

TRENDS IN SALES OF FARM TRACTORS

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Advances in mechanization have been one of the major contributors to our nation's farm productivity increases. Measures of mechanization are difficult to determine, but some insight is permitted by analyzing the trends in retail sales of farm tractors. Tractors of 100 horsepower and larger became available for farm use about 15 years ago. In recent years, these larger tractors have accounted for an increasing proportion of tractor sales, especially in North Dakota.

Trends in sales nationally

Total sales of farm wheel tractors declined from 1966 to 1971 (Table 1).¹ However, the down-

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ward trend was reversed in 1972, largely because of higher farm income, and sales increased in most size categories.² Total number of tractors did not reach the number sold in 1966, however. Of special interest are the sales of tractors of more than 100 horsepower, which set new higher sales records every year. Small lawn and garden tractors are not included in these figures.

¹Implement and Tractor, published by Intertec Publishing Corporation, Kansas City, Missouri, March 21, 1973, p. 19.

²Realized net farm income increased 22 per cent in 1972 over 1971. "Farm Income Situation", Economic Research Service, United States Department of Agriculture, Washington, D. C., February 1973.

Table 1. Retail Sales of Farm Wheel Tractors by Horsepower Class in the United States, 1965-1972.

Maximum Observed H.P. Class	Number Sold							
	1965	1966	1967	1968	1969	1970	1971	1972
To 34	11,688	9,513	11,119	9,744	8,062	7,847	8,593	11,790
35-39	24,976	29,488	28,156	25,339	22,874	23,974	19,648	21,382
40-49	20,988	18,636	14,443	9,794	6,775	5,400	5,850	8,901
50-59	15,440	26,145	24,764	22,003	19,142	17,635	15,944	16,464
60-69	27,801	30,730	19,534	19,615	20,741	18,811	14,804	18,795
70-79	15,500	11,550	17,960	14,534	10,561	7,809	6,742	6,143
80-89	5,847	7,890	6,595	4,948	4,710	5,309	4,180	4,731
90-99	36,496	40,998	40,744	37,443	25,903	23,312	22,969	22,600
100-over	3,696	10,111	13,367	14,522	24,893	25,435	32,793	45,956
Total	162,482	185,061	176,672	157,942	143,661	135,532	131,523	156,762

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Table 2. Retail Sales of Farm Wheel Tractors in North Dakota by Horsepower Class, 1967-1972.

Maximum Observed H.P. Class	Number Sold					
	1967	1968	1969	1970	1971	1972
To 34	16	11	11	10	7	24
35-39	76	73	65	48	43	24
40-49	73	39	49	35	29	47
50-59	178	158	180	105	81	190
60-69	274	247	266	202	145	153
70-79	271	236	178	129	93	100
80-89	379	258	264	243	125	66
90-99	1506	1395	907	568	507	460
100-109				531	303	253
110-119	(100 H.P. and Over)			298	401	700
120-129	1046	958	1524	236	146	248
130-139				174	343	463
140-over				168	375	776
Total	3819	3375	3444	2747	2598	3504

Source: **Implement and Tractor**, op. cit.

Trends in sales in North Dakota

Similar patterns are seen in sales in North Dakota (Table 2). Total sales of farm tractors increased from 2,598 units in 1971 to 3,504 units in 1972, an increase of 35 per cent. Tractor sales had been declining since 1966, and again, the sharp increase in sales in 1972 is probably explained by higher realized net farm income. Data are available for the past three years showing a breakdown of sales of those tractors with 100 horsepower or more. These data show a rapid acceptance of the very largest—140 horsepower and over. In 1970, 168 units were sold. This number increased to 375 in 1971, and to 776 units in 1972. North Dakota was the leader in purchasing tractors of 140 horsepower or more for each of the three years. Of the 6,191 units of this large size sold in the United States in 1972, 776 (12.5%) were sold in North Dakota. Other large purchasers were Texas (551 units), Kansas (522 units), Montana (471 units) and Illinois (344 units). These five states accounted for 43 per cent of the sales in 1972 of farm tractors of 140 or more horsepower.

Sales of tractors over 100 horsepower

The sales of farm wheel tractors over 100 horsepower sold in the United States has increased steadily, from 3,696 units in 1965 to 45,956 units in 1972 (Table 1). This has been an increase in both absolute and relative terms. In 1965, only 2.3 per cent of the farm tractors sold were rated over 100

horsepower, while in 1972 nearly 30 per cent were in this large-size category (Table 3).

Nationally, the figures of large sizes sold have not been as impressive as the number sold in North Dakota. Although the absolute number sold in North Dakota has fluctuated from year to year, the ratio of large tractors to total number sold has increased very rapidly. In the six-year period, 1967-1972, the proportion of tractors sold in North Dakota of 100 or more horsepower climbed from 27 per cent to nearly 70 per cent of the total number sold (Table 3). At the same time, the sales of smaller tractors in the state has decreased.

Decreases in the number of farms and in the number of farm workers are reflected in the rapid adoption of the larger machines. Another reason for the rapid adoption is the type of agriculture. New tractors, typically, are not purchased for use on the lighter tasks of haying and swathing grain, since many of these implements are self-propelled or utilize existing tractors on the farm. Furthermore, good used tractors are readily available for these needs. As farm implement manufacturers provide larger tractors, the somewhat smaller units become obsolete and are replaced before they are worn out.

Table 3. Retail Sales of Farm Wheel Tractors of 100 Horsepower or more, as a Percentage of Total Sales, North Dakota and United States, 1965-1972.

Year	Per cent of total sales	
	North Dakota	United States
1965		2.3
1966		5.5
1967	27.4	7.6
1968	28.4	9.2
1969	44.3	17.3
1970	51.2	18.8
1971	60.4	24.9
1972	69.6	29.3

Source: **Implement and Tractor**, *ibid.*

Sales in terms of horsepower

In spite of the variations and general decline in the number of tractors sold, it is noteworthy that total horsepower has remained relatively constant. In terms of horsepower, sales in the United States in the past eight years have varied between 10 and 12 million horsepower sold per year. This translates into an increase in the average size of tractor sold. Nationally, average size has not increased very rapidly. Estimates by **Implement and**

Table 4. Total Tractor Sales in Terms of Horsepower by Size Class Sold in United States, 1965-1972.

Maximum Observed H.P. Class	Thousands of horsepower							
	1965	1966	1967	1968	1969	1970	1971	1972
To 34	350.6	304.4	355.8	297.2	248.6	241.4	266.4	378.1
35-39	924.1	1120.5	1084.0	950.2	868.8	899.0	746.6	822.8
40-49	944.5	857.3	664.4	455.4	314.0	243.0	253.3	374.2
50-59	849.2	1411.8	1368.8	1210.2	1023.9	969.9	845.0	888.5
60-69	1807.1	1997.4	1279.5	1294.6	1386.1	1222.7	962.3	1245.2
70-79	1135.1	854.7	1347.0	1104.6	802.5	585.7	495.5	448.4
80-89	508.7	686.4	573.8	430.5	405.3	451.3	355.3	399.2
90-99	3357.6	3771.8	3768.8	3541.1	2458.8	2214.6	2159.1	2145.7
100-over	388.1	1193.1	1590.7	1622.1	2939.5	2992.6	3978.3	5465.9
Total	10265.0	12197.5	12052.7	10942.9	19448.4	9820.2	10061.8	12168.2
Average size sold	63.2	65.9	68.2	69.3	72.7	72.5	76.5	77.6

Source: *Implement and Tractor*, op. cit.

Tractor indicate that the average farm tractor sold in 1965 had 63 horsepower, increasing slowly to 77 horsepower in 1972 (Table 4).

It is of interest that total horsepower sold over the past several years has not shown a marked increase. It may be expected that with fewer farm workers (as capital is substituted for labor), timeliness of the farming operations would require increased amounts of horsepower. This does not seem to have happened. Perhaps other technology, such as minimum tillage and chemical pesticides, has worked to modify the total power needed on the farm today.

Wide variations exist among size categories. This variation is due in part to the fact that fewer tractor models are available in some sizes than in others. For example, currently 13 models are available in the 60 to 69 horsepower bracket, while only three models are available in the 70 to 79 horsepower class.

Sales of horsepower in North Dakota

The average size of tractor sold in North Dakota in 1972 was more than 112 horsepower (Table 5), up from 92 horsepower in 1967. This compares with the national average of 68 and 77 for the two years, 1967 and 1972, respectively. Clearly, North Dakota is a strong market for these large-sized tractors. Almost 80 per cent of the total horsepower sold in 1972 in the state was in the single size category of tractors with 100 or more horsepower. North Dakota farmers readily purchase these large-

er power units because of the cost and availability of labor. Also, increasing farm size and larger fields accommodate wide multiple hitches.

Outlook for 1973

Based on sales volume during the first six months of 1973, it is likely that sales of farm tractors in 1973 will surpass sales of recent years. During the first six months of 1973, 2,464 farm tractors were sold. This compares with 1,963 units sold during the same period in 1972. Again, record sales are due in large part to higher net farm income, especially from higher grain prices.

Table 5. Total Tractor Sales in Terms of Horsepower by Size Class Sold in North Dakota, 1967-1972.

Maximum Observed H.P. Class	Thousands of horsepower					
	1967	1968	1969	1970	1971	1972
To 34	0.5	0.3	0.3	0.3	0.2	0.8
34-39	2.9	2.7	2.5	1.8	1.6	0.9
40-49	3.4	1.8	2.3	1.6	1.3	2.0
50-59	10.0	8.7	9.6	5.8	4.3	10.3
60-69	17.9	16.3	17.8	13.1	9.4	10.1
70-79	20.3	17.9	13.5	9.7	6.8	7.3
80-89	33.0	22.5	22.7	20.7	10.6	5.6
90-99	139.3	131.9	86.1	54.0	47.7	43.7
100-over	124.5	107.0	180.0	165.5	196.9	313.1
Total	351.8	309.1	334.8	272.5	278.8	393.8
Average size sold	92.1	91.5	97.2	99.2	107.3	112.4

Source: *Implement and Tractor*, *ibid.*