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Multiple-Car Rail Rates - Their Impact On Grain Transport

By Reynold Dahl and Michael Martin*

MULTIPLE-CAR rail rates are influencing southern Minnesota's grain marketing patterns and its country elevator industry. These rates have encouraged many elevators to build multiple-car loading facilities. Several subterminal elevators have also been built.

The University of Minnesota Department of Agricultural and Applied Economics surveyed multiple-car loading elevators and subterminals in southern Minnesota in summer 1974.

This issue of Minnesota Agricultural Economist reports on that survey and discusses how these new rates are affecting grain marketing.

Background

Southern Minnesota railroads first offered multiple-car rail rates in 1972. The rates apply to corn and soybeans for export via the Gulf of Mexico, Great Lakes ports, and the Pacific Northwest. These rates began during the major surge in grain exports in 1972. At that time, Mississippi barges were in short supply, and their rates were high. Trucking costs were also increasing. Consequently, country ele-

vators had strong incentive to invest in multiple-car facilities.

Before multiple-car rates were introduced, most of southern Minnesota's exported corn and soybeans moved by truck to Mississippi River terminal elevators. From there, the grain traveled via barge to the Gulf of Mexico. However, the new multiple-car rates made rail shipments to the Gulf attractive. Besides being highly competitive with other modes of transportation, the rates compared favorably to single-car shipments. For example, to ship grain from Martin County to the Gulf by unit train currently costs about 58.5 cents/cwt. in a 25-car train; it costs 54.5 cents/cwt. in a 50-car train. However, to ship a single car to the Gulf costs about 74 cents/cwt.

Several factors have convinced railroads to offer unit rates. Among them are: (1) unit train shipping results in better utilization of equipment. (Reduced turnaround time of unit trains has greatly increased annual tonnage moved per car.); (2) Midwest railroads desired rate structures that could compete with truck-barge rates to the Gulf; (3) unit-train rates, together with the utilization agreement of five consecutive shipments which accompany these rates, can result in more consistent business for the railroads; and (4) some railroads instituted these rates to compete with other railroads offering them.

Operating and planned multiple-car elevators

In August 1974, 19 southern Minnesota elevators had facilities that could load unit trains. These elevators had a combined storage capacity of 10.5 million bushels.

An additional 1.5 million bushels in storage was not yet in service. Two

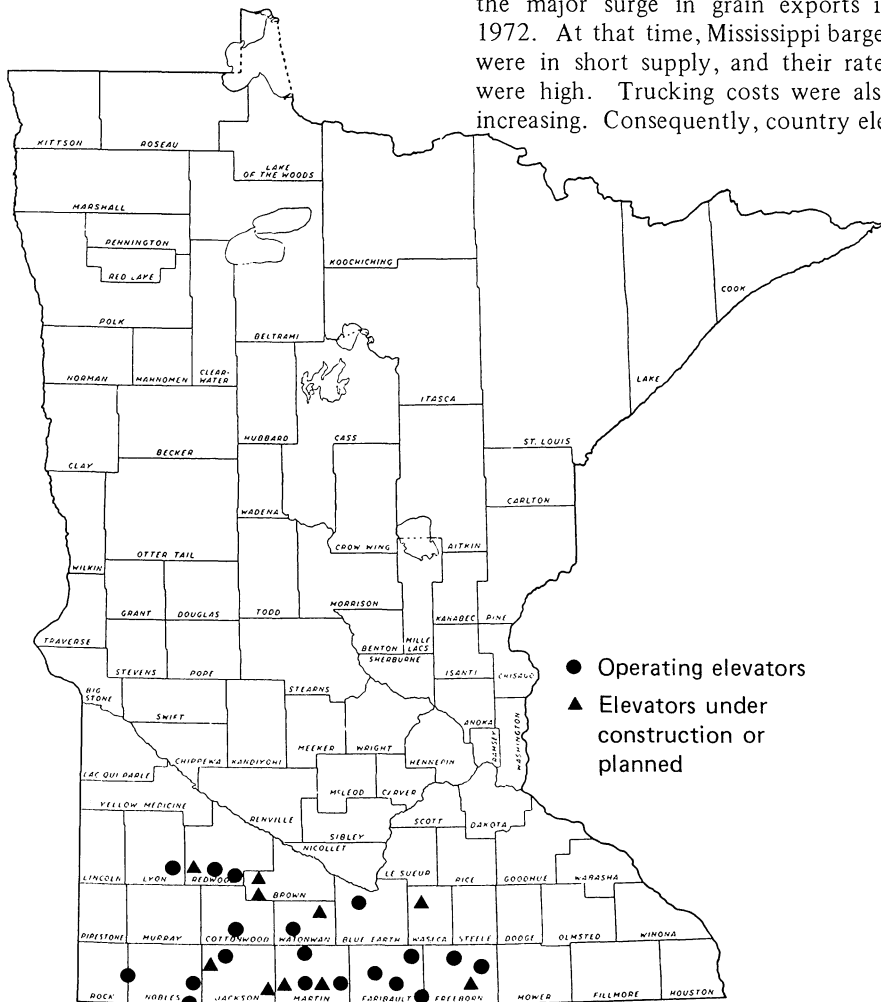


Figure 1. Locations of country elevators with multiple-rail car loading facilities and such elevators under construction or planned, August 1974.

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country elevators were remodeling to accommodate unit trains, and five new elevators were under construction. All were expected to be operational by Jan. 1, 1975—adding a total of 2.7 million bushels of storage space. Plans are also being made for at least three more elevators by 1975 that will have unit-train capability. Locations of operating unit-train elevators and elevators under construction or planned for construction in 1975 are shown in figure 1.

Five of the 19 elevators are subterminals since all or most of their grain is purchased from other elevators. Eleven are country elevators that primarily purchase grain from farmers. Three purchase grain both from other elevators and from farmers. Defining a subterminal as an elevator that purchases more than half its grain from other elevators, five of the 19 are subterminals, and the remainder are country elevators.

Fifteen of the 19 elevators are local cooperatives, and four are private corporations. Two of the latter group are local firms, and two are operated by nationwide companies. One subterminal is jointly owned and operated by six local cooperatives. Another subterminal now being constructed is a joint venture of seven local cooperatives.

Five of the 19 elevators load 50-car unit trains, and the remaining 14 load 25-car unit trains. Three of the 25-car elevators were upgrading their track sidings to accommodate 50-car trains.

Volume and destination of grain shipped

The 19 elevators shipped 61.6 million bushels of grain from July 1, 1973, to June 30, 1974. Most of this grain, 48 million bushels, was corn, 13 million was soybeans, and the rest was small grain. Eighty-four percent of the grain was shipped by rail, and 16 percent was shipped by truck. Ninety percent of the corn and 63 percent of the soybeans were shipped by rail (table 1).

Most of the rail shipments went to ports for export. Sixty percent of the rail shipments of corn went to Gulf ports, and 27 percent of the railed corn went to Duluth-Superior. Nearly 80 percent of railed soybeans went to Gulf ports (table 2).

Elevator managers indicated three factors were responsible for the large

Table 1. Volume of grain shipped by 19 southern Minnesota country elevators with multiple-car loading facilities, July 1, 1973-June 30, 1974.

Type of grain	Method of shipment			
	Rail		Truck	
	Million bushels	Percent	Million bushels	Percent
Corn	43.2	90	4.8	10
Soybeans	8.1	63	4.7	37
Small grain	.2	25	.6	75
Total	51.5	84	10.1	16

Table 2. Major destinations of grain shipped by rail from 19 southern Minnesota country elevators with multiple-car loading facilities, July 1, 1973-June 30, 1974.

Destination	Corn		Soybeans	
	1000 bushels	Percent	1000 bushels	Percent
Gulf Ports	26,023	60.2	6,298	78.7
Duluth-Superior	11,776	27.2	225	2.8
Mpls.-St. Paul	1,544	3.6	154	2.0
Chicago	2,565	5.9	315	3.9
Mankato	—	—	898	11.2
Other	1,331	3.1	114	1.4
Total	43,239	100	8,004	100

Table 3. Major destinations of grain shipped by truck from 19 southern Minnesota country elevators with multiple-car loading facilities, July 1, 1973-June 30, 1974.

Destination	Corn		Soybeans	
	1000 bushels	Percent	1000 bushels	Percent
Savage	2,858	59.6	221	4.7
Red Wing-Winona	885	18.4	180	3.8
Mpls.-St. Paul	74	1.5	54	1.1
Mankato	—	—	3,211	68.1
Iowa processors	—	—	925	19.6
Local feeders	960	20	—	—
Others	20	0.4	121	2.6
Total	4,797	100	4,712	100

rail shipments to export ports. First, prices paid at the ports were strong throughout the year. Second, equipment was more readily available for multiple-car shipments to these markets. Third, the lower rates had reduced shipping costs to export markets.

The 19 elevators also shipped grain by truck. Ten percent of their corn and 37 percent of their soybeans were shipped by truck. Most of the trucked grain was shipped to local markets. Sixty percent of the trucked corn went to Minneapolis-St. Paul river elevators, and 18 percent went to Red Wing or Winona river elevators. Nearly 70 percent of the trucked soybeans went to Mankato, and almost 20 percent went to Iowa processors (table 3).

The 19 elevators turned over their storage capacities an average of 5.9 times from July 1, 1973, to June 30, 1974. In other words, the volume of grain shipped was 5.9 times their storage capacities. This turnover might have been higher if they all had operated during the full year. Five elevators had either opened or completed multiple-car loading facilities within the past year.

The turnover rate was significantly higher for subterminals than for multiple-car loading country elevators. The five subterminals had an average turnover of 19.5 times. The average turnover of the 14 country elevators was 4.6 times.

This utilization differential exists because subterminals only assemble and load grain. Frequently, they arrange for onfarm or elevator storage of purchased grain until a train is available.

Country elevators provide more services. They purchase, dry, store, and load grain. In addition, they merchandise farm supplies such as feed, fertilizer, and chemicals. Country elevators also merchandise small grains, while subterminals handle only corn and soybeans.

Representatives of operating subterminals and firms constructing subterminals indicated that such elevators should have a turnover of 16 to 20 times a year. High turnover results in more efficient use of personnel, facilities, and equipment.

Economic criteria for investment in multiple-car loading

Large investments are being made in unit train loading facilities in southern Minnesota. Managers indicated several reasons.

First, many believe a strong corn-soybean export market will continue. Southern Minnesota has a surplus of corn and soybeans beyond local needs for livestock feeding and processing. This surplus will move to ports for export at the Gulf, Great Lakes, and the Pacific Northwest.

Second, the lower train rates afford greater profit potential on multiple-car export shipments vs. single-car shipments to domestic markets. The managers also said multiple-car shipping, as well as the contractual use agreements that accompany it, will assure them of cars in the event of another shortage.

Third, in several cases, elevators have installed unit train capacity to forestall rail line abandonment and to pressure the railroads for track improvements. Railroads have indicated their investment priorities lie with high volume trackage. Elevators on low volume trackage risk further track deterioration or possible abandonment.

Fourth, some investments have been made because of competition. Several elevators feared that new subterminals or other elevators' improvements would put them at a competitive disadvantage.

Managers of unit train elevators also indicated several problems associated with a unit train-oriented market.

First, they may be forced to cut margins to compete with truck-barge competition to the Gulf, especially during summer. This is especially true for facilities located within 150 miles of river port elevators. Some facilities are totally committed to rail shipment and lack the flexibility to shift to other modes when the rate structure makes it advantageous to do so. Facilities being built or planned are apparently being designed with flexibility in mind. The ability to serve both domestic and export markets by either rail or truck is receiving more attention during facility planning.

Second, the "five consecutive turns" agreement accompanying 25- or 50-car export rates may reduce flexibility in grain marketing decisionmaking. Therefore in a relatively short time, an elevator must assemble 90,000 bushels of grain for a 25-car train or 180,000 bushels for a 50-car train five consecutive times. A premium price may be required to lure this volume of grain away from farm storage or from other elevators. Also, the contractual use agreement may dictate rail shipment when other transportation modes are more advantageous.

Third, rapidly increasing numbers of unit-train facilities increase competition to purchase grain in some areas. This helps farmers, but may force elevator gross profit margins down. In one area in southern Minnesota, for example, there are now seven unit-train facilities in a 25-mile radius. By harvest time, 1975, there may be 20 facilities in a 50-mile radius. During a low production year such as 1974-75, these facilities may have insufficient volume. This points to the need for joint planning and ownership of unit-train loading facilities by cooperative elevators.

Truck-barge competition

Unit-train grain shipments from southern Minnesota to the Gulf compete with truck-barge shipping. From July 1, 1973, to June 30, 1974, 237 million bushels of grain were shipped by barge from Minnesota river terminal elevators. Most of this was shipped in by truck. The largest share of the barged grain, 161 million bushels, was corn (table 4). This compares with 26 million bushels of corn multiple-car elevators shipped to the Gulf by rail during the same time.

Table 4. Barge shipments from river terminals: Minneapolis-St. Paul, Red Wing, Winona, Savage. July 1, 1973-June 30, 1974.

	Million bushels	Percent
Wheat	35.2	14.8
Durum	3.5	1.5
Corn	160.5	67.8
Oats	13.7	5.8
Barley	—	—
Rye	1.1	.4
Soybeans	23.1	9.7
Total	237.1	100

Source: Minneapolis Grain Exchange.

In fall 1973, it was considerably cheaper to ship grain to the Gulf by multiple-car rail than via truck-barge. This was because barges were in short supply and rates were high. More recently, barge rates have been reduced, and the truck-barge combination is more competitive with the multiple-car rail rates.

Future prospects

Continued heavy use of unit-train grain shipments from country points to export ports offer several advantages. First, farmers are now storing more grain on farms and are marketing larger quantities in the winter rather than at harvest. The Mississippi River is closed to navigation for about 3½ months from December to March. The Great Lakes are also closed during the winter.

Second, as grain exports to the Far East increase, Pacific Northwest export ports may draw more grain from the midwest. This grain will move by rail.

Third, transportation rates of all carriers are increasing with higher costs. However, recent rate proposals indicate truck rates may be increasing more than those of other modes. Minnesota truckers have recently petitioned for a 10 percent increase in grain rates for distances less than 50 miles and a 30 percent increase for distances of 150 to 200 miles. These rates would limit the area from which river terminal elevators can draw grain.

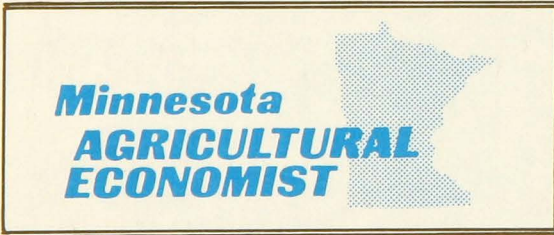
Fourth, the Mississippi's capacity to absorb increased grain movement may be limited unless environmental issues associated with dredging and dam replacement are not resolved. A later issue of Minnesota Agricultural Economist will discuss this.

The structure of Minnesota's country elevator industry is changing as more elevators modernize to handle multiple-car rail shipments and as sub-terminals are being built. Currently, multiple-car rates apply only to corn and soybeans for export. One railroad offering these rates has announced plans to extend multiple-car rates to domestic shipments to terminal markets and processors. This may indicate a trend advantageous to large shippers.

An efficient grain transportation system can be achieved if the rate structure is based on service costs. Each carrier should provide the service over distances where it has the lowest costs. The railroad rate structure which has not been based on costs is moving in this direction as more railroads offer multiple-car rates based on costs of providing the service. The Interstate Commerce Commission is also giving the railroads more flexibility in ratemaking. This trend will likely continue, and our country elevator industry will have to adjust. Not every country elevator can or should modernize to handle multiple-car shipments. Many will find it advantageous to regard subterminals as another outlet for grain sales.



This subterminal elevator was being constructed last summer and fall in Madelia. A subterminal can be defined as an elevator which purchases more than half its grain from other elevators. Subterminals can be a sales outlet for country elevators which don't want to make multiple-car shipments.



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