL REALIZED GROSS FARM INCOME	895,835	2,117,579	136	18,345	51,649	182
Production Expenses:						
Current	294,400	740,000	151	6,029	18,049	199
Fixed	288,700	711,000	146	5,912	17,341	193
Total Production Expenses	583,100	1,451,000	149	11,941	35,390	196
Realized Net Farm Income	312,735	666,579	113	6,404	16,259	154
Net Change in Farm Inventories	-600	95,400	160	-12	2,327	95
Net Farm Income	312,135	761,979	144	6,392	18,586	191