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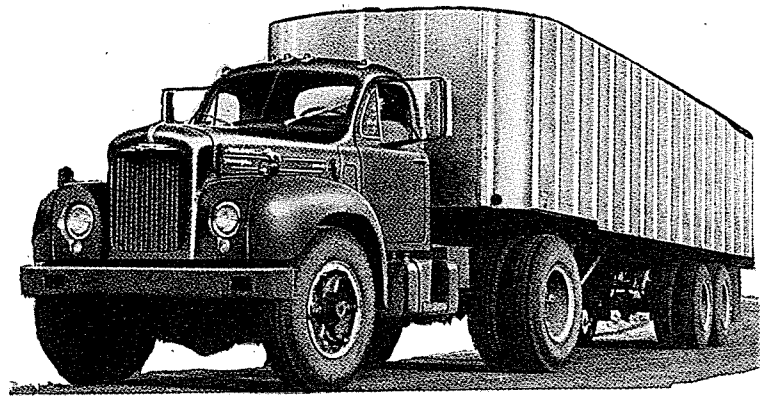
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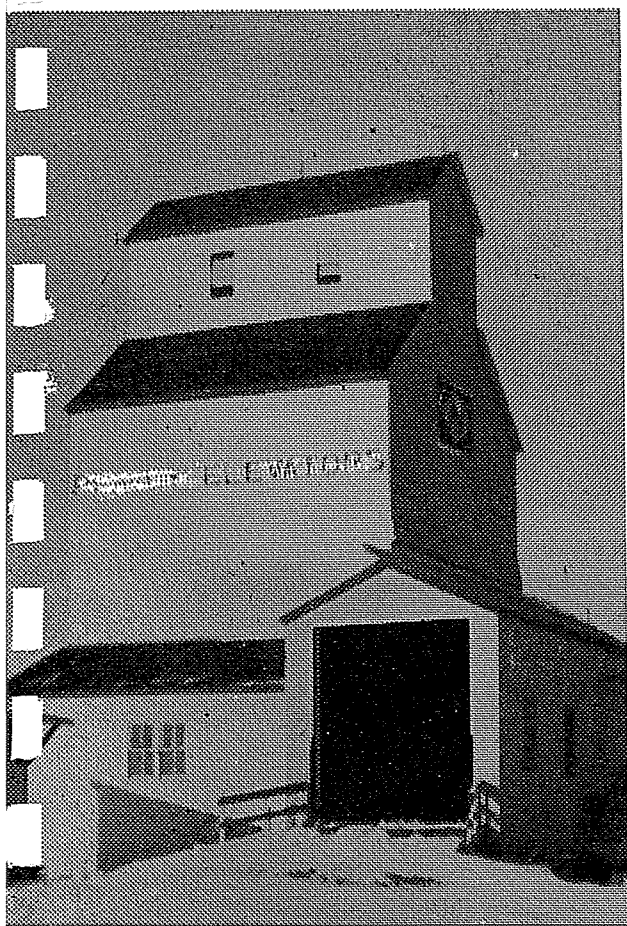
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Truck Shipment of Grain



By North Dakota Elevators
1956 - 57

By
Fred R. Taylor and David G. Nelsen



Department of Agricultural Economics
North Dakota Agricultural Experiment Station
Fargo, North Dakota

TRUCK SHIPMENT OF GRAIN BY NORTH DAKOTA ELEVATORS 1956-57

By Fred R. Taylor and David C. Nelson¹

INTRODUCTION

In recent years, there has been increasing interest on the part of the trade in the extent and probable trends in truck transportation of grain from North Dakota and the Midwest.

In 1936, the Motor Carrier Act was passed. Truckers engaged in the transportation of specifically defined agricultural products were exempted from regulation by the Interstate Commerce Commission, other than safety. This has meant that the trucker was not confined to any particular region, nor was he required to publish tariffs containing rates he would follow.

From the end of World War II through 1957 the Interstate Commerce Commission authorized the railroads to take 14 general freight rate increases. These resulted in a 79 percent increase in the combined freight rate index for selected agricultural commodities.²

Factors such as the exemption of regulation of specified agricultural commodities, increasing railway freight rates and the boxcar shortages during harvest have tended to increase the movement of grain to market by truck.

Often advantages of truck transportation such as: less time in transit, less handling of the commodity, the demand of the trucker for backhauls to terminal markets and the possibility of lower freight rates have led to significant increases in the truck movement of grain.

The increase in truck movement of grain presents a distinct problem for our terminal markets. It has to some extent facilitated the direct movement of grain and the by-passing of terminal markets. If the trend continues, it may change the location and type of facilities needed.

Also concerned are the individual elevators. As more grain is shipped and received by truck, elevator operators must make additional investments in facilities and equipment for handling trucks more efficiently. Also new methods of selling and financing grain will need to be developed to handle trucked grain.

It is significant that these problems are known, yet specific data to indicate the magnitude of the truck movement of grain have not been available. For this reason the Department of Agricultural Economics of the North Dakota Agricultural

¹Professor, Department of Agricultural Economics and Project Assistant, respectively.

²Recent Developments in Freight Rates and Transport Policy, AMS-293, Agricultural Marketing Service, U. S. Department of Agriculture, January 1959.

College, in cooperation with other states of the North Central Region is making a study of trends in the movement of grain by truck. This study is a part of the North Central Regional Grain 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 seventy-three questionnaires were mailed. Five hundred forty-nine replies, approximately 63 percent, were returned. Of those returned, 434, approximately 50 percent of the total mailed and 70 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, 1956 through September 30, 1957. Each elevator reporting furnished information concerning the amount of grains purchased from farmers or from CCC, how much was moved by truck, how much was moved by truck to points within the state and the destinations, and how much was moved by truck to points out of the state and the destinations. In addition, questions were asked that involved individual elevator operators' feelings toward the trucking trend.

Analysis Procedure

The nine crop reporting districts of the state were used as market areas. This provided areas of production with similar patterns, thus giving the data more use and meaning. Figure 1 shows these districts and the number of questionnaires mailed and number received.

The numbers 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 of questionnaires mailed and the number returned. The volume of those not returned were estimated from North Dakota Public Service Commission Statistics for the year 1955. This assumes that those not reporting purchased approximately the same amount of grain for the year 1956. The data reported was then expanded into estimated totals for each crop reporting district. Table 1 shows the volume classes and ratio estimators for each crop reporting district.

Comparison of Volume Produced and Estimated Volume Purchased by Elevators

North Dakota farmers produced a total of 274,395,000 bushels of grain in 1956.³ Of this amount, it was estimated that 195,669,624 bushels or 71.3 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).

³North Dakota Crop and Livestock Statistics, 1957,
North Dakota Crop and Livestock Reporting Service, April 1958.

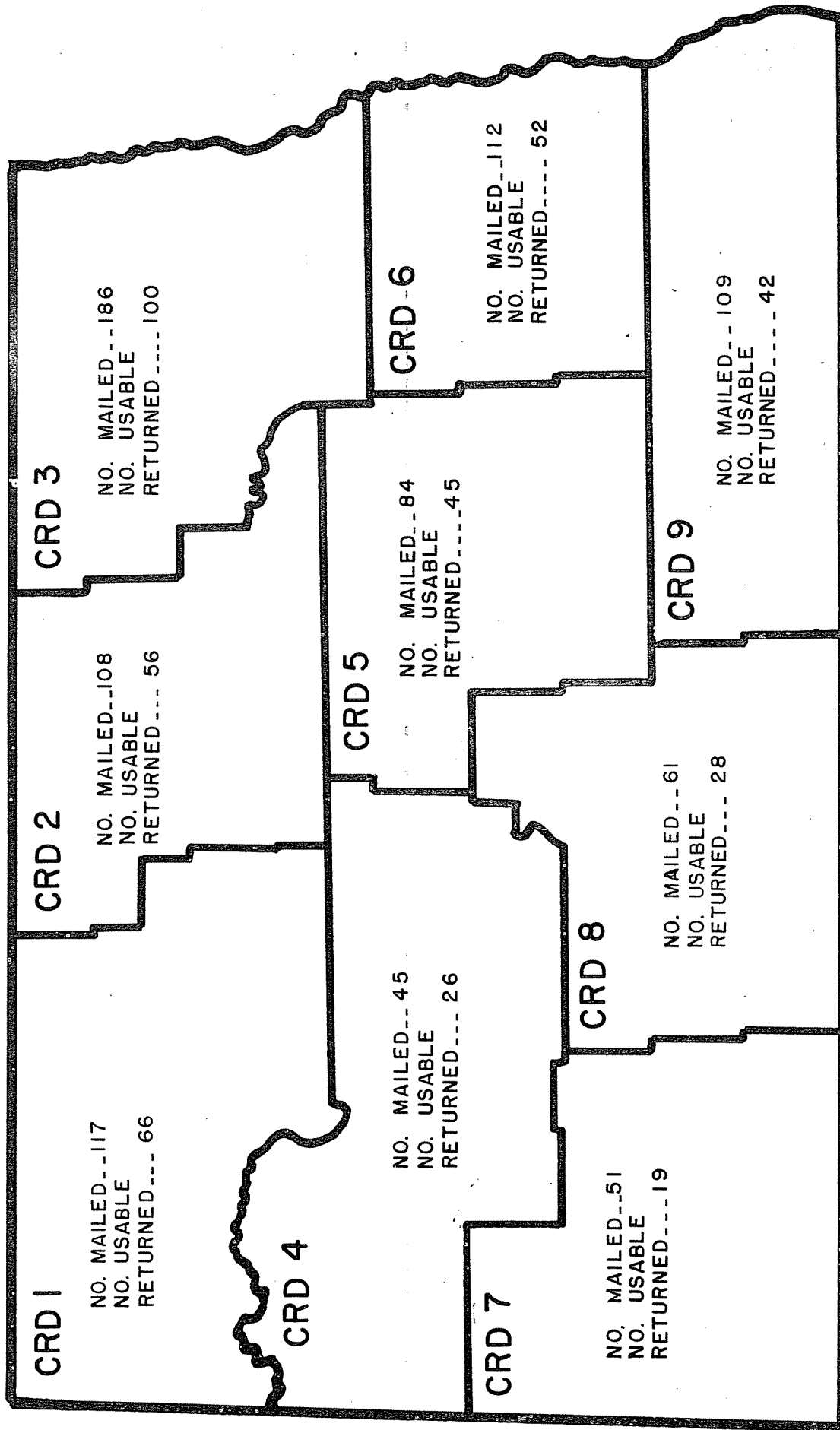


FIGURE 1. NORTH DAKOTA CROP REPORTING DISTRICTS, NUMBER OF QUESTIONNAIRES MAILED AND NUMBER OF USABLE QUESTIONNAIRES RETURNED.

NUMBER MAILED	NUMBER USABLE	PERCENT
873	434	50 %

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

Volume (000's bu.)	CROP REPORTING DISTRICTS								
	1	2	3	4	5	6	7	8	9
	NM/NR RE	NM/NR RE	NM/NR RE	NM/NR RE	NM/NR RE	NM/NR RE	NM/NR RE	NM/NR RE	NM/NR RE
0-199	45/31 1.452	66/33 2.000	106/41 2.585	21/14 1.500	39/25 1.560	63/23 2.739	27/8 3.375	42/15 2.800	74/12 6.167
200-399	48/22 2.182	29/11 2.636	58/37 1.568	18/9 2.000	35/13 2.692	31/19 1.632	19/8 2.375	16/13 1.231	31/26 1.192
400-599	15/7 2.143	11/8 1.375	15/15 1.000	5/2 2.500	8/7 1.143	10/6 1.667	1/1 1.000	3/0 0	2/2 1.000
600-	9/6 1.500	2/2 1.000	7/7 1.000	1/1 1.000	2/0 0	8/4 2.000	4/2 2.000	0/0 0	2/2 1.000

NM = Number of Questionnaires Mailed

NR = Number of Usable Questionnaires Returned

RE = Ratio Estimator

TABLE 2. GRAIN PRODUCED, ESTIMATED ELEVATOR PURCHASES AND GRAIN NOT SOLD, 1956-57.

	Wheat	Barley	Oats	Corn	Flax	Rye	Soybeans
	Thousands of Bushels						
Produced	118,824	74,952	47,878	31,872	26,672	3,768	2,301
Purchased	104,267	47,625	16,973	2,551	17,297	2,862	1,453
Not Sold	14,557	27,327	30,905	29,291	9,375	906	848

The 1956 crop year includes the period October 1, 1956 to September 30, 1957. Of all grain purchased, approximately 53 percent was wheat, 24 percent barley, 8.8 percent flax, and 8.7 percent oats with the other grains accounting for less than 5 percent of all grain purchases.

Estimated Grain Purchased and Trucked

All Grains

North Dakota country elevators purchased an estimated 195,669,624 bushels of grain from farmers and the CCC during the 1956 crop year. Of this total, an estimated 9,323,695 bushels were shipped by truck to first destination from the country elevators (Table 3).

Crop Reporting District 9 had about 85 percent of the corn, 79 percent of the other grains, 52 percent of the soybeans and between 24 and 26 percent of the rye, barley and oats that was moved by truck.

Crop Reporting District 6 had approximately 43 percent of the barley, 46 percent of the soybeans and 35 percent of the flax that was moved by truck. Crop Reporting District 7 had about 68 percent of the rye that was moved by truck. Crop Reporting District 3 was most important for the movement of wheat by truck.

For all grains trucked from North Dakota elevators wheat comprised about 39 percent, oats 28 percent, flax 10 percent, soybeans 8 percent, corn 7 percent and barley about 6 percent (Table 4).

TABLE 4. ALL GRAINS TRUCKED FROM NORTH DAKOTA ELEVATORS, BUSHELS TRUCKED AND PERCENT OF ALL GRAIN TRUCKED

Rank	Commodity	Bushels	Percent of Total
1	Wheat	3,612,173	38.74
2	Oats	2,605,058	27.94
3	Flax	888,454	9.53
4	Soybeans	735,112	7.88
5	Corn	619,782	6.65
6	Barley	518,214	5.56
7	Other	286,709	3.08
8	Rye	58,192	.62
Total		9,323,695	100.00

The total trucked represented 4.8 percent of the volume purchased (Figure 2). Crop Reporting District 9 with 9 percent of all grain purchases trucked was most important. Fifty percent of the grain trucked went to major Minnesota destinations, 39 percent went to other out-of-state destinations and 11 percent was trucked to in-state destinations. Of the 195,669,624 bushels trucked, 8,204,400 bushels or 88 percent went to out-of-state destinations (Table 5). The amount trucked out-of-state represents about 4 percent of the total amount purchased by elevators. The remaining 1,119,295 bushels trucked went to destinations within the state. Twenty-three percent of the grain trucked out-of-state came from Crop Reporting District 6, 20 percent from District 9 and 14 percent from District 3. Of the total grain trucked out-of-state, the Minneapolis-St. Paul market received slightly over 50 percent (Appendix Table 1). Other Minnesota destinations received approximately 19 percent. Twenty-five percent went to such states as Nebraska, Kansas, Oklahoma, Texas, Missouri and Iowa. Approximately 6 percent went to destinations unknown by the elevator operator.

Grand Forks received the largest proportion of the grain (25 percent) trucked to in-state destinations (Appendix Table 2). The destination was unknown for about 31 percent of the grain trucked to in-state destinations.

Crop Reporting District 6 and 9 reported trucking the largest proportion to out-of-state destinations. District 3 was third with 14 percent of the grain trucked to out-of-state destinations (Appendix Table 3). All of these districts lie on the eastern border of North Dakota and are most easily reached by truckers.

Crop Reporting District 9 accounted for almost 59 percent of the trucked grain going to in-state destinations (Appendix Table 4). A large part of this was corn going to other in-state destinations for feed purposes.

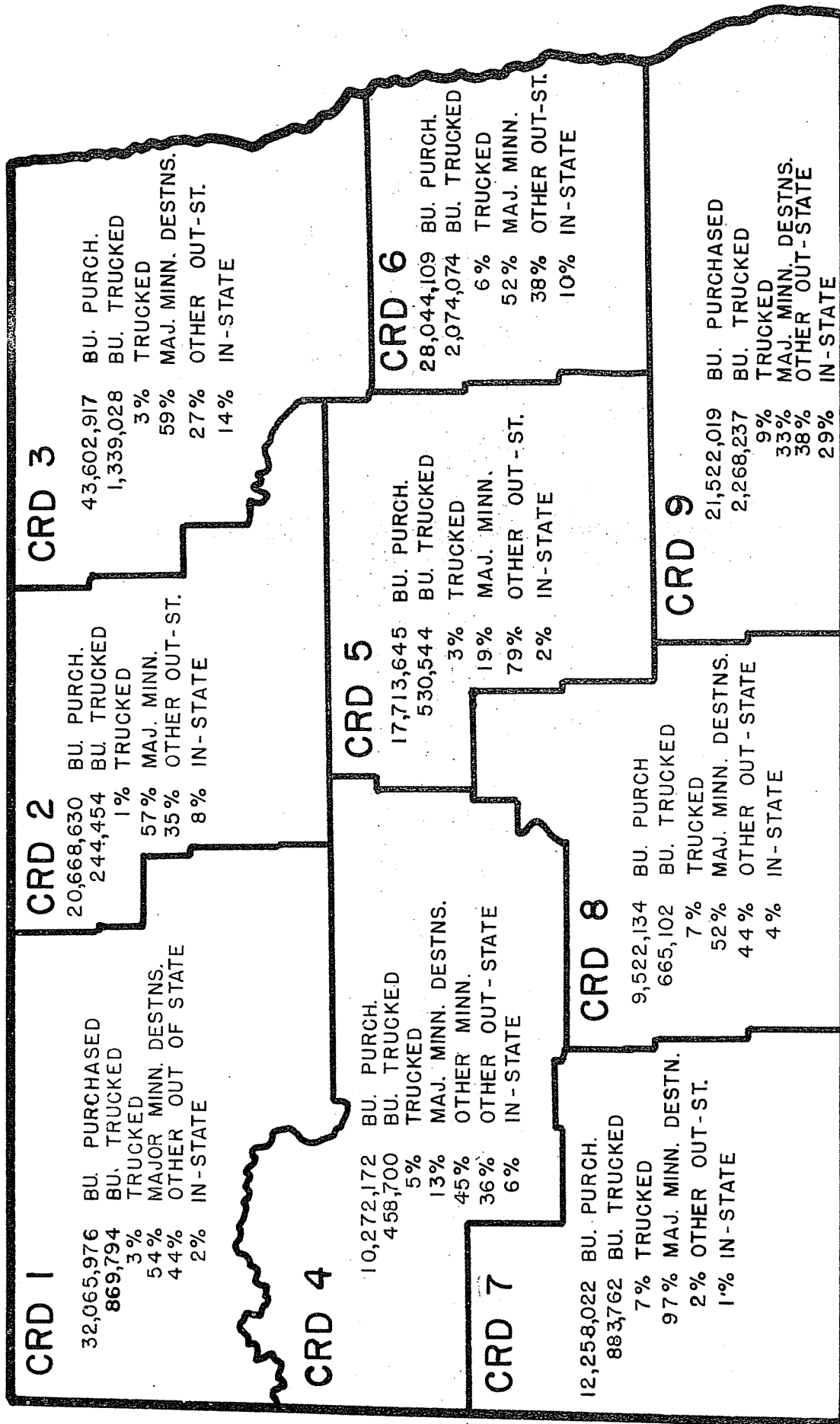


FIGURE 2. ALL GRAINS. TOTAL OF ALL GRAINS PURCHASED BY COUNTRY ELEVATORS
 PERCENT OF GRAIN TRUCKED, AND DESTINATIONS OF TRUCKED
 GRAIN BY CROP REPORTING DISTRICTS, 1956 CROP.

	STATE
195,669,624 BU. PURCHASED	
9,323,695 BU. TRUCKED	
4.8% TRUCKED	
50% MAJ. MINN. DESTNS.	
39% OTHER OUT-STATE	
11% IN-STATE	

TABLE 5. ALL GRAINS SHIPPED OUT-OF-STATE AND IN-STATE BY TRUCK, BY CROP REPORTING DISTRICT

	1	2	3	4	5	6	7	8	9	TOTAL
Amount Shipped Out-of-State (Bushels)	850,783	226,058	1,158,238	441,700	521,944	1,877,285	877,012	637,511	1,613,869	8,204,400
Percent	10.37	2.76	14.12	5.38	6.36	22.88	10.69	7.77	19.67	100.00
Amount Shipped In-State (Bushels)	9,011	18,396	180,790	17,000	8,600	196,789	6,750	27,591	654,368	1,119,295
Percent	.81	1.64	16.15	1.52	.77	17.58	.60	2.47	58.46	100.0

Individual Grains

Wheat

Wheat led all other grains in the volume trucked. The 3,612,173 bushels trucked represented 39 percent of all trucked grain from North Dakota (Figure 3).

Only 3 percent of the total wheat purchased by North Dakota elevators was trucked. Seventy-eight percent of the wheat was trucked to major Minnesota destinations, 19 percent was trucked to other out-of-state destinations and 3 percent to in-state destinations.

Minneapolis-St. Paul received 69 percent of the wheat trucked to out-of-state destinations. Duluth-Superior received about 11 percent and other Minnesota destinations 12 percent. Other out-of-state destinations such as Oklahoma, Texas and Missouri received the balance.

Wheat represented only about 8 percent of the total grain trucked to in-state destinations. The most important in-state destinations were Grand Forks and Red River Valley stations.

Crop Reporting District 7 trucked 8 percent of the wheat purchased, followed by District 6 and 8 with 6 percent of purchased wheat that was trucked.

Oats

It was estimated that 16,972,639 bushels of oats were purchased by elevators. Thirteen percent or 2,605,058 bushels of the purchased grain was shipped by truck. Ninety-eight percent or 2,558,302 bushels were trucked to out-of-state destinations (Figure 4). Oats represented 28 percent of all grain trucked and constituted 31 percent of the total grains shipped out-of-state (Appendix Table 3).

The most common out-of-state destinations were Minneapolis-St. Paul, Duluth-Superior, other Minnesota destinations and Nebraska and Kansas. Minnesota destinations accounted for approximately 28 percent of the oats trucked out-of-state.

Crop Reporting District 9 reported shipping 17 percent or 664,216 bushels of oats by truck. District 6 reported that 12 percent or 461,677 bushels of its oat purchases were trucked. A larger proportion of the oats purchased by elevators in the western districts of the state were trucked than in the eastern districts.

Flax

Flax ranked third behind wheat and oats in the volume shipped by truck. The 888,454 bushels trucked represented 10 percent of the total trucked grain. The elevators reported that 5 percent of the flax was trucked (Figure 5).

Ninety-eight percent of all flax trucked was moved to out-of-state destinations. Flax ranked third in importance in out-of-state movement of trucked grain (Appendix Table 1).

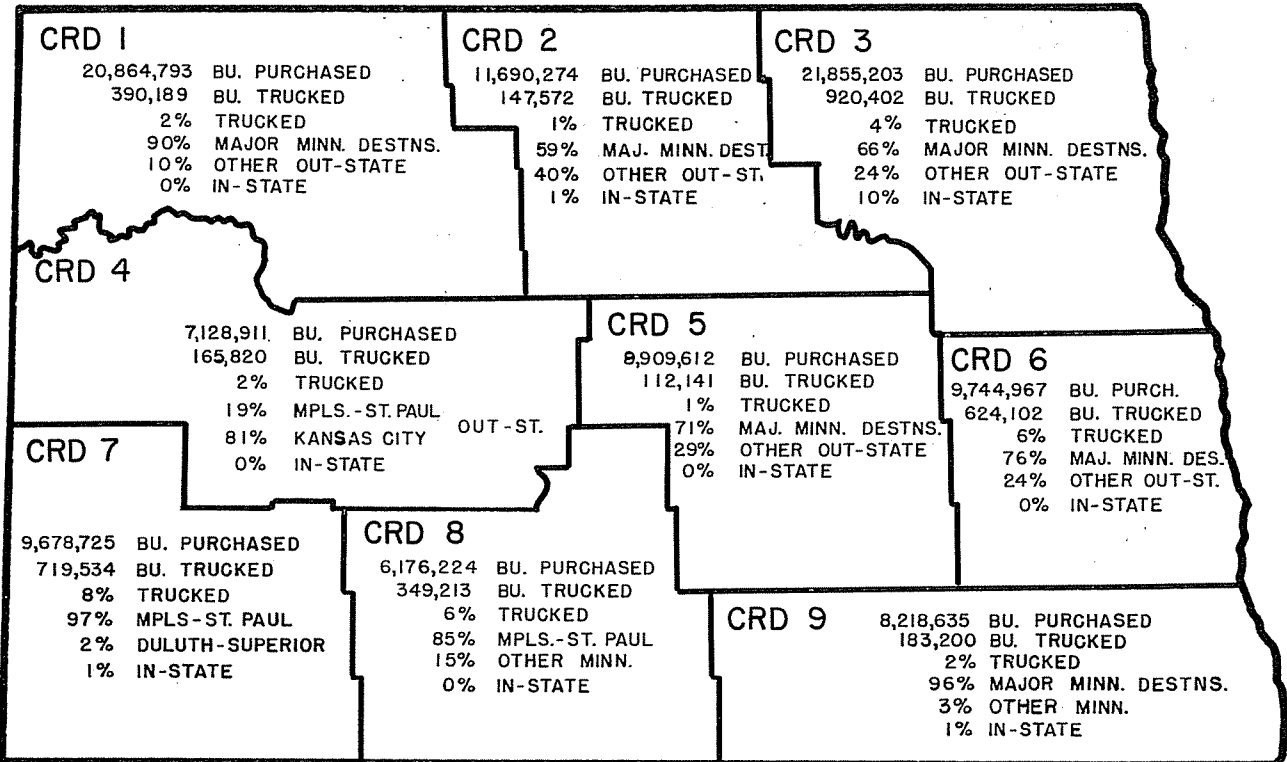


FIGURE 3. WHEAT

TOTAL WHEAT PURCHASED BY COUNTRY ELEVATORS, PERCENT OF PURCHASES TRUCKED AND DESTINATIONS OF TRUCKED WHEAT BY CROP REPORTING DISTRICTS, NORTH DAKOTA, 1956.

STATE	BU. PURCHASED	BU. TRUCKED	TRUCKED %	MAJ. MINN. DESTNS.	OTHER OUT OF ST.	IN STATE
STATE	104,267,344	3,612,173	3%	78%	19%	3%

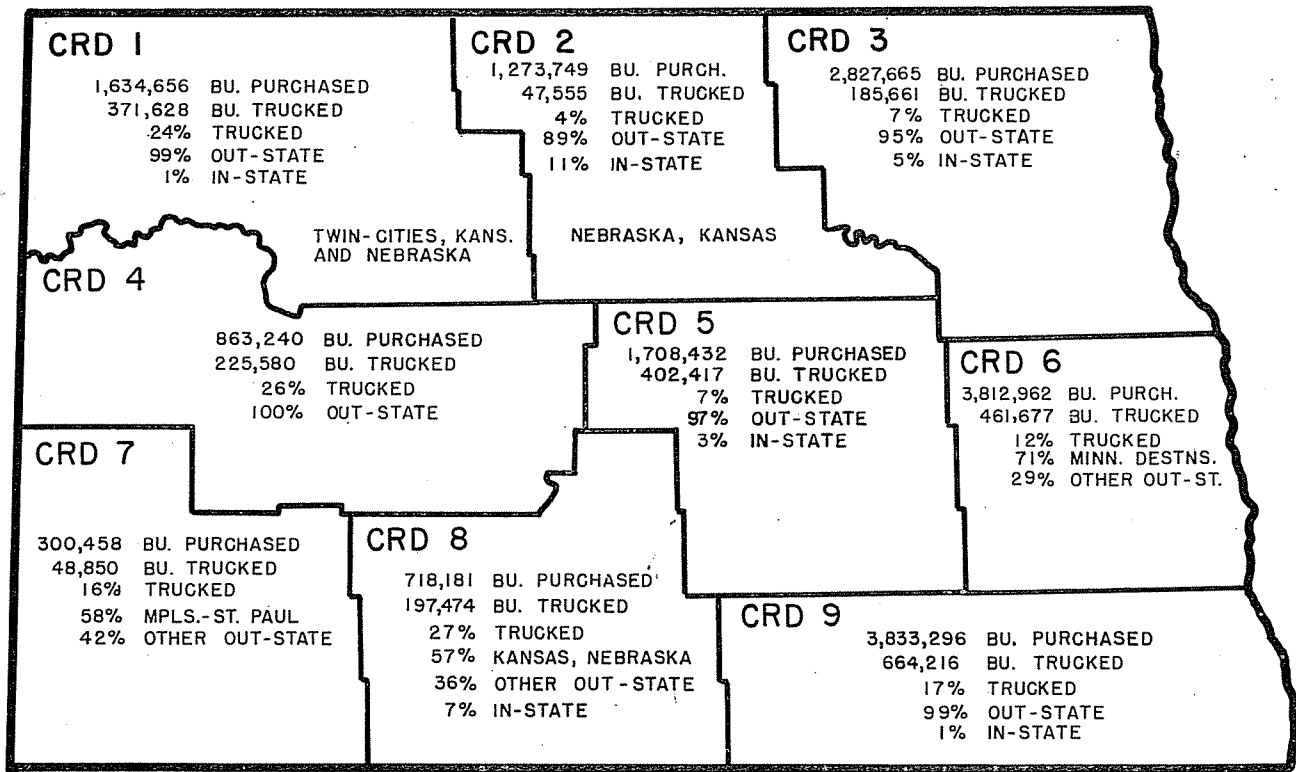


FIGURE 4. OATS

TOTAL OATS PURCHASED BY COUNTRY ELEVATORS, PERCENT OF PURCHASES TRUCKED AND DESTINATIONS OF TRUCKED OATS BY CROP REPORTING DISTRICTS, NORTH DAKOTA, 1956.

STATE	BU. PURCHASED	BU. TRUCKED	TRUCKED %	OUT OF STATE	IN STATE
STATE	16,972,639	2,605,058	13%	98%	2%

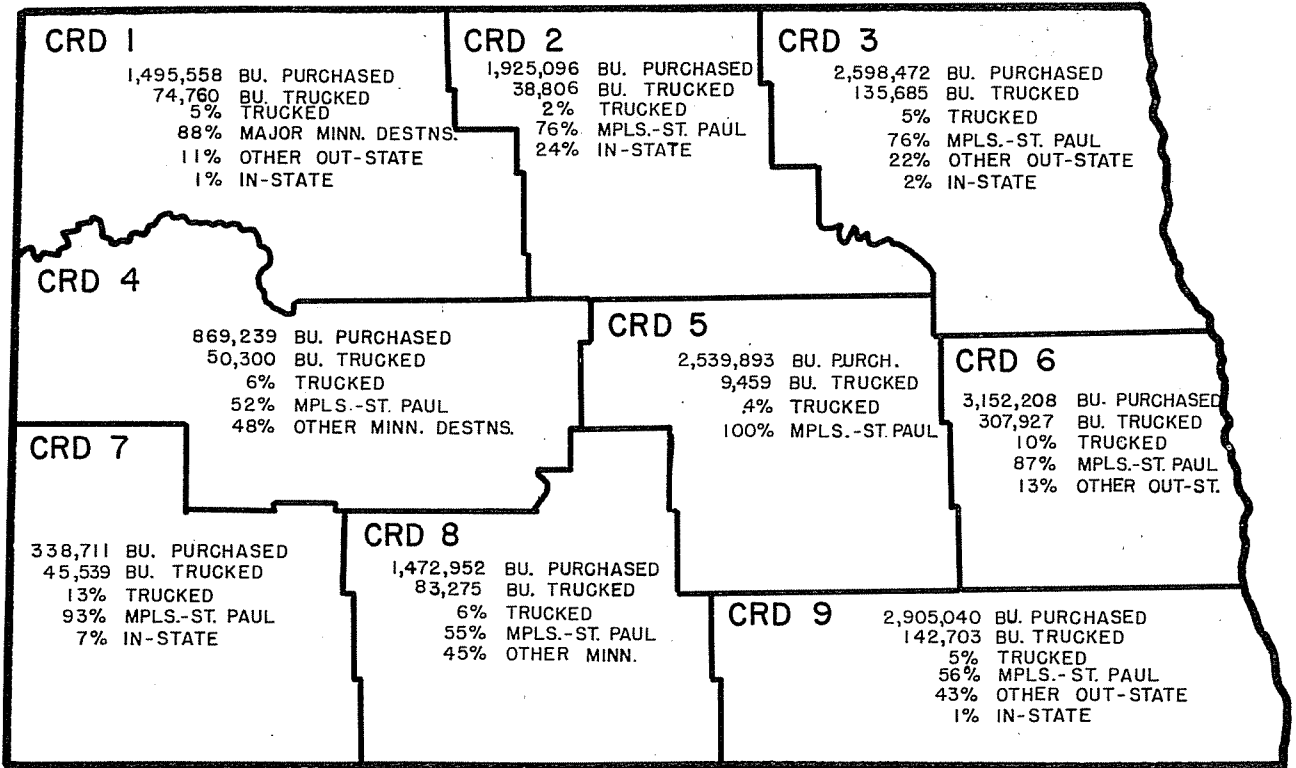


FIGURE 5. FLAX

TOTAL FLAX PURCHASED BY COUNTRY ELEVATORS, PERCENT OF PURCHASES TRUCKED, AND DESTINATIONS OF TRUCKED FLAX BY CROP REPORTING DISTRICTS, NORTH DAKOTA, 1956.

STATE
17,297,169 BU. PURCHASED
888,454 BU. TRUCKED
5% TRUCKED
75% MPLS.-ST. PAUL
23% OTHER OUT-STATE
2% IN-STATE

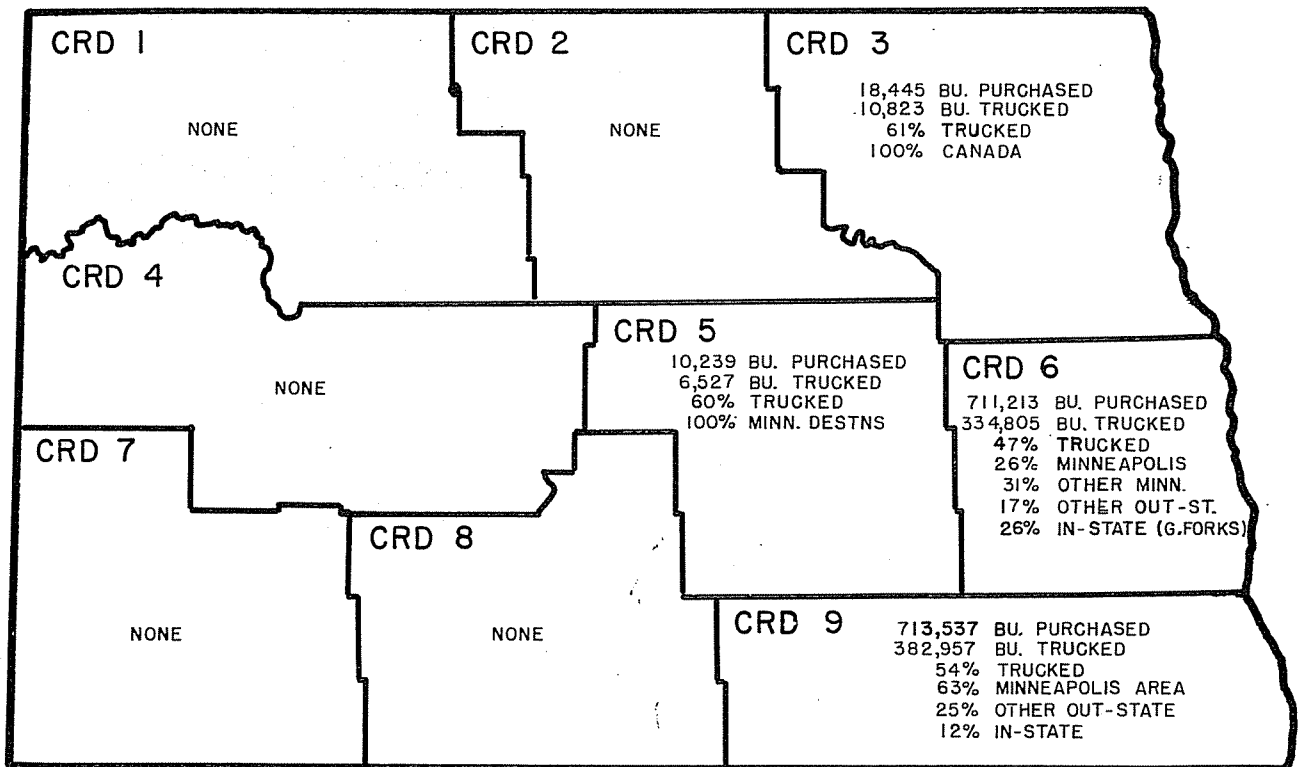


FIGURE 6 SOYBEANS

TOTAL SOYBEANS PURCHASED BY COUNTRY ELEVATORS, PERCENT OF PURCHASES TRUCKED AND DESTINATIONS OF TRUCKED SOYBEANS BY CROP REPORTING DISTRICTS, NORTH DAKOTA, 1956.

STATE
1,453,434 BU. PURCHASED
735,112 BU. TRUCKED
50% TRUCKED
82% OUT OF STATE
18% IN STATE

Seventy-eight percent of all flax trucked out-of-state went to Minneapolis-St. Paul. Crop Reporting District 6 led in volume of flax trucked with 307,927 bushels or 10 percent. Districts 9 and 3 both reported that approximately 5 percent of the purchased flax was shipped by truck.

Soybeans

A total of 735,112 bushels of soybeans were trucked, ranking fourth behind wheat, oats and flax. Fifty percent of the purchased soybeans were moved by truck. Eighty-two percent of the trucked soybeans went to out-of-state destinations (Figure 6).

Soybeans accounted for about 8 percent of all grain trucked. Out-of-state shipments amounted to 600,285 bushels. Minneapolis-St. Paul received 55 percent of the out-of-state trucked soybeans. Duluth-Superior and other Minnesota destinations received 21 percent (Appendix Table 1).

Most of the trucked soybeans came from Crop Reporting Districts 9 and 6, from which 54 and 47 percent of the purchased soybeans were trucked.

All of the soybeans trucked to in-state destinations were trucked to Grand Forks. This amounted to 134,827 bushels or 12 percent of the total grain trucked to in-state destinations.

Corn

Corn moved by truck amounted to 619,782 bushels or about 7 percent of all grains moved by truck. Twenty-four percent of the estimated purchases of corn was moved by truck. Twenty-six percent of this moved to out-of-state destinations. Most of the trucked corn was moved to in-state destinations and used for feed (Figure 7).

The most important in-state destinations of trucked corn were Grand Forks, Wahpeton and Fargo. The most important single destination for out-of-state trucked corn was Minneapolis-St. Paul. Crop Reporting District 9 was the source of most of the trucked corn.

Barley

Some 47,625,369 bushels of barley were estimated to be purchased by elevators. They reported that 518,214 bushels were moved by truck. This represents about 6 percent of all grain moved by truck. Only about one percent of the total barley purchased was moved by truck. Seventy percent of this was trucked to out-of-state destinations (Figure 8).

Approximately 50 percent of the barley trucked out-of-state went to Minneapolis-St. Paul. Other Minnesota destinations received 39 percent.

About 68 percent of all barley trucked originated in Crop Reporting Districts 9 and 6. The most important in-state destinations for trucked barley were Minot, Grand Forks and West Fargo.

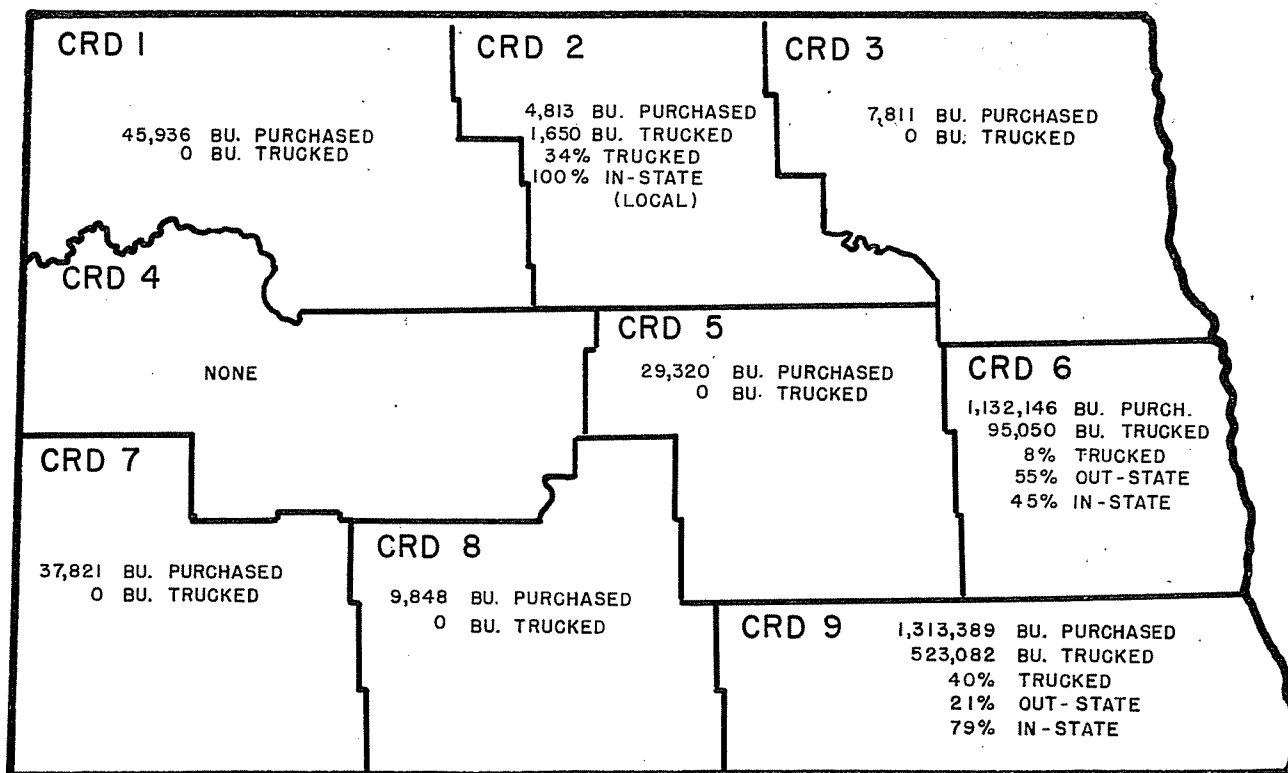


FIGURE 7. CORN

TOTAL CORN PURCHASED BY COUNTRY ELEVATORS, PERCENT OF PURCHASES TRUCKED AND DESTINATIONS OF TRUCKED CORN BY CROP REPORTING DISTRICTS, NORTH DAKOTA, 1956.

STATE
 2,581,084 BU. PURCHASED
 619,782 BU. TRUCKED
 24% TRUCKED
 26% OUT OF STATE
 74% IN STATE

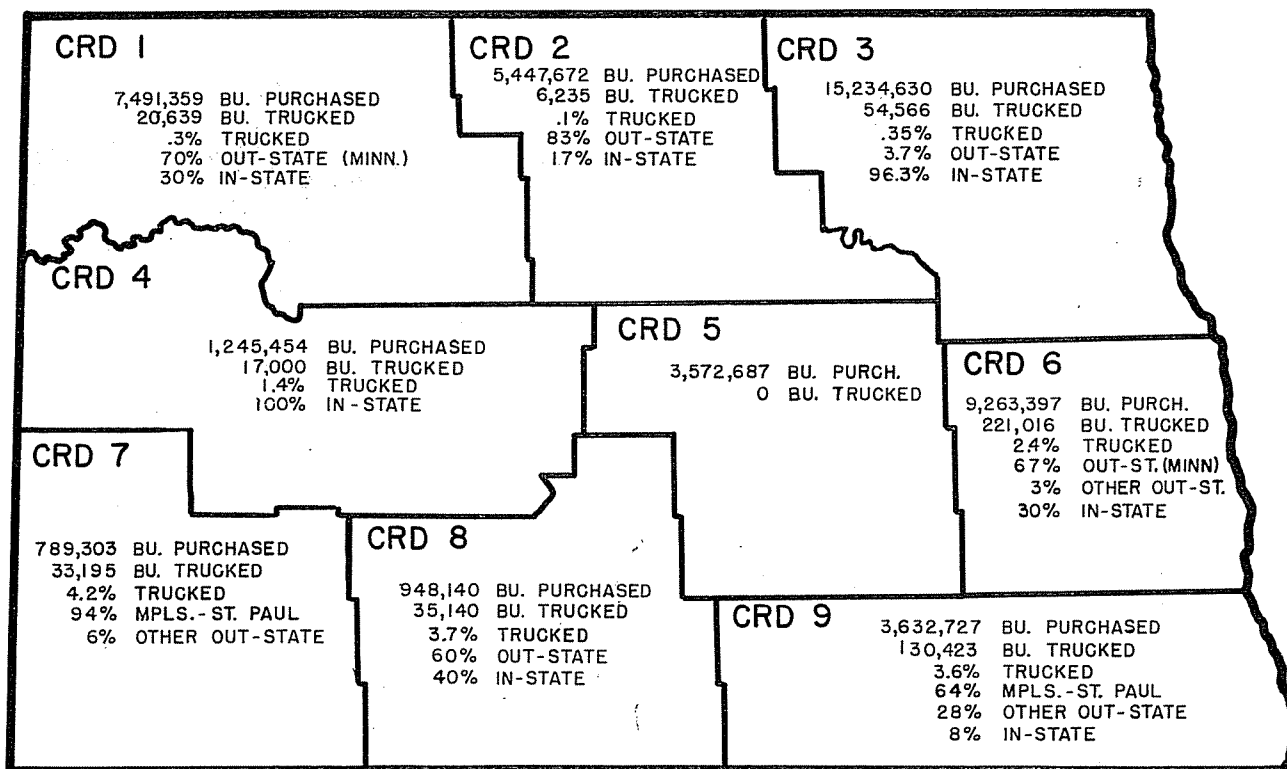


FIGURE 8. BARLEY

TOTAL BARLEY PURCHASED BY COUNTRY ELEVATORS, PERCENT OF PURCHASES TRUCKED AND DESTINATIONS OF TRUCKED BARLEY BY CROP REPORTING DISTRICTS, NORTH DAKOTA, 1956.

STATE
 47,625,369 BU. PURCHASED
 518,214 BU. TRUCKED
 1% TRUCKED
 70% OUT OF STATE
 30% IN STATE

Other Grains

The grains included in this category consisted of such grains as millet and sunflower seed. About 11 percent of the estimated purchases were trucked (Figure 9). The 286,710 bushels represented about three percent of the total trucked grain. Crop Reporting District 9 was the origin of most of the trucked grain in this category. Some 84 percent of the purchased millet was trucked in this District. Oakes was the in-state destination for most of it. Grand Forks, received all of the trucked sunflower seeds.

Rye

Only about 2 percent of the rye purchased was trucked. This amounted to 58,192 bushels and 97 percent of it moved to Minneapolis-St. Paul (Figure 10). Crop Reporting District 7 was the source of approximately 62 percent of the trucked rye.

Factors Affecting Trends in Truck Grain Shipping

The choice of one mode of transportation over another can usually be attributed to a competitive advantage one may have over another. In the case of motor truck versus rail, the advantage of lower freight rates offered by motor carriers is providing the major incentive for the shift to this mode of transportation.

There has been much clamoring on the part of railroads for legislation requiring exempt haulers to abide by published tariffs and to require possession of either common or contract carrier rights or permits. Thus they would be under the regulation of the Interstate Commerce Commission similar to that of the railroads and other common carrier truckers. Should the federal government see fit to enact such legislation, then it is probable that truckers would no longer enjoy a freight rate advantage.

Other factors do affect the competition also. Elevator operators are very familiar with the boxcar shortages that exist at harvest time in North Dakota. Although this factor is not as significant as it was three or four years ago, it nevertheless plays an important role in the decision of which service to use in shipping grain to market.

Elevator managers were asked two questions pertaining to the future of shipping grain by motor truck.

The first question was: "How do you feel the new interstate highway program will affect volume of grain moved by truck?" In general, it was felt that this program would have a significant effect on shipping grain by truck. Forty-seven percent indicated that they felt it would increase the amount of grain moved by truck, only 2 percent felt it would decrease and 12 percent felt there would be no change (Table 6).

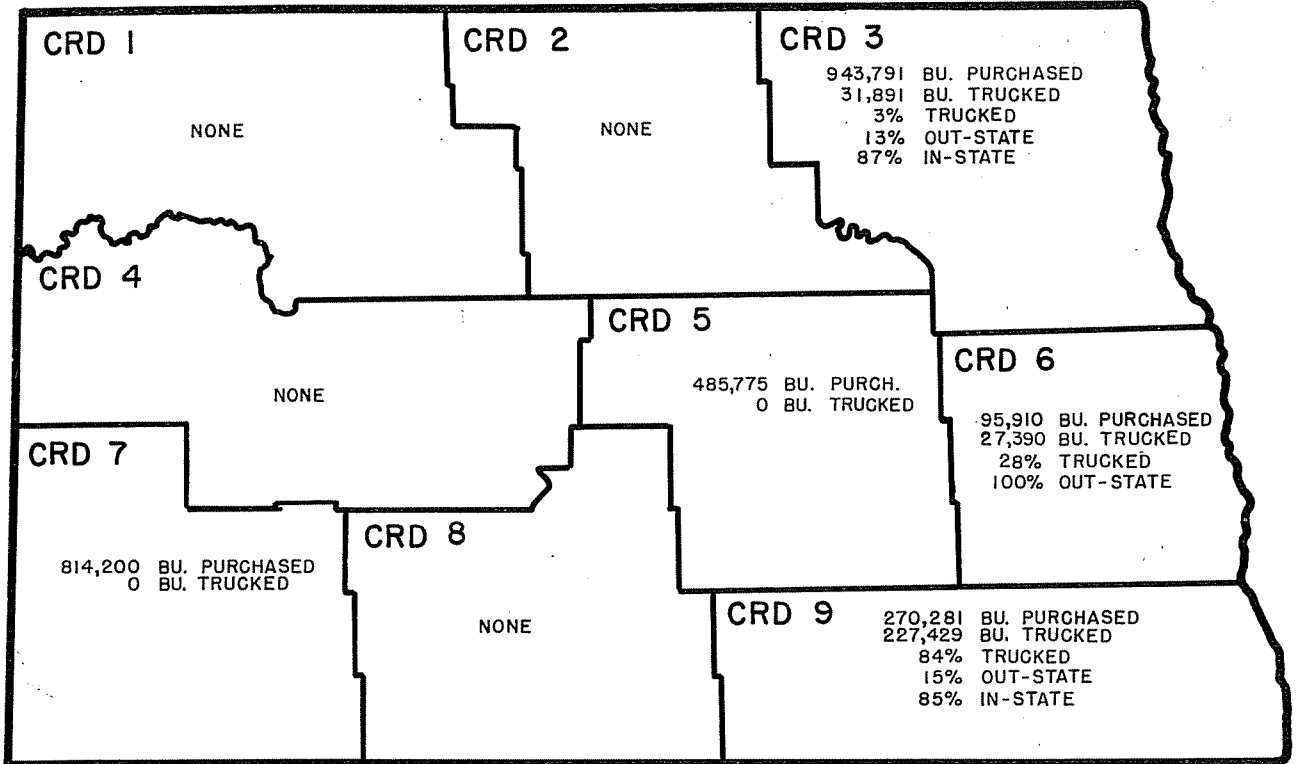


FIGURE 9. OTHER GRAINS

TOTAL OTHER GRAINS PURCHASED BY COUNTRY ELEVATORS, PERCENT OF PURCHASES TRUCKED AND DESTINATIONS OF TRUCKED OTHER GRAINS BY CROP REPORTING DISTRICTS, NORTH DAKOTA, 1956.

STATE
 2,609,957 BU. PURCHASED
 286,710 BU. TRUCKED
 11% TRUCKED
 26% OUT OF STATE
 74% IN STATE

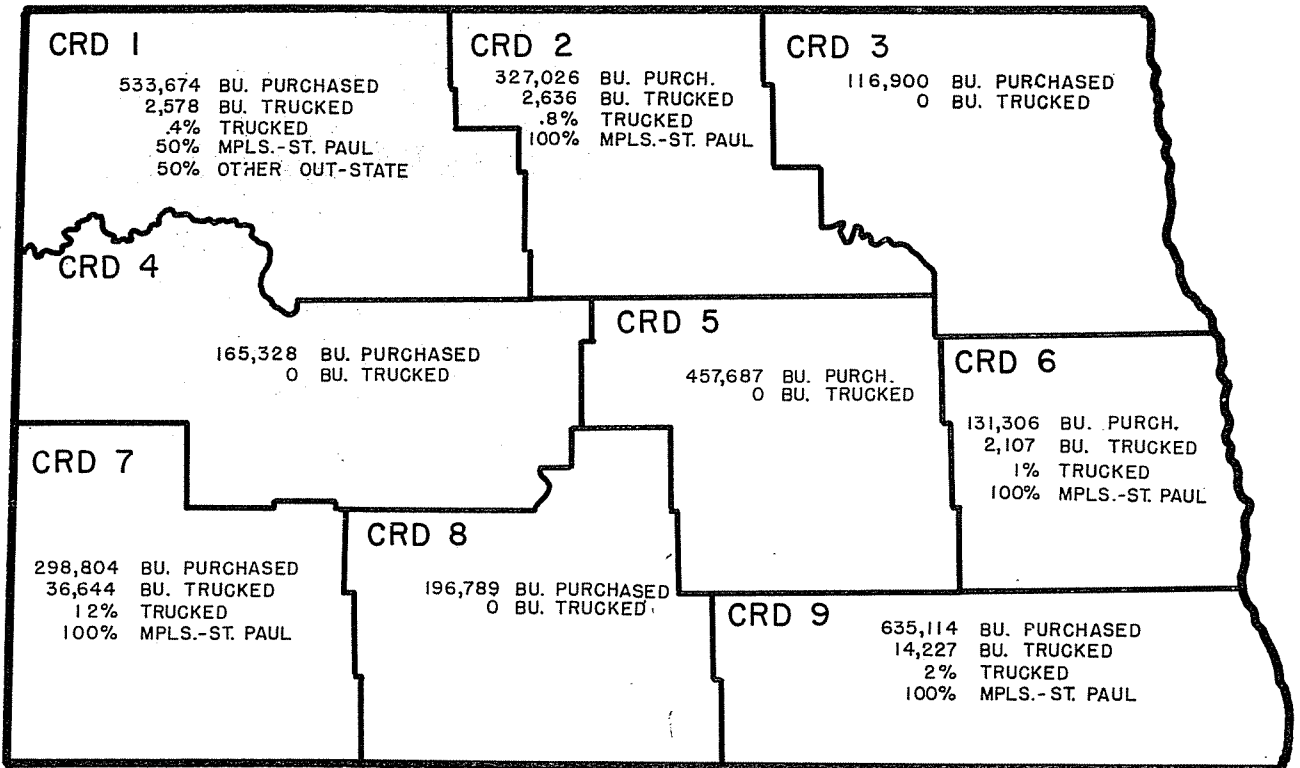


FIGURE 10. RYE

TOTAL RYE PURCHASED BY COUNTRY ELEVATORS, PERCENT OF PURCHASES TRUCKED, AND DESTINATIONS OF TRUCKED RYE BY CROP REPORTING DISTRICTS IN NORTH DAKOTA, 1956.

STATE
 2,862,628 BU. PURCHASED
 58,192 BU. TRUCKED
 2% TRUCKED
 97% MPLS.-ST. PAUL
 3% UNKNOWN

TABLE 6. NUMBER OF RETURNS FROM EACH CROP REPORTING DISTRICT AND THE NUMBER OF RESPONSES TO THE QUESTION, "HOW DO YOU FEEL THE NEW INTERSTATE HIGHWAY PROGRAM WILL AFFECT VOLUME OF GRAIN MOVED BY TRUCK?"

	CROP REPORTING DISTRICT																			
	1		2		3		4		5		6		7		8		9		TOTAL	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Increase	42	51	29	40	47	38	18	60	31	52	32	49	10	42	21	62	29	51	259	47
Decrease	1	1	3	4	3	2	0	0	1	1	3	5	0	0	1	3	1	2	13	2
No Change	12	15	7	10	15	12	2	7	9	15	10	15	1	4	4	12	6	10	66	12
Did not reply	27	33	34	46	59	48	10	33	19	32	20	31	8	54	8	23	21	37	211	39
Total	82	100	73	100	124	100	30	100	60	100	65	100	24	100	34	100	57	100	549	100

Figure 11 shows the approximate location of the proposed highway system in North Dakota. By noting the crop districts through which it will pass, it is interesting to note that the operators in these districts did not feel it would have much more importance than those in districts outside the proposed location. Figure 12 shows the location of the major hard surfaced highways in North Dakota over which most of the trucked grain is moved.

The second question asked the elevator operators was: "Do you think that truck transportation will become more or less important in the next five years?" The majority, 65 percent, felt that it would become more important. Only 4 percent felt it would be less important and 2 percent indicated no change (Table 7).

TABLE 7. NUMBER OF RETURNS FROM EACH CROP REPORTING DISTRICT AND THE NUMBER OF RESPONSES TO THE QUESTION, "DO YOU THINK THAT TRUCK TRANSPORTATION WILL BECOME MORE OR LESS IMPORTANT IN THE NEXT FIVE YEARS?"

	CROP REPORTING DISTRICT																			
	1		2		3		4		5		6		7		8		9		TOTAL	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
More	61	74	39	54	75	60	22	73	37	62	48	74	16	67	27	79	33	58	358	65
Less	1	1	5	7	4	3	1	3	4	7	1	1	0	0	0	0	3	5	19	4
No Change	3	4	1	1	2	2	0	0	1	1	2	3	1	4	1	3	1	2	12	2
Did not Reply	17	21	28	38	43	35	7	24	18	30	14	22	7	29	6	18	20	35	160	29
Total	82	100	73	100	124	100	30	100	60	100	65	100	24	100	34	100	57	100	549	100

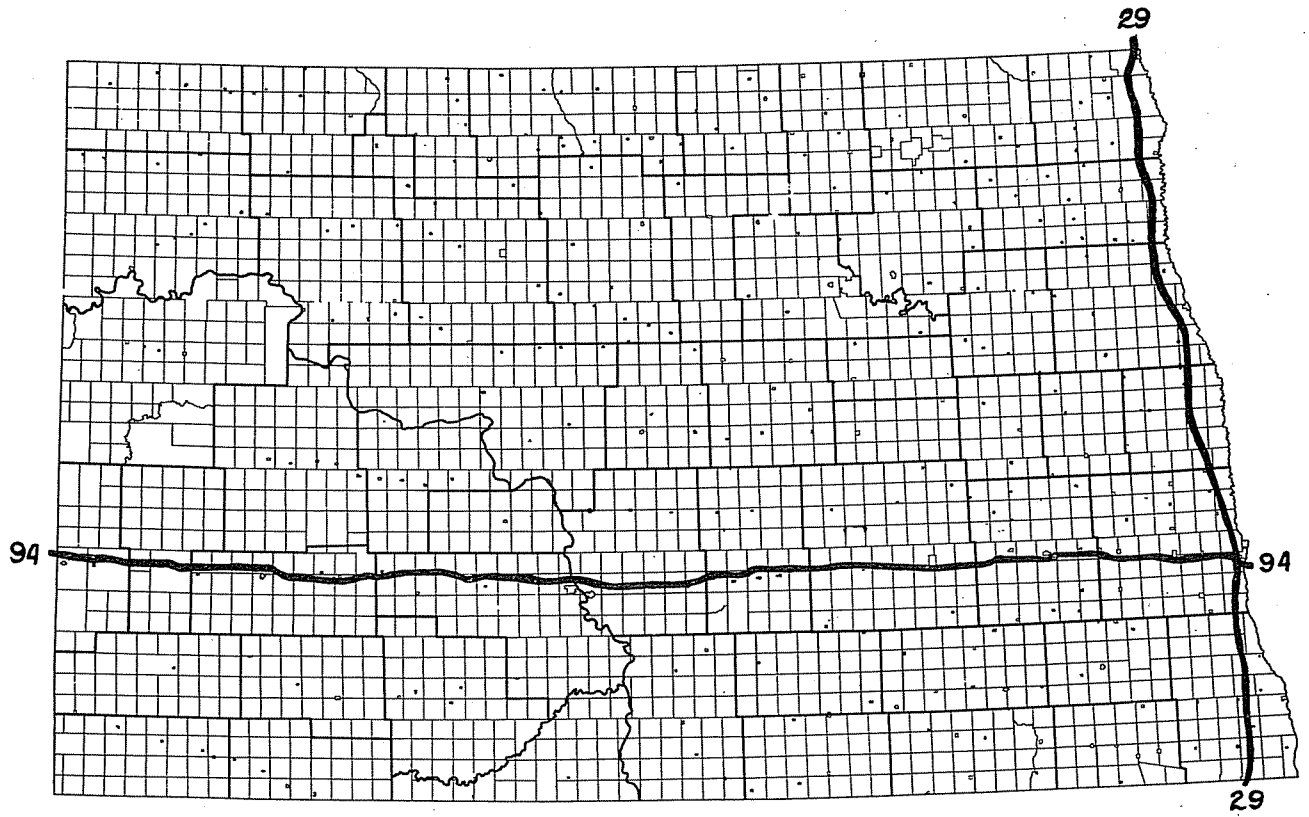


FIGURE 11. PROPOSED LOCATION OF THE FEDERAL INTERSTATE HIGHWAY SYSTEM IN NORTH DAKOTA, U. S. 94 AND 29.

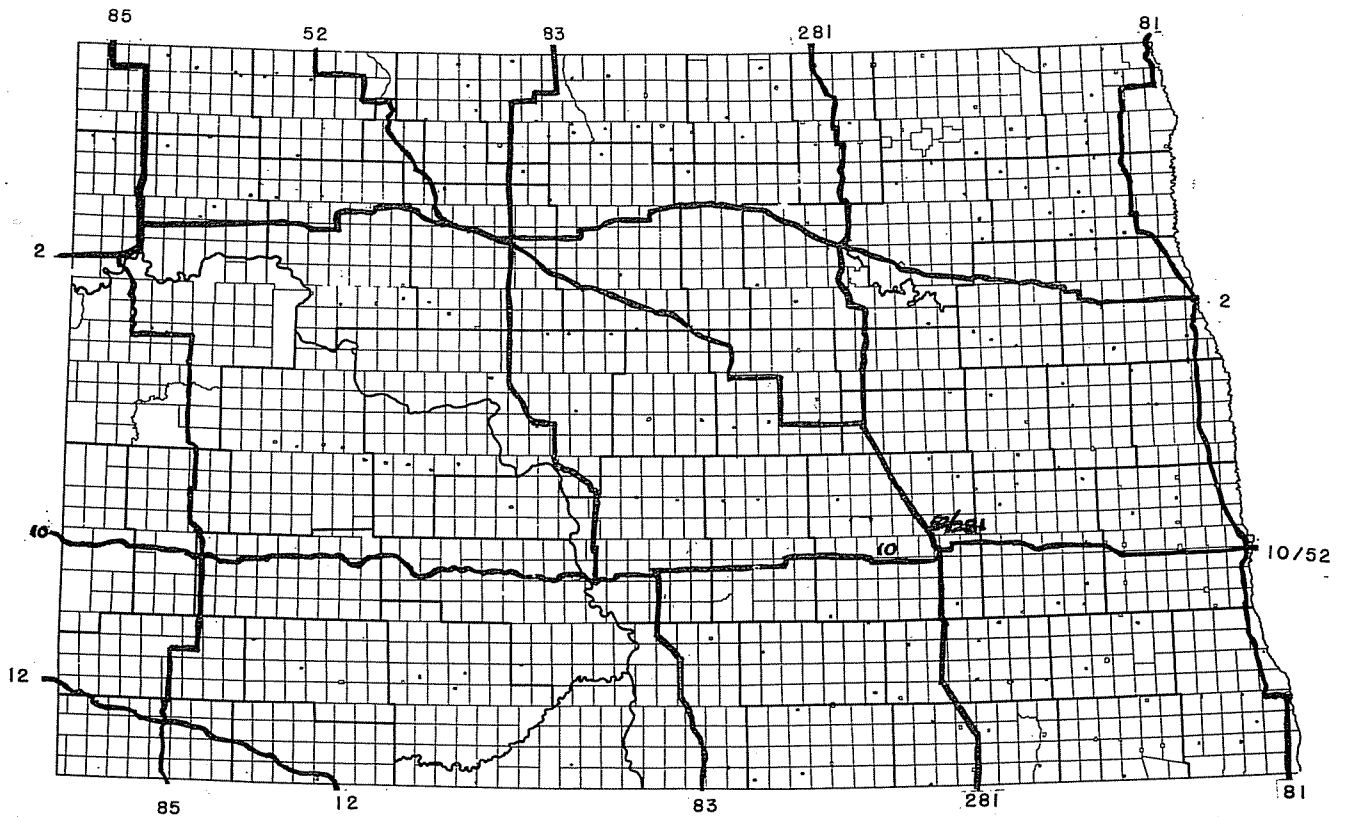


FIGURE 12. LOCATIONS OF MAIN PAVED ROADS IN NORTH DAKOTA

A very significant factor affecting the trend of growth is the limited facilities for truck unloading of grain in the Minneapolis-St. Paul market. The volume of grain destined for the Minneapolis-St. Paul terminal markets via motor truck has increased in the past few years. At present, however, there are limited facilities for inspection and sampling of this grain. Future developments in this market will have a significant impact on future rates of growth in the volume of grain handled by truck from North Dakota elevators.

Another factor is the situation faced by terminal market processors and elevator operators. The decision whether to invest in facilities for unloading and handling trucked grain and facilitating movement of motor equipment depends largely on the possibilities of increased volumes handled by truck.

In spite of the speed advantage offered by trucks, there are no provisions for transit privileges to shippers using motor carrier. These privileges offer significant opportunities for reducing transportation costs. This has proven to be a particularly bad feature in truck transportation. This only affects that portion that is destined beyond terminal points via rail transportation. That portion that is destined beyond via barge, however, is not penalized and might enjoy an advantage in total freight costs due to the very low barge rates.

SUMMARY AND CONCLUSIONS

The volume of grain shipped by truck from country elevators to first destinations has increased significantly since the conclusion of World War II.

This increase was due to (1) increased rail freight rates, (2) boxcar shortages during harvest (3) less time in transit and (4) the demand of the trucker for "backhauls."

Approximately 5 percent of the grain purchased by country elevators was shipped to first destinations by truck. Approximately 88 percent of the trucked grain was shipped to out-of-state destinations. The other 12 percent went to in-state destinations.

Fifty percent of the out-of-state shipment went to Minneapolis-St. Paul. Approximately 25 percent of the in-state total went to Grand Forks.

Wheat accounted for the major portion of out-of-state shipments, approximately 43 percent. Corn led all other commodities, accounting for about 41 percent of the in-state movement.

Crop Reporting Districts 6 and 9 accounted for most of the out-of-state trucked grain, while districts 3, 6 and 9 were responsible for the bulk of the in-state volume.

District 9 was responsible for well over one-half of the soybeans trucked. District 6 accounted for the major part of the balance.

Wheat and oats were shipped in large proportions from all districts. Districts 6 and 9 accounted for about 50 percent of the oats and districts 3 and 6 about 40 percent of the wheat.

Very little corn was shipped out-of-state although it comprised the major portion of the in-state movement. Districts 6 and 9 led in shipment of corn by truck.

Flax ranked third in the out-of-state movement, but was not important in the in-state movement. Districts 3, 6 and 9 led in the shipment of trucked flax, accounting for approximately 66 percent of the total volume trucked.

The future trends are highly dependent on future legislation in the transportation field. This will determine any competitive advantage trucks may enjoy over railroads.

Most elevator operators felt that there would be more grain moved by truck in the next five years. The majority of these operators also felt that the new federal interstate highway program would have a significant effect on the amount of grain trucked.

Many groups are concerned about the trend in shifting from rail to trucks. Among these are grain exchange officials who have felt the decrease in tonnage being placed on the cash market, elevator operators and processors at terminal markets, and competing modes of transportation.

APPENDIX

Table 1 - Grain Trucked Out of the State, by Commodities, by Destination

Table 2 - Grain Trucked Within the State, by Commodities, by Destination

Table 3 - Grain Trucked Out of the State, by Commodities, by Crop Reporting District

Table 4 - Grain Trucked Within the State, by Commodities, by Crop Reporting District

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

Destination	Corn (Bu)	Oats (Bu)	Barley (Bu)	Rye (Bu)	Wheat (Bu)	Soybeans (Bu)	Flax (Bu)	Other (Bu)	TOTAL (BU)	Percent of Total
Twin-Cities (Mpls., St. Paul)	31,227	402,124	186,651	56,740	2,427,871	332,820	669,201	28,013	4,130,647	50.35
Duluth-Superior	4,227	37,693	7,068		394,631	5,636	26,933		476,188	5.81
Other Minnesota	9,749	288,143	133,528		416,927	118,595	136,688	1,409	1,105,039	13.47
Nebraska-Kansas	16,908	463,948	21,583						502,439	6.12
Oklahoma Texas Missouri		279,601			11,000				290,601	3.54
South Dakota Montana Iowa		100,365					705		101,070	1.23
Miscellaneous	69,793	920,616	9,863			120,984	2,818	4,000	1,128,074	13.75
Unknown	30,208	65,812	6,528	1,452	266,798	22,250	35,814	41,480	470,342	5.73
TOTAL	162,212	2,558,302	361,221	58,192	3,517,227	600,285	872,159	74,902	8,204,400	100.0
Percent of Total	1.98	31.18	4.40	.71	42.87	7.32	10.63	.91	8,204,400	100.0

TABLE 2. GRAIN TRUCKED WITHIN THE STATE BY COMMODITIES, BY DESTINATION.

Destination	Corn (Bu)	Oats (Bu)	Barley (Bu)	Rye (Bu)	Wheat (Bu)	Soybeans (Bu)	Flax (Bu)	Other (Bu)	TOTAL (BU)	Percent of Total
Minot		19,862	27,911				5,885	Millet 43,210	96,868	8.65
Grand Forks	51,739		37,941		42,570	134,827	1,997	Sunflowers 3,452	272,506	24.35
Fargo	31,706							Peas 2,000	33,706	3.01
Valley City					1,000				1,000	.09
Red River Valley			37,140		40,000			Millet 22,439	99,579	8.90
Mayville			5,170		10,340				15,510	1.39
West Fargo			32,868						32,868	2.94
Wahpeton			1,000						44,169	3.95
Carrington	5,000								5,000	.45
Barlowe									3,231	.29
Balfour	3,000								3,000	.27
Forman							704		704	.06
Devils Lake							3,954		3,954	.35
Oakes								Millet 123,340	123,340	11.02
Lisbon								Millet 17,367	17,367	1.55
Local	1,650	10,072	3,763		1,036		3,775		20,296	1.81
Unknown	321,406	13,591	11,200						346,197	30.93
TOTAL	457,670	46,756	156,993	----	94,946	134,827	16,295	211,808	1,119,295	100.0
Percent of Total	40.89	4.18	14.03	----	8.48	12.04	1.46	.8.92	1,119,295	100.0

TABLE 3. GRAIN TRUCKED OUT OF THE STATE BY COMMODITIES, BY CROP REPORTING DISTRICT.

Crop Reporting District	Corn (Bu)	Oats (Bu)	Barley (Bu)	Rye (Bu)	Wheat (Bu)	Soybeans (Bu)	Flax (Bu)	Other (Bu)	TOTAL (Bu)	Percent of Total
District 1		368,914	14,898	2,578	390,189		74,204		850,783	10.37
District 2		42,055	5,272	2,636	146,572		29,523		226,058	2.76
District 3		176,355	2,485		830,867	10,823	133,708	4,000	1,158,238	14.12
District 4		225,580			165,280		50,300		441,700	5.38
District 5		393,817			112,141	6,527	9,459		521,944	6.36
District 6	51,390	461,677	154,808	2,107	624,102	247,884	307,927	27,390	1,877,285	22.88
District 7		48,850	33,195	36,664	716,159		42,164		877,012	10.69
District 8		183,883	21,140		349,213		83,275		637,511	7.77
District 9	110,722	657,171	129,423	14,227	182,164	335,051	141,599	43,512	1,613,869	19.67
TOTAL	162,112	2,558,302	361,221	58,192	3,517,227	600,285	872,159	74,902	8,204,400	100.0
Percent of Total	1.98	31.18	4.40	.71	42.87	7.32	10.63	.91	8,204,400	100.0

TABLE 4. GRAIN TRUCKED WITHIN THE STATE, BY COMMODITIES, BY CROP REPORTING DISTRICT.

Crop Reporting District	Corn (Bu)	Oats (Bu)	Barley (Bu)	Rye (Bu)	Wheat (Bu)	Soybeans (Bu)	Flax (Bu)	Other (Bu)	Total (Bu)	Percent of Total
District 1		2,714	5,741				556		9,011	.81
District 2	1,650	5,500	963		1,000		9,283		18,396	1.64
District 3		9,306	52,081		89,535		1,977	Sunflowers 27,891	180,790	16.15
District 4			17,000						17,000	1.52
District 5		8,600							8,600	.77
District 6	43,660		66,208			86,921			196,789	17.58
District 7					3,375		3,375		6,750	.60
District 8		13,591	14,000						27,591	2.47
District 9	412,360	7,045	1,000		1,036	47,906	1,104	183,912	654,368	58.46
TOTAL	457,670	46,756	156,993	None	94,946	134,827	16,295	211,808	1,119,295	100.0
Percent of Total	40.89	4.18	14.03	0	8.48	12.04	1.46	18.92	1,119,295	100.0