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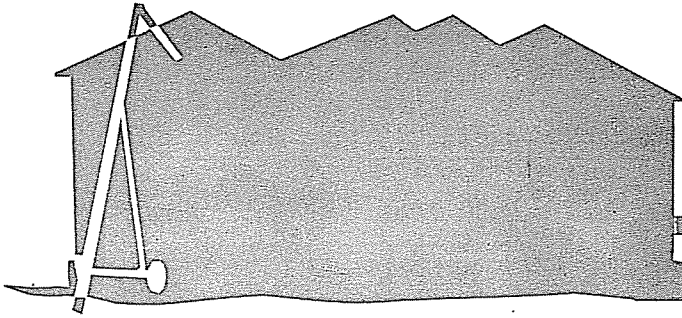
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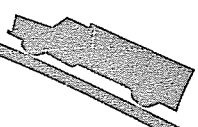
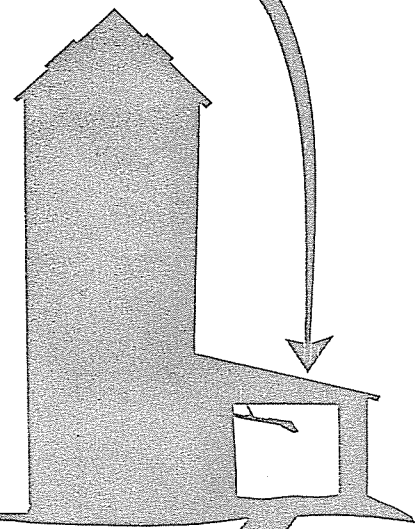
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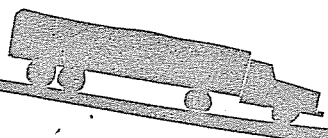
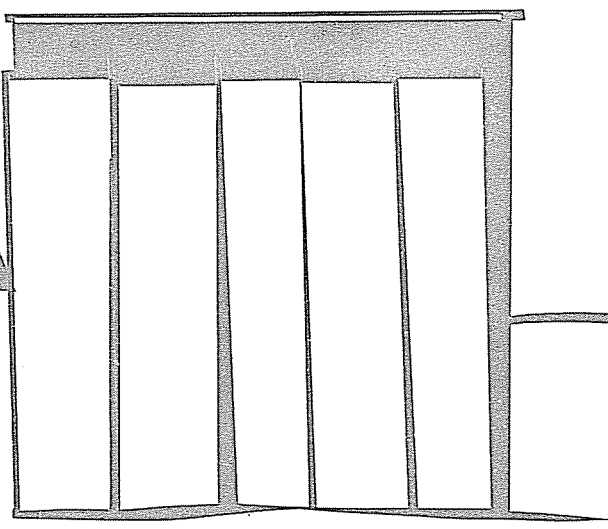
1958 • 59



Truck Shipment of Grain



FROM
NORTH DAKOTA
ELEVATORS



Fred R. Taylor
Agricultural Economist
North Dakota Agricultural Experiment Station

David C. Nelson
Project Assistant

TRUCK SHIPMENT OF GRAIN BY NORTH DAKOTA ELEVATORS, 1958-59

By Fred R. Taylor and David C. Nelson ^{1/}

INTRODUCTION

This is a third report by the Department of Agricultural Economics on truck shipment of grain from North Dakota country elevators. The first report, May 1959, reported the 1956-57 crop. The second report, August 1959, reported the 1957-58 crop. This report covers the 1958-59 crop.

The analysis of the questionnaires provides data for establishing the basis for trend conclusions. The traditional method of shipping grain to terminal market has been by rail. The 1956 study showed that approximately 5 percent of the 1956-57 purchased crop was shipped by truck. The 1957 study indicated an increase to 7 percent of the 1957-58 purchased crop. The estimates from this study show that the amount shipped by truck doubled from the 1957-58 period to the 1958-59 period. Approximately 14 percent of the purchased 1958-59 crop was shipped to market by truck.

It is dangerous to assume that any one factor is responsible for this continued increase in shipping grain by truck. As discussed in the two previous reports, the agricultural exemption clause in the Interstate Commerce Act, which exempts truckers of agricultural products from economic regulation, plays a significant role in the advantages motor carriers have over railroads. The ability to reduce rates at will has enabled truckers to procure the grain traffic. Motor carriers possess other natural advantages which aid in competing the railroads for grain. These are such things as less time in transit, less handling of the commodity, and the demand of truckers for backhauls.

The St. Lawrence Seaway in its first year of operation proved successful. The increase in the volume of grain handled during the 1959 season as compared to the amount handled during the 1958 season indicates a ready acceptance of the new port facilities. Approximately 650,000 bushels went to Canadian and overseas ports in 1958, while 1959 saw 86 million bushels exported to these same destinations. An additional 64 million bushels went into domestic shipment making a grand total of approximately 150 million bushels of grain handled in the port in their first season.^{2/}

The approaching season of 1959-60 will prove significant in regards to the increasing trend toward truck shipments of grain. The railroads of North Dakota, through a proposal of the Northern Lines Committee, have introduced substantial rate reductions on grain to the Twin Cities and Duluth-Superior markets. These reductions, on specified grains, took effect April 8, 1960, but are to be investigated by the Interstate Commerce Commission. The rail rates that will be in effect will closely approximate motor carrier rates now available in the Eastern portion of the State. The railroads expect to regain the lost volume of grain traffic through these reductions.

^{1/}Agricultural Economist, Department of Agricultural Economics and Project Assistant, respectively.

^{2/}Regnier, G. A., "Midwest Seaway Impact", in Duluth Port, Official Publication of the Seaway Port Authority of Duluth, Volume 1, Number 4, December, 1959, p. 7.

It is clear that competition has proved successful in the introduction of lower costs to shippers. The situation referred to above will prove significant in influencing the trend for the seasons following this study. Some conclusions can be drawn from the previous data, but more investigation is necessary as long as innovations in service and rates are either introduced or under serious consideration. As long as either industry maintains the ability to compete, the trend will be affected. It is for these reasons the Department of Agricultural Economics of the North Dakota Agricultural College, in cooperation with other states of the North Central Region, is making this study of the trends in the movement of grain by truck. This study is a part of the North Central Regional Marketing Project NCM-19, "Pricing and Trading Practices for Grain in the North Central Regions".

Source of Data

Data for this study were obtained from a mail survey of all known elevator firms in North Dakota. Eight hundred forty four questionnaires were mailed. Three hundred four, approximately 36 percent, were returned. Of those returned, 280, approximately 33 percent of the total mailed and 92 percent of the total returned were usable. The estimates in this report are based on the usable returned questionnaires.

The elevators were asked to furnish information for the period October 1, 1958 through September 30, 1959. Each elevator reporting furnished information concerning the amount of grains purchased from farmers or from CCC. They were also asked to report how this grain was disposed of, i.e., retailed back to farmers, shipped by rail, or shipped by truck or sold to truckers. In addition to reporting the amount shipped by truck, they were asked to report how much was moved out of state and the respective destinations. Elevator operators were also asked to report how much grain they had trucked in from outside their respective trade area for the above period and where it came from. Additional data were procured concerning the furnishing of boxcars by railroads and other factors relating to the handling of these cars. Elevator operators also furnished data regarding the inability to handle trucks and the costs to install such facilities.

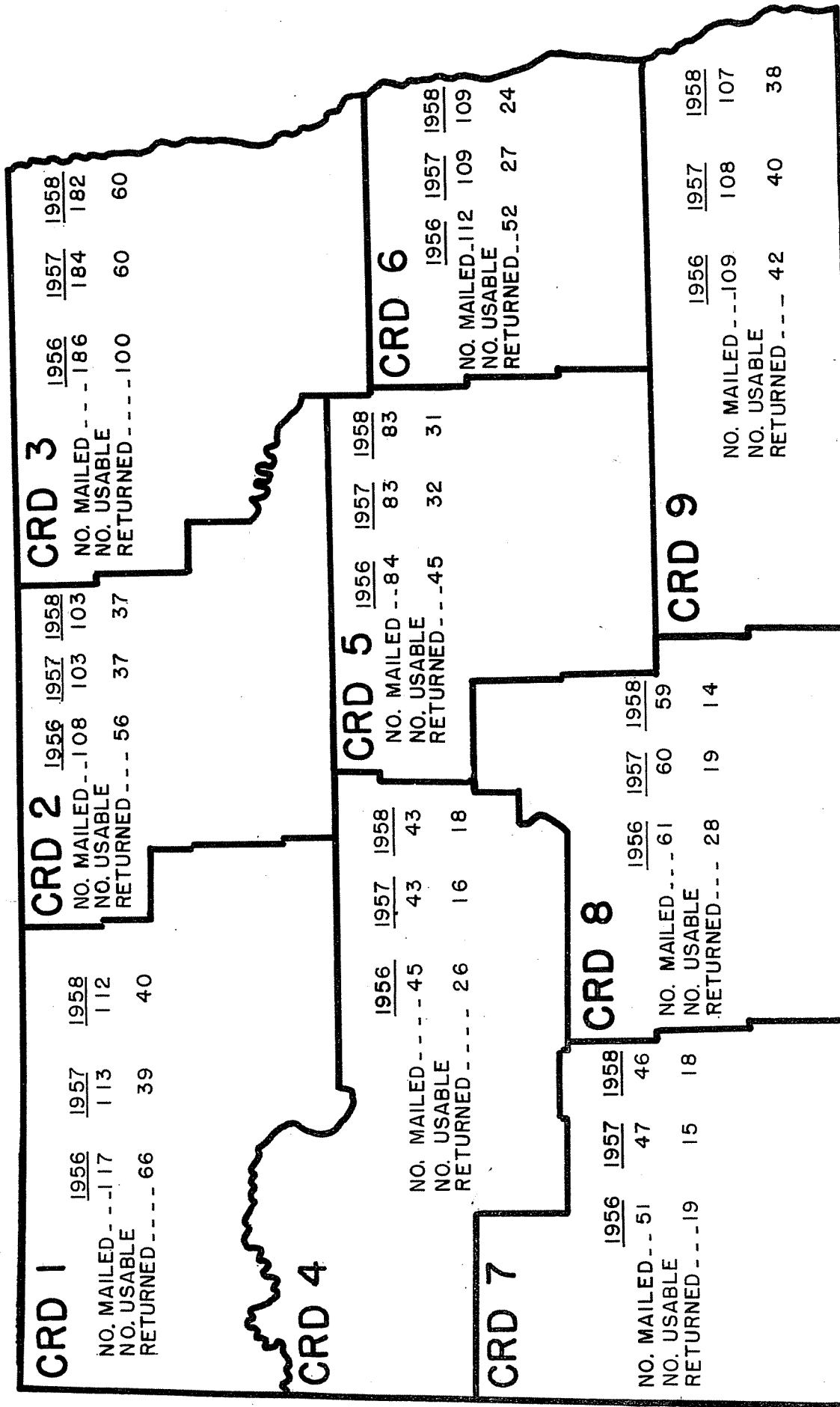
Analysis Procedure

In order to provide areas of production with similar characteristics, the nine crop reporting districts of the State were used for stratification purposes. Figure 1 shows these districts and the number of questionnaires mailed and the number received for 1956-57, 1957-58, and 1958-59.

The number of elevators in each reporting district were then grouped into classes by volume of grain purchased. Ratio estimators were developed for each volume class based on the number returned. The volumes of elevators in each district were estimated from North Dakota Public Service Commission Statistics for the year 1955. Those elevators not now in existence were eliminated from the total sampling population. This method assumes that those not reporting purchased approximately the same amount of grain in 1958-59 as in 1955-56, 1956-57, and 1957-58.

The data reported were then expanded into estimated totals for each crop reporting district. Table 1 shows the volume classes and ratio estimators for each crop reporting district.

NORTH DAKOTA



	1956	1957	1958
NO. MAILED	873	850	844
NO. USABLE			
RETURNED	434	285	280
PERCENT	50	34	33

FIGURE 1. NORTH DAKOTA CROP REPORTING DISTRICTS; NUMBER OF QUESTIONNAIRES MAILED AND NUMBER OF USABLE QUESTIONNAIRES RETURNED.

TABLE 1. NUMBER OF QUESTIONNAIRES MAILED, BY VOLUME OF GRAIN PURCHASED, NUMBER RETURNED AND RATIO ESTIMATORS BY CROP REPORTING DISTRICT

VOLUME 1000 bu.	CROP REPORTING DISTRICTS								
	1	2	3	4	5	6	7	8	9
0-199	42/23 1.826	61/22 2.773	102/15 6.800	19/11 1.727	38/20 1.900	60/10 6.000	23/6 3.833	40/12 3.333	72/15 4.800
200-399	47/10 4.700	29/10 2.900	56/26 2.154	18/6 3.000	35/6 5.833	31/7 4.429	18/8 2.250	16/2 8.000	27/15 1.800
400-599	14/6 2.333	11/4 2.750	14/9 1.556	5/0 0.000	7/2 3.500	10/5 2.000	1/1 1.000	3/0 0.000	7/7 1.000
600-	9/1 9.000	2/1 2.000	10/10 1.000	1/1 1.000	3/3 1.000	8/2 4.000	4/3 1.333	0/0 0.000	1/1 1.000

NM = NUMBER OF QUESTIONNAIRES MAILED

NR = NUMBER OF USABLE QUESTIONNAIRES RETURNED

RE = RATIO ESTIMATOR

Comparison of Volume Produced and Estimated
Volume Purchased by Elevators

North Dakota farmers produced a total of 389,124,000 bushels of grain in 1958.^{3/} Of this amount, it was estimated that 199,957,411 bushels, or approximately 51 percent, were purchased by elevators. The residuals were either fed to livestock, retained for seed purposes, sold to other farmers, or stored on the farm for future sale (Table 2).

TABLE 2. GRAIN PRODUCED, ESTIMATED ELEVATOR PURCHASES AND GRAIN NOT SOLD, 1958-59

	Wheat	Barley	Oats	Corn	Flax	Rye	Soybeans
	Thousands of Bushels						
Produced							
1956	118,824	74,952	48,878	31,872	26,672	3,768	2,301
1957	119,227	76,956	60,125	35,192	15,282	4,248	3,312
1958	147,372	109,704	75,738	25,479	20,576	6,549	3,710
Purchased							
1956	104,267	47,625	16,973	2,551	17,297	2,862	1,453
1957	104,228	54,950	16,153	1,046	14,358	2,666	2,044
1958	99,042	58,765	19,211	1,996	14,698	3,022	1,226
Not Sold							
1956	14,557	27,327	30,905	29,291	9,375	906	848
1957	14,999	22,006	43,972	34,146	924	1,582	1,268
1958	48,330	50,939	56,527	23,483	5,878	3,527	2,484

The 1958 crop year includes the period October 1, 1958 to September 30, 1959. Of all grain purchased, approximately 49 percent was wheat, 29 percent barley, 9 percent oats, 7 percent flax, with the other grains accounting for approximately 6 percent of all grain purchases.

ESTIMATED GRAIN PURCHASED AND TRUCKED

All Grains

North Dakota country elevators purchased an estimated 199,957,411 bushels of grain from farmers and the CCC during the 1958 crop year. Of this total, an estimated 27,873,290 bushels were shipped by truck to first destination from the country elevators.

^{3/}North Dakota Crop and Livestock Statistics, 1958, North Dakota Crop and Livestock Reporting Service, April 1959.

For the 1956 crop year, Crop Reporting District 9 ranked first with about 24 percent of the total grain purchased trucked. District 6 ranked first in 1957 with 24 percent of the total grain trucked. For the 1958 crop year, District 1 ranked first with about 43 percent of the total grain trucked. Districts 6 and 9 ranked second and third with 21 and 12 percent respectively (Table 3).

TABLE 3. CROP REPORTING DISTRICTS RANKED BY PERCENT OF TOTAL GRAINS TRUCKED, 1956, 1957 and 1958

CROP REPORTING DISTRICTS AND PERCENT TRUCKED						
Rank Position	1956 Crop		1957 Crop		1958 Crop	
	CRD	Percent	CRD	Percent	CRD	Percent
1	9	24.3	6	24.0	1	43.4
2	6	22.3	1	20.7	6	21.4
3	3	14.4	3	14.1	9	11.8
4	7	9.5	9	13.9	3	8.9
5	1	9.2	7	8.5	8	4.4
6	8	7.1	5	8.4	7	3.8
7	5	5.7	4	4.9	5	3.2
8	4	4.9	8	3.8	2	1.9
9	2	2.6	2	1.7	4	1.2

As in 1957, District 1 again showed the greatest percentage increase in the proportion of total grain trucked, 9 percent in the 1956 crop year, 21 percent in the 1957 crop year, and 43 percent for the 1958 crop year. Other Districts remained in approximately the same positions as in the two previous years. Districts 2 and 4 had only small amounts trucked as in the previous years.

Crop Reporting District 9 had approximately 86 percent of the trucked corn, as compared to 44 percent in 1957 and 85 percent in 1956. This district also had 21 percent of the trucked oats as compared to 16 and 26 percent for 1957 and 1956 respectively. District 9 again showed a large proportion of the total soybeans trucked, 40 percent. This compares with 42 percent for 1957 and 52 percent for 1956. District 9 was also comparatively high in trucked rye and other-grains with 27 and 21 percent respectively for the 1958 crop year (Table 4).

District 6 trucked 60 percent of the soybeans, compared to 54 percent for 1957 and 46 percent in 1956. This district also showed increases in the proportion of trucked oats, flax, barley, and other-grains. The remaining commodities

showed decreases with corn decreasing by the largest percentage, 14 percent for the 1958 crop year as compared to 56 percent in 1957 and 15 percent in 1956.

District 1 again showed increases in the proportion of wheat trucked, 64 percent which compares to 29 percent for the 1957 crop year and 11 percent for 1956. All districts except District 8 showed decreases in the proportion of total wheat trucked. District 1 also showed increases in the proportion of total oats, barley and rye trucked. Oats increased from 14 percent in 1956 to 23 percent in 1957 and 32 percent in 1958. Barley increased from 4 percent in 1956 to 18 percent in 1957 to 25 percent in 1958. In the two previous years this District showed no rye trucked, while it showed 54 percent of the total rye trucked in 1958.

For all grains trucked from North Dakota country elevators for the 1958 crop year, wheat comprised about 53 percent as compared to about 39 percent in 1956 and 47 percent in 1957. Oats again ranked second with approximately 17 percent for the 1958 crop year as compared to about 28 percent in 1956 and 14 percent in 1957. Flax ranked third in the two previous years with about 12 percent of the total grains trucked. This compares with about 9½ percent in 1956 and 11 percent in 1957. For the 1958 crop year, other grains accounted for approximately 6 percent, barley 5½ percent, corn and soybeans 3 percent and rye less than 1 percent (Table 5).

TABLE 5. ALL GRAINS TRUCKED FROM NORTH DAKOTA ELEVATORS, BUSHELS TRUCKED AND PERCENT OF ALL GRAIN TRUCKED

RANK			COMMODITY	BUSHELS			PERCENT OF TOTAL		
1956	1957	1958		1956	1957	1958	1956	1957	1958
1	1	1	Wheat	3,612,173	6,655,924	14,863,238	38.74	47.11	53.32
2	2	2	Oats	2,065,058	2,019,747	4,718,875	27.94	14.29	16.93
3	3	3	Flax	888,454	1,516,117	3,233,061	9.53	10.73	11.60
7	6	4	Other	286,709	970,770	1,716,033	3.08	6.87	6.16
6	4	5	Barley	518,214	1,432,408	1,558,820	5.56	10.14	5.59
5	7	6	Corn	619,782	220,871	855,634	6.65	1.56	3.07
4	5	7	Soybeans	735,112	1,288,333	835,740	7.88	9.12	3.00
8	8	8	Rye	58,192	21,499	91,889	.62	.15	.33
TOTAL				9,323,695	14,125,669	27,873,290	100.00	100.00	100.00

For the 1958 crop year, the 27,873,290 bushels trucked represented 13.9 percent of the total volume purchased. Crop Reporting District 1 with 29.2 percent of the total grain purchased trucked was most important. Compared with the 1957 crop year, only Districts 4 and 5 showed decreases in the percent of purchases trucked. Districts 3, 6, 8 and 9 showed substantial increases in the proportion of total purchased grain trucked. District 3 increased from 4.5 to 5.8 percent, District 6 from 10.5 to 20.4 percent, District 8 from 6 to 16 percent and District 9 from 11 to 17 percent (Figure 2).

Approximately 76 percent of the trucked grain went to Minnesota destinations. Minneapolis-St. Paul markets received 46 percent of the total trucked, Duluth about 24 percent and other Minnesota destinations 6 percent. The Southern and Western States received about 8.5 percent, Canada 2 percent, other out-of-state destinations 5 percent, and the balance, about 9 percent, went to in-state destinations.

Of the 27,873,290 bushels of grain trucked, 25,478,992, or about 91 percent, went to out-of-state destinations. The remaining 3,394,298 bushels went to destinations within the state. These proportions are similar to the past two years, 88 percent out-of-state in 1956, and 89 percent in 1957. The trend toward an increasing proportion out-of-state is continuing. The in-state proportion is decreasing; 12 percent in 1956, 11 percent in 1957 and 8.6 percent for the 1958 crop year (Table 6).

Forty-five percent of the grain trucked out-of-state came from District 1, 21 percent from District 6, 10 percent from District 9, and 8 percent from District 3. The remaining Districts had 5 percent or less. The most significant change in this respect was in District 1 where the percent of the total grain trucked out-of-state increased from 10 percent in 1956 to 22 percent in 1957 to 45 percent in 1958. All other Districts decreased in the proportion of total out-of-state trucked grain (Table 6).

Of the total grain trucked out of state, the Minneapolis-St. Paul market received approximately 50 percent. This compares with slightly under 50 percent for the 1957 crop year and slightly over 50 percent for the 1956 crop year. Duluth-Superior received about 26 percent and other Minnesota destinations received about $6\frac{1}{2}$ percent. The Southwestern States received approximately 9 percent, Canada received about 2 percent, out-of-state destinations $5\frac{1}{2}$ percent, and unknown points less than 1 percent (Appendix Table 1).

The largest proportion of the in-state amount trucked originated in District 9 with about 30 percent. District 6 shipped 23 percent of the total, District 1 shipped 22 percent and District 3 accounted for about 15 percent. The remaining Districts accounted for 3 percent or less (Table 6). Destinations of the in-state trucked grain for the 1958 crop are unknown as this question was not asked in the questionnaire. Appendix Table 3 shows the amount of total grain trucked in state from each district and the amount of each commodity trucked to in-state destinations from each crop reporting district.

NORTH DAKOTA

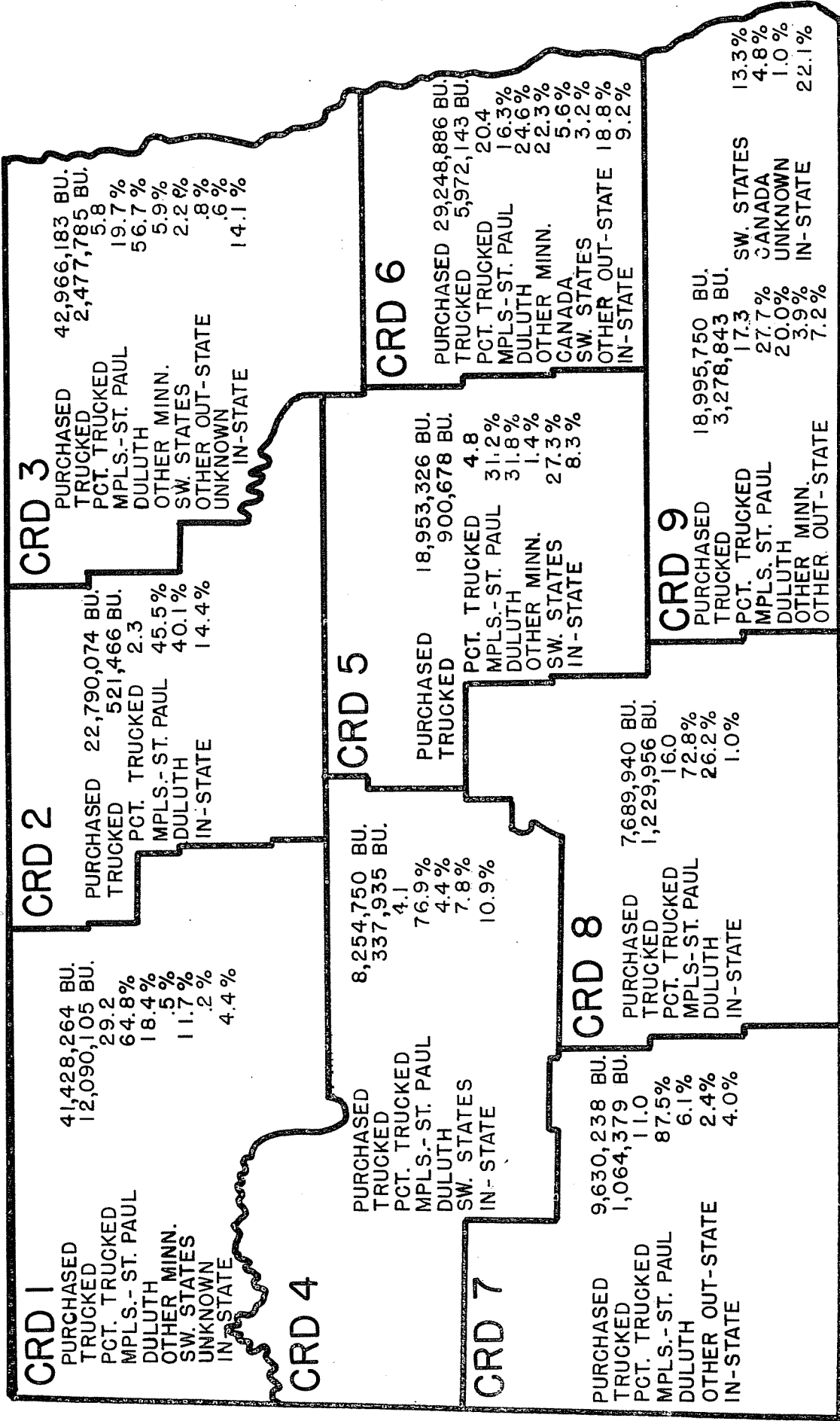


FIGURE 2. ALL GRAINS. TOTAL OF ALL GRAINS PURCHASED BY COUNTRY ELEVATORS, PERCENT OF GRAIN TRUCKED AND DESTINATIONS OF TRUCKED GRAIN BY CROP REPORTING DISTRICTS, NORTH DAKOTA, 1958 CROP.

CRD	PURCHASED	TRUCKED	PERCENT TRUCKED	MPLS.-ST. PAUL	DULUTH	OTHER MINN.	SW. STATES	OTHER OUT-STATE	CANADA	IN-STATE
CRD 1	41,428,264 BU.	12,090,105 BU.	29.2%	64.8%	18.4%	5%	11.7%	2%	4.4%	
CRD 2	22,790,074 BU.	521,466 BU.	2.3%	45.5%	40.1%	14.4%				
CRD 3	42,966,183 BU.	2,477,785 BU.	5.8%	19.7%	56.7%	5.9%	2.2%	.8%	.6%	14.1%
CRD 4	8,254,750 BU.	337,935 BU.	4.1%	76.9%	4.4%	7.8%	10.9%			
CRD 5	18,953,326 BU.	900,678 BU.	4.8%	31.2%	31.8%	1.4%	27.3%	8.3%		
CRD 6	29,248,886 BU.	5,972,143 BU.	20.4%	16.3%	24.6%	22.3%	5.6%	3.2%		18.8%
CRD 7	9,630,238 BU.	1,064,379 BU.	11.0%	87.5%	6.1%	2.4%	4.0%			
CRD 8	7,689,940 BU.	1,229,956 BU.	16.0%	72.8%	26.2%	1.0%				
CRD 9	18,995,750 BU.	3,278,843 BU.	17.3%	27.7%	20.0%	3.9%	7.2%			18.8%
TOTAL	199,957,411 BU.	27,873,290 BU.	13.94%	46.0%	23.9%	6.0%	8.5%	5.2%	1.8%	8.6%

TABLE 6. ALL GRAINS SHIPPED OUT OF THE STATE AND IN-STATE BY TRUCK, BY CROP REPORTING DISTRICT, 1956-57, 1957-58 AND 1958-59

	YEAR	1	2	3	4	5	6	7	8	9	TOTAL	PERCENT OF TOTAL TRUCKED
AMOUNT SHIPPED OUT-OF-STATE (Bushels)	1956	850,783	226,058	1,158,238	441,760	521,944	1,877,285	877,012	637,511	1,613,869	8,204,400	88.0
	1957	2,815,964	163,855	1,811,916	627,690	1,130,585	2,833,031	1,040,942	511,640	1,661,561	12,597,004	89.0
	1958	11,560,684	446,096	2,128,462	301,454	825,415	5,424,662	1,021,880	1,217,624	2,552,715	25,478,992	91.4
PERCENT OF TOTAL	1956	10.37	2.76	14.12	5.38	6.36	22.88	10.69	7.77	19.67	100.00	
	1957	22.36	11.30	14.38	4.98	8.98	22.49	8.26	4.06	13.19	100.00	
	1958	45.38	1.75	8.35	1.18	3.24	21.29	4.01	4.78	10.02	100.00	
AMOUNT SHIPPED IN-STATE (Bushels)	1956	9,011	18,396	180,790	17,000	8,600	198,789	6,750	27,591	654,368	1,119,295	12.0
	1957	111,915	74,844	180,150	58,281	48,240	561,252	164,584	23,383	306,016	1,528,665	11.0
	1958	529,421	75,370	349,323	36,481	75,263	547,481	42,499	12,332	726,128	2,394,298	8.6
PERCENT OF TOTAL	1956	0.81	1.64	16.15	1.52	0.77	17.58	0.60	2.47	58.46	100.00	
	1957	7.32	4.90	11.78	3.81	3.16	36.71	10.77	1.53	20.02	100.00	
	1958	22.10	3.14	14.58	1.50	3.14	22.85	1.76	0.50	30.33	100.00	

INDIVIDUAL GRAINS

Wheat

Wheat led all other grains in the volume trucked. The 14,863,238 bushels trucked represented 53 percent all grain trucked from North Dakota (Table 5). This compares with the 6,655,924 bushels or 47 percent for the 1957 crop year.

Of the total volume of wheat purchased, 15 percent was trucked (Figure 3). This compares with 6.4 percent for the 1957 crop year. Sixty-four percent of the wheat trucked went to Minneapolis-St. Paul while 30 percent went to Duluth-Superior. The balance went to other Minnesota and in-state destinations. The amounts shipped to the Twin Cities and Duluth-Superior for the 1957 crop season represented 58 percent and 24 percent respectively.

Approximately 4 percent of the trucked wheat went to in-state destinations. This compares to 8 percent for the 1957 season. Destinations of the in-state trucked wheat are unknown.

Crop Reporting District 1 trucked the largest volume and percent of wheat. The 9,583,731 bushels trucked represented 38 percent of the total purchased. This compared with the 1,919,793 bushels of 10 percent from the same district for 1957. District 8 trucked 18 percent, District 6, 13 percent, District 7, 10 percent, and Districts 2, 3, 4, 5, and 9 trucked 7 percent or less.

Oats

Approximately 25 percent of the 19,211,492 bushels purchased were shipped by trucks (Figure 4). This compares with 12½ percent of the purchased 1957 crop trucked.

The most common out-of-state destinations were Minneapolis-St. Paul 14 percent, Duluth Superior 14 percent, other Minnesota markets 14 percent, and the Southwestern States 43 percent. The most important increase was indicated in the amount destined to the Duluth market. Only 3 percent of the 1957 crop went to Duluth.

Crop Reporting District 1 trucked 59 percent of the total oats purchased in the district. This compares with 38 percent for the 1957 crop. District 8 reported 30 percent trucked, which represents an increase over the 18 percent reported in 1957. District 9 reported 26 percent District 6, 23 percent, District 3 and 4, 18 percent, District 2, 14 percent, District 5, 10 percent, and District 8 reported none trucked.

Flax

Of the 14,698,352 bushels purchased, 3,233,061 bushels of flax or 21 percent were trucked (Figure 5). This compares with 11 percent of the 1957 purchased crop trucked.

Fifty-nine percent of the trucked flax went to the Twin Cities market. Thirty-one percent went to Duluth-Superior. This compares with 65 percent to the

NORTH DAKOTA

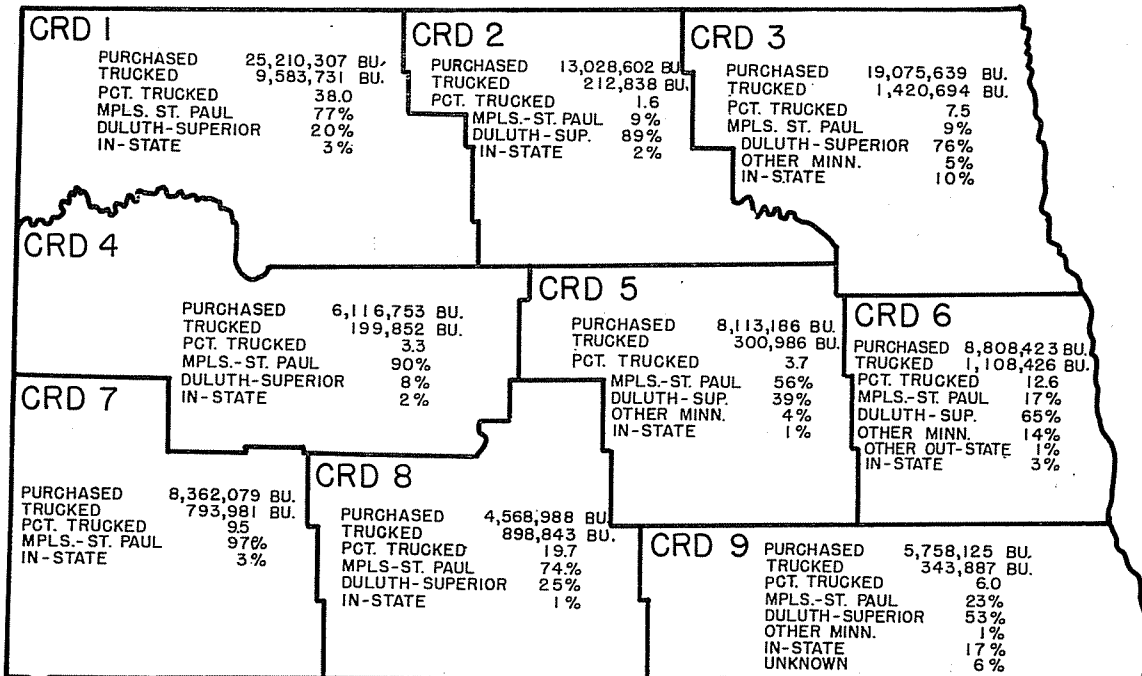


FIGURE 3. WHEAT. TOTAL WHEAT PURCHASED BY COUNTRY ELEVATORS, PERCENT OF PURCHASES TRUCKED AND DESTINATIONS OF TRUCKED WHEAT BY CROP REPORTING DISTRICTS, NORTH DAKOTA, 1958 CROP.

PURCHASED	99,042,093 BU.
TRUCKED	14,863,238 BU.
PERCENT TRUCKED	15
MPLS.-ST. PAUL	64.2%
DULUTH-SUPERIOR	30.2%
OTHER-MINN.	1.7%
IN-STATE	3.7%
OTHER OUT-STATES	0.1%
UNKNOWN	0.1%

NORTH DAKOTA

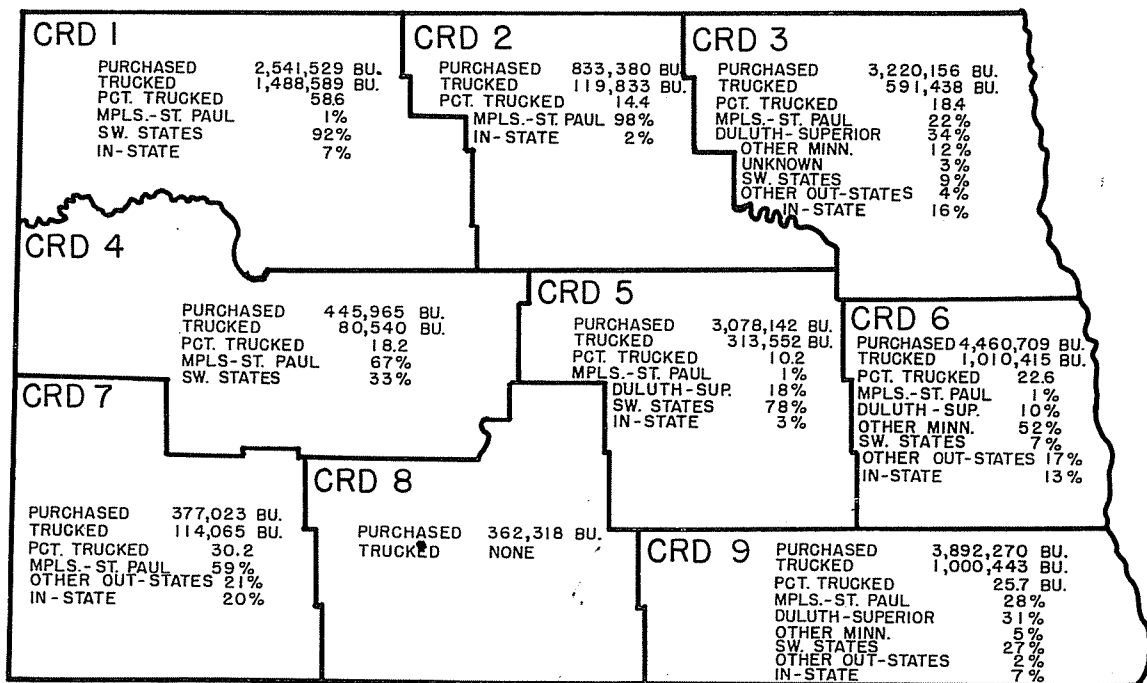


FIGURE 4. OATS. TOTAL OATS PURCHASED BY COUNTRY ELEVATORS, PERCENT OF PURCHASES TRUCKED AND DESTINATIONS OF TRUCKED OATS BY CROP REPORTING DISTRICTS, NORTH DAKOTA, 1958 CROP.

PURCHASED	19,211,492 BU.
TRUCKED	4,718,875 BU.
PERCENT TRUCKED	24.56
MPLS.-ST. PAUL	14.2%
DULUTH-SUPERIOR	14.3%
OTHER MINN.	13.7%
SW. STATES	43.1%
OTHER OUT-STATES	5.0%
IN-STATE	9.4%
UNKNOWN	0.3%

Twin Cities and 7 percent to Duluth-Superior for the 1957 crop. Four percent of the 1958 crop went to the Southwestern States, 2 percent to other Minnesota destinations, and 3 percent to in-state points.

Crop Reporting Districts 1 and 6 led all others with 36 percent of the total purchased flax trucked. District 6 had the largest amount trucked with 1,275,675 bushels. District 7 trucked only 30,279 bushels but this was 35 percent of the total purchased. District 3 showed 20 percent trucked, District 8, 19 percent, District 9, 15 percent, Districts 2, 4 and 5 trucked 8, 9, and 10 percent respectively.

Barley

As in 1957 only 3 percent of total purchased volume of barley was shipped by truck. The 1,558,820 bushels is about the same as the 1,432,408 bushels shipped in 1957 (Figure 6).

Minneapolis-St. Paul markets received 31 percent as compared to 22 percent in 1957. Duluth-Superior received 23 percent compared to 54 percent of the trucked barley. In-state destinations showed a gain from 16 percent in 1957 to 26 percent in 1958. Other Minnesota destinations also received more in 1958 than in 1957; 16 percent as compared to 3 percent.

As in 1957 District 7 reported 19 percent of the total barley purchases shipped by truck. District 6 reported $6\frac{1}{2}$ percent, but as in 1957 this district accounted for over one-third of the total barley trucked. District 1 was second in total amount trucked with 393,149 bushels which represented only 3 percent of the total amount purchased. Districts 2, 7, and 9 shipped approximately 110,000 bushels each and $1\frac{1}{2}$, 19 and 3 percent respectively. The other districts represented the balance.

Twenty-six percent of the trucked barley went to in-state destinations. Several districts showed large proportions shipped to in-state destinations. District 4 reported 100 percent to these points, District 5 reported 88 percent, District 3, 58 percent, District 2, 57 percent, and District 1, 32 percent. Others shipped 12 percent or less to in-state points.

For the out-of-state destinations Minneapolis-St. Paul markets received 31 percent of the total trucked barley. Duluth-Superior received 23 percent, other Minnesota points, 16 percent, Southwest states, 3 percent and Canada and unknown destination, 1 percent.

Soybeans

The amount of soybeans trucked decreased from the 1957 crop. The 835,740 bushels trucked is about 450,000 bushels less than in 1957. The amount trucked in 1958 represents 68 percent of the total purchases. This compares with the 1957 figure of 63 percent of the total purchases trucked (Figure 7).

The largest movement of trucked soybeans went to out-of-state destinations. Only 11 percent went to in-state locations. This compares with the 1957 figures when 12 percent went to in-state points.

NORTH DAKOTA

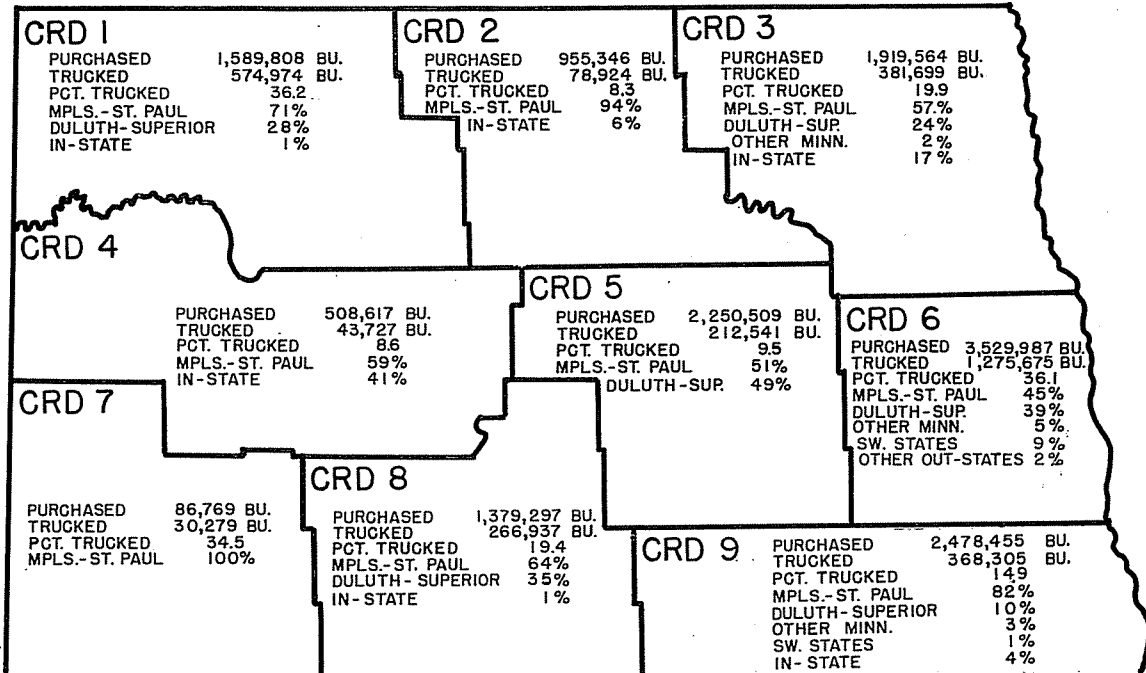


FIGURE 5. FLAX. TOTAL FLAX PURCHASED BY COUNTRY ELEVATORS, PERCENT OF PURCHASES TRUCKED AND DESTINATIONS OF TRUCKED FLAX BY CROP REPORTING DISTRICTS, 1958 CROP.

PURCHASED	14,698,352 BU.
TRUCKED	3,233,061 BU.
PERCENT TRUCKED	21.0
MPLS.-ST. PAUL	53.3%
DULUTH-SUPERIOR	30.7%
OTHER MINN.	2.4%
IN-STATE	3.2%
SW. STATES	3.8%
OTHER OUT-STATES	0.6%

NORTH DAKOTA

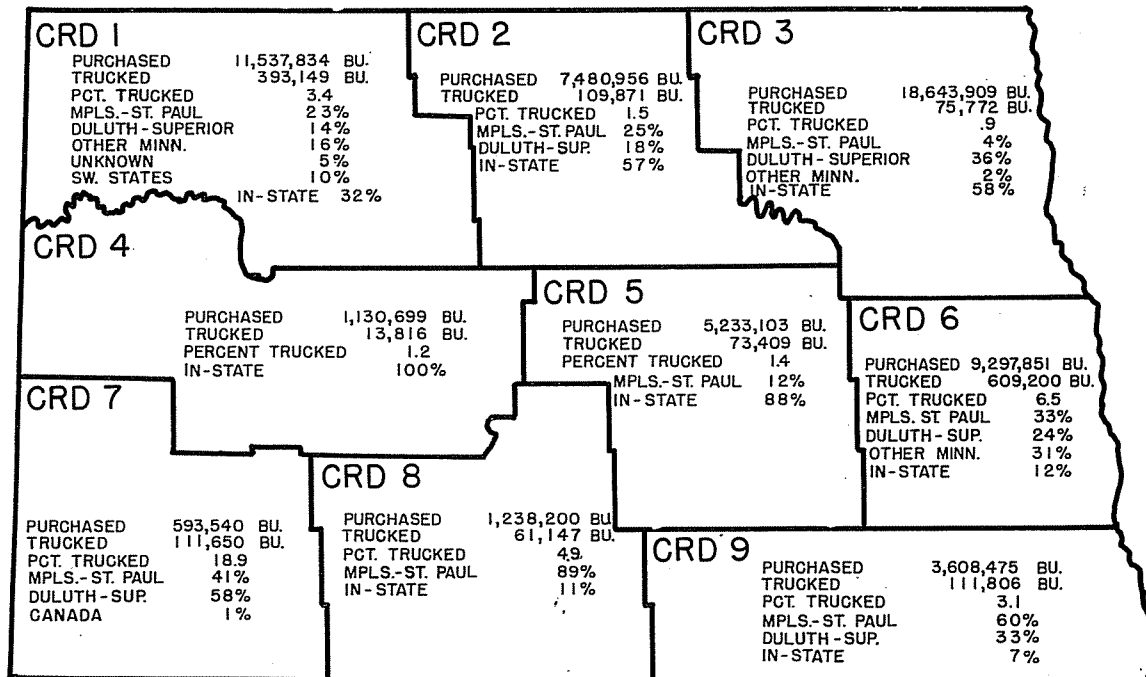


FIGURE 6. BARLEY. TOTAL BARLEY PURCHASED BY COUNTRY ELEVATORS, PERCENT OF PURCHASES TRUCKED AND DESTINATIONS OF TRUCKED BARLEY BY CROP REPORTING DISTRICTS, NORTH DAKOTA, 1958 CROP.

PURCHASED	58,764,567 BU.
TRUCKED	1,558,820 BU.
PERCENT TRUCKED	2.65
MPLS.-ST. PAUL	31.2%
DULUTH-SUPERIOR	23.1%
OTHER MINN.	16.1%
UNKNOWN	1.2%
IN-STATE	25.6%
CANADA	1%
SW. STATES	2.7%

Canada and other Minnesota destinations received 78 percent of the total trucked; 44 and 34 percent respectively. Minneapolis-St. Paul received only 10 percent, while in-state markets received 11 percent. These figures compare with the 1957 figures of Canada, 14 percent, other Minnesota destinations, 27 percent, Minneapolis-St. Paul, 35 percent, and 12 percent to in-state points.

Nearly all of the trucked barley came from Districts 6 and 9. District 6 reported 504,698 bushels trucked which represents 81 percent of the total soybeans purchased in this district. District 9 reported 330,852 bushels trucked or 55 percent of the total amount purchased. District 5 reported only 190 bushels purchased all of which went in-state.

Other Grains

Various grains make up this category. Millet represents the bulk of the volume.

Of the 1,997,064 bushels purchased, 1,716,033 bushels were trucked. This represents 86 percent of the total amount purchased (Figure 8). This compares with the 1957 figure of 74 percent trucked.

Minneapolis-St. Paul received $3\frac{1}{2}$ percent of the trucked volume, other Minnesota points received 7 percent, Canada, 5 percent, unknown points, 1 percent, while 18 percent went to in-state points. The largest proportion, 67 percent went to other out-of-state locations. In 1957 Minneapolis-St. Paul received 3 percent, in-state points, 30 percent and 68 percent went to unknown locations.

Crop Reporting Districts 6 and 9, as in 1957, were responsible for practically all of the grain purchased and trucked in this category. District 6 reported 87 percent of the purchases trucked while District 9 reported 86 percent trucked. Districts 3 and 8 reported small amounts purchased. No other district reported any purchases.

Corn

The 855,634 bushels trucked represents 43 percent of the 1,995,552 bushels purchased (Figure 9). This compares with 19 percent of the 1957 total corn purchases trucked.

Fifty-six percent of the trucked corn went to in-state destinations. This compares to 1957 when 90 percent went to out-of-state points.

The most important out-of-state markets were the Southwestern States where 19 percent of the total trucked corn went. Minneapolis-St. Paul received only 3 percent, Duluth-Superior, 10 percent, other Minnesota markets, 6 percent, Canada, 5 percent and other out-of-state points $1\frac{1}{2}$ percent. In 1957, Minneapolis-St. Paul was the most important destination, receiving 47 percent of the total amount trucked. Other Minnesota markets received 37 percent, Montana and Canada, 5 percent, while only 11 percent went in-state.

Crop Reporting Districts 6 and 9, as in 1957, were responsible for nearly all of the purchased and trucked corn. District 6 reported 17 percent of the total purchases trucked, while District 9 reported 59 percent. This compares with the 1957 figures of 25 and 19 percent for these same districts respectively.

NORTH DAKOTA

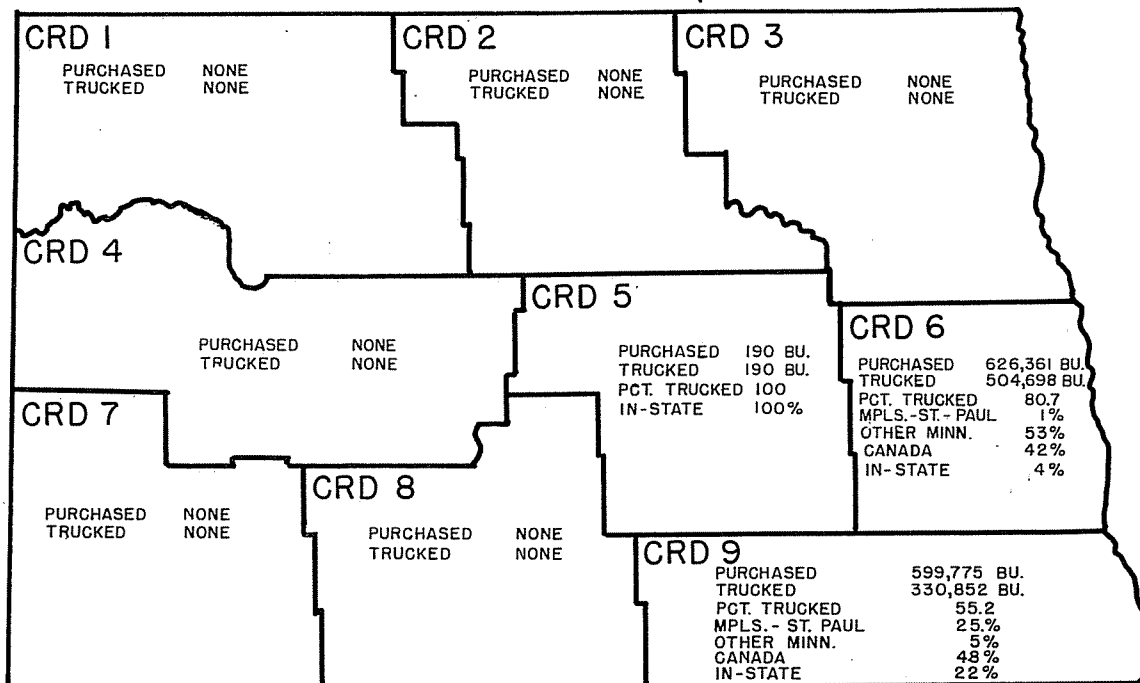


FIGURE 7. SOYBEANS. TOTAL SOYBEANS PURCHASED BY COUNTRY ELEVATORS, PERCENT OF PURCHASES TRUCKED AND DESTINATIONS OF TRUCKED SOYBEANS BY CROP REPORTING DISTRICTS, NORTH DAKOTA, 1958 CROP.

PURCHASED TRUCKED	1,226,326 BU.
PERCENT TRUCKED	835,740 BU.
MPLS.-ST. PAUL	68.19%
OTHER MINN.	9.9%
CANADA	34.4%
IN-STATE	44.4%
	11.3%

NORTH DAKOTA

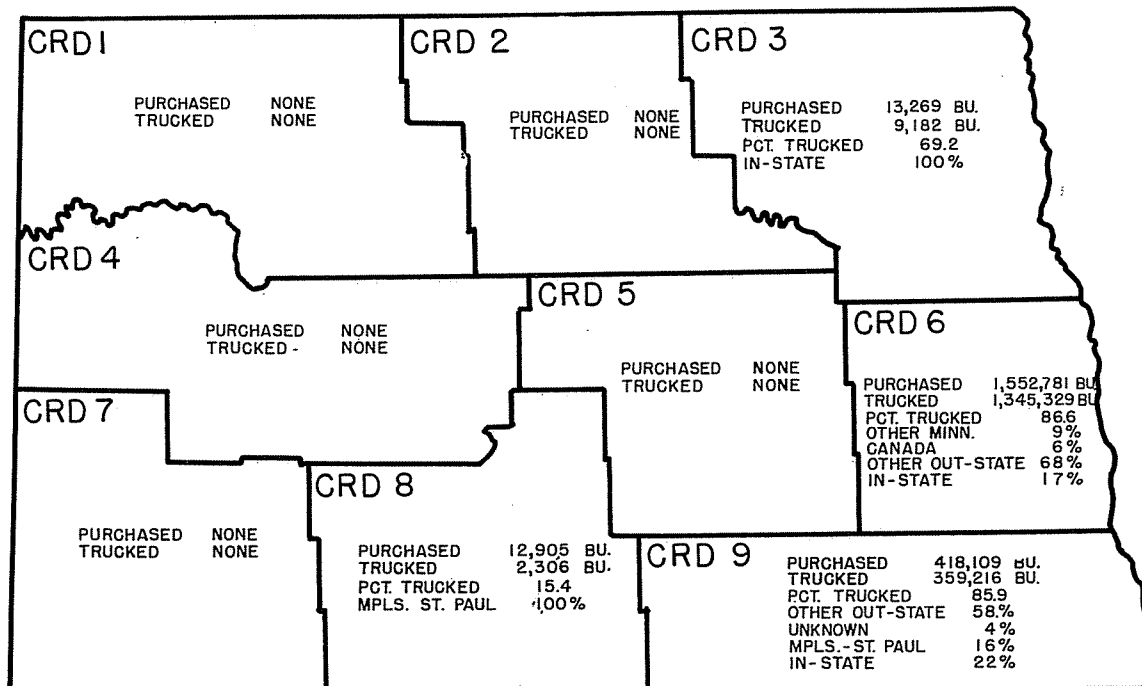


FIGURE 8. OTHER GRAINS. TOTAL OTHER GRAINS PURCHASED BY COUNTRY ELEVATORS, PERCENT OF PURCHASES TRUCKED AND DESTINATIONS OF TRUCKED OTHER GRAINS BY CROP REPORTING DISTRICTS, NORTH DAKOTA, 1958 CROP.

PURCHASED TRUCKED	1,997,064 BU.
PERCENT TRUCKED	1,716,033 BU.
MPLS.-ST. PAUL	85.93%
UNKNOWN	3.5%
IN-STATE	.8%
OTHER OUT-STATES	18.4%
OTHER MINN.	65.6%
CANADA	7.0%
	4.7%

NORTH DAKOTA

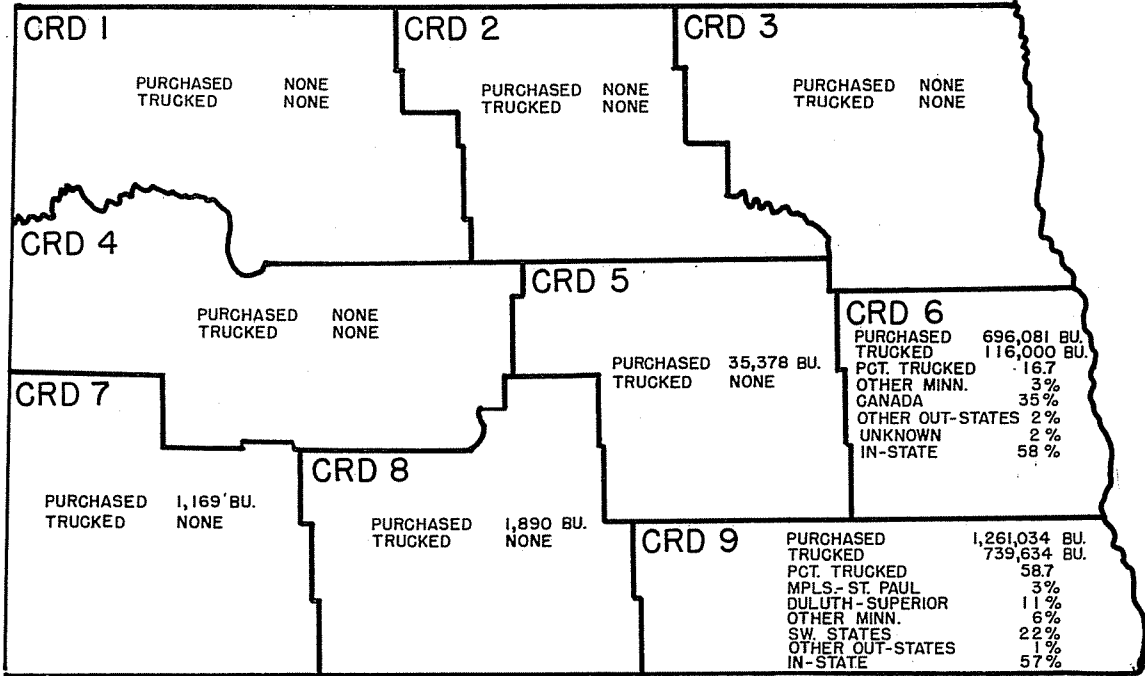


FIGURE 9. CORN. TOTAL CORN PURCHASED BY COUNTRY ELEVATORS, PERCENT OF PURCHASES TRUCKED AND DESTINATIONS OF TRUCKED CORN BY CROP REPORTING DISTRICTS, 1958 CROP.

PURCHASED TRUCKED	1,995,552 BU.
PERCENT TRUCKED	855,634 BU.
MPLS.-ST. PAUL	42.88
DULUTH-SUPERIOR	2.7%
OTHER MINN.	9.7%
SW. STATES	6.0%
CANADA	19.0%
UNKNOWN	4.7%
OTHER OUT-STATE	.2%
IN-STATE	14.4%
	56.3%

NORTH DAKOTA

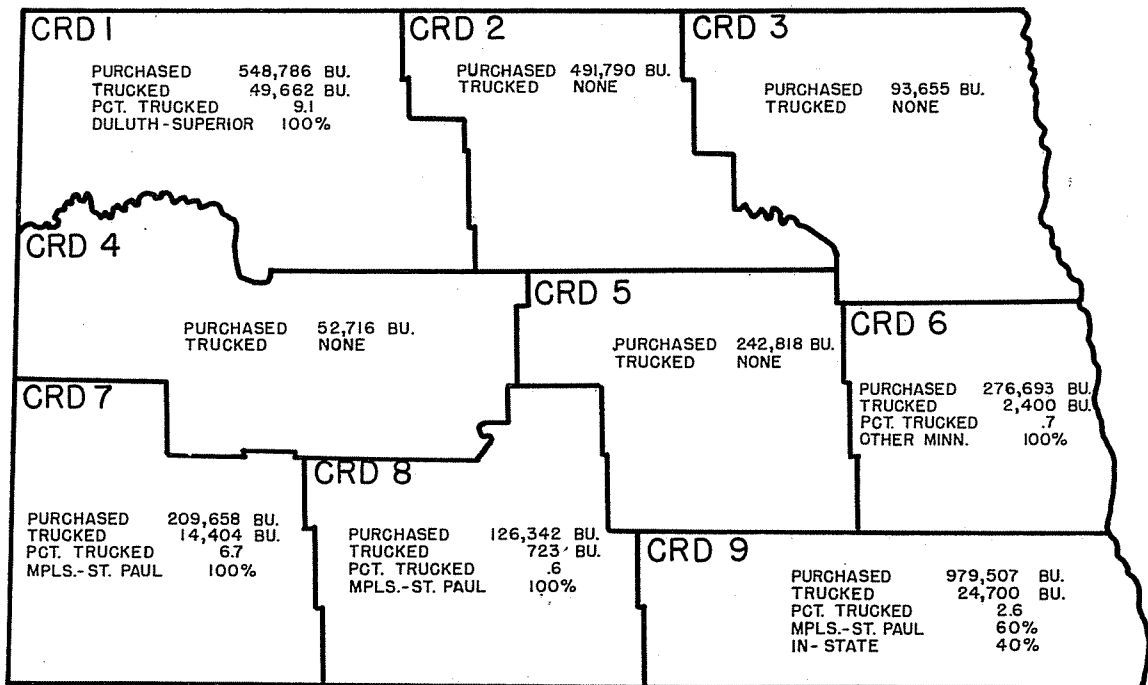


FIGURE 10. RYE. TOTAL RYE PURCHASED BY COUNTRY ELEVATORS, PERCENT OF PURCHASES TRUCKED AND DESTINATIONS OF TRUCKED RYE BY CROP REPORTING DISTRICTS, NORTH DAKOTA, 1958 CROP.

PURCHASED TRUCKED	3,021,965 BU.
PERCENT TRUCKED	91,889 BU.
MPLS.-ST. PAUL	3.04
DULUTH-SUPERIOR	32.6%
OTHER-MINN.	54.3%
IN-STATE	2.2%
	10.9%

Rye

Three percent of the total rye purchased was trucked (Figure 10). This compares with less than 1 percent for 1957.

District 1 reported the largest amount and percentage trucked; 49,662 bushels and 9 percent respectively. District 7 reported 7 percent trucked. Others reported very small amounts.

Duluth-Superior received 54 percent of the total trucked. Minneapolis-St. Paul received 37 percent and in-state points received 11 percent. In 1957, Duluth-Superior received 19 percent, while the Twin City markets received 47 percent and in-state points, 25 percent.

SUMMARY AND CONCLUSIONS

The volume of grain shipped by truck from country elevators to first destinations increased from 4.8 percent in 1956 to 7.2 percent in 1957 to 13.9 percent in 1958.

Approximately 91 percent of the trucked grain was shipped to out-of-state destinations. The balance went to in-state destination.

Approximately 50 percent of the out-of-state trucked grain went to Minneapolis-St. Paul and 26 percent went to Duluth-Superior. Ten percent went to the Southwestern States.

Wheat accounted for the major portion of the out-of-state movement, approximately 56 percent. Oats and flax accounted for 17 and 12 percent respectively. The other commodities accounted for the balance.

District 1 reported about 45 percent of the out-of-state movement. Districts 6 and 9 accounted for another 31 percent. Districts 1, 6, and 9 accounted for 55 percent of the in-state movement.

Wheat, oats and flax ranked in that order in total amount trucked. The other grains category ranked fourth while barley shipped from fourth to fifth from 1957 to 1958. Soybeans slipped from fifth to seventh.

Wheat increased from 39 percent of the total trucked in 1956 to 47 percent in 1957 to 53 percent in 1958. Oats increased 14 percent in 1957 to 17 percent in 1958. Flax retained approximately its position. Barley decreased from 10 percent in 1957 to 5½ percent in 1958. Soybeans dipped from 9 percent to 3 percent.

The St. Lawrence Seaway showed significant progress in its first year of operation. The Duluth-Superior ocean ports increased their amount of grain handled by substantial amounts.

The railroads of North Dakota reduced grain rates to Minneapolis-St. Paul and Duluth-Superior effective April 8, 1960. This should have significant effect upon the trend toward shipping grain by truck.

APPENDIX

Table 1..... Grain Trucked out of the State, by Commodities, by Destination.

Table 2..... Grain Trucked out of the State, by Commodities, by Crop Reporting District.

Table 3..... Grain Trucked Within the State, by Commodities, by Crop Reporting District.

TABLE 1. GRAIN TRUCKED OUT OF THE STATE, BY COMMODITIES, BY DESTINATION, 1958-59

DESTINATION	CORN (bu)	WHEAT (bu)	OATS (bu)	SOYBEANS (bu)	FLAX (bu)	BARLEY (bu)	RYE (bu)	OTHER (bu)	TOTAL (bu)	PERCENT OF TOTAL
Mpls-St. Paul	22,500	9,546,218	667,897	83,458	1,916,348	485,811	30,227	59,906	12,812,305	50.3
Duluth-Superior	82,740	4,494,092	678,075		990,867	360,310	49,662		6,655,746	26.1
Other Minnesota	51,121	245,679	646,950	287,402	76,294	251,332	2,400	120,000	1,681,178	6.6
S. W. States	163,717		2,034,870		124,310	42,300			2,365,197	9.3
Canada	40,000			371,230		1,333		80,000	492,563	1.9
Other out States	12,000	10,080	232,818		20,000			1,127,400	1,402,298	5.5
Unknown	2,000	20,800	15,483			18,800		12,622	69,705	.3
TOTAL	374,078	14,316,869	4,276,033	742,090	3,127,819	1,159,886	82,289	1,399,928	25,478,992	100.0
Percent of Total	1.5	56.2	16.8	2.9	12.3	4.5	.3	5.5		100.0

TABLE 2. GRAIN TRUCKED OUT OF THE STATE, BY COMMODITIES, BY CROP REPORTING DISTRICT, 1958-59

CROP REPORTING DISTRICT	CORN (bu)	WHEAT (bu)	OATS (bu)	SOYBEANS (bu)	FLAX (bu)	BARLEY (bu)	RYE (bu)	OTHER (bu)	TOTAL (bu)	PERCENT OF TOTAL
DISTRICT 1	—	9,292,653	1,377,134	—	573,130	268,105	49,662	—	11,560,684	45.37
DISTRICT 2	—	208,956	116,933	—	73,655	46,552	—	—	446,096	1.75
DISTRICT 3	—	1,286,836	491,312	—	318,622	31,692	—	—	2,128,462	8.36
DISTRICT 4	—	195,189	80,540	—	25,725	—	—	—	301,454	1.18
DISTRICT 5	—	299,086	304,288	—	212,541	9,500	—	—	825,415	3.24
DISTRICT 6	48,000	1,077,423	884,417	482,447	1,275,775	534,200	2,400	1,120,000	5,424,662	21.29
DISTRICT 7	—	773,981	91,566	—	30,279	111,650	14,404	—	1,021,880	4.01
DISTRICT 8	—	895,510	—	—	264,604	54,481	723	2,306	1,217,624	4.78
DISTRICT 9	326,078	287,235	929,843	259,643	353,488	103,706	15,100	277,622	2,552,715	10.02
TOTAL	374,078	14,316,869	4,276,033	742,090	3,127,819	1,159,886	82,289	1,399,928	25,478,992	100.00
PERCENT OF TOTAL	1.47	56.19	16.79	2.91	12.27	4.55	.33	5.49	—	100.00

TABLE 3. GRAIN TRUCKED WITHIN THE STATE BY COMMODITIES, BY CROP REPORTING DISTRICT, 1958-59

CROP REPORTING DISTRICT	CORN (bu)	WHEAT (bu)	OATS (bu)	SOYBEANS (bu)	FLAX (bu)	BARLEY (bu)	RYE (bu)	OTHER (bu)	TOTAL (bu)	PERCENT OF TOTAL
DISTRICT 1	—	291,078	111,455	—	1,844	125,044	—	—	529,421	22.10
DISTRICT 2	—	3,882	2,900	—	5,269	63,319	—	—	75,370	3.13
DISTRICT 3	—	133,858	100,126	—	63,077	43,080	—	9,182	349,323	14.58
DISTRICT 4	—	4,663	—	—	18,002	13,816	—	—	36,481	1.54
DISTRICT 5	—	1,900	9,264	190	—	63,909	—	—	75,263	3.13
DISTRICT 6	68,000	31,003	125,998	22,251	—	75,000	—	225,329	547,581	22.89
DISTRICT 7	—	20,000	22,499	—	—	—	—	—	42,499	1.80
DISTRICT 8	—	3,333	—	—	2,333	6,666	—	—	12,332	0.50
DISTRICT 9	413,556	56,652	70,600	71,209	14,817	8,100	9,600	81,594	726,128	30.33
TOTAL	481,556	546,369	442,842	93,650	105,342	398,934	9,600	316,105	2,394,398	—
PERCENT OF TOTAL	20.13	22.80	18.50	3.92	4.39	16.66	.41	13.19	—	—