

**PRELIMINARY RESULTS OF
MULTIPLE CAR RATE STUDY**

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MULTIPLE CAR RATE STUDY**

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INTRODUCTION

Multiple car rail rates have become more common in recent years. With the increase in the use of multiple car rates on various commodities it is in the interest of North Dakota to anticipate and analyze the effects of such a rate structure. Although multiple car rates are not foreseen for North Dakota in the near future, the potential effects of this type of rate should be understood.

A multiple car rail rate would be lower than the existing single car rates from North Dakota. Multiple car rates may require anywhere from five to fifty car shipments depending upon the railroad's perception of the demand for these rates. In other multiple car rates now in effect, such as the present 20 car grain rate from Minneapolis to the Gulf, loading time has been set at 24 hours. It is anticipated that a multiple car grain rate from North Dakota would require multiple covered hopper shipments delivered to a single elevator at a terminal market in either Minneapolis, Duluth, or Portland.

In 1977, the North Dakota country elevator industry consisted of approximately 605 elevators.¹ The average storage capacity for these elevators was 220,387 bushels. Since 1965 an average of 15 elevators have gone out of business each year. However, while the actual number of elevators in the state has been declining the average storage capacity per elevator has been on the increase. The average storage capacity per elevator in North Dakota has climbed from 158,825 bushels in 1965 to 220,387 bushels in 1977. Thus, the trend in the North Dakota country elevator industry has been towards a reduced total

¹"North Dakota Reference for Buyers and Sellers 1977 Directory," North Dakota Grain Dealers Association.

population of elevators with the remaining elevators having increased storage capacities. Cast in such an environment, multiple car rail rates could have a dramatic effect on the North Dakota country elevator industry.

This study will analyze the potential effects of multiple car hard red spring wheat rates on the country elevator industry in North Dakota. The study will base its analysis on data developed from a mail survey of North Dakota country elevator operators and the historical grain movements from these elevators.

HISTORICAL MOVEMENTS

For the past three crop years² (1973-74, 1974-75, 1975-76) shipments of hard red spring wheat to Minneapolis have averaged over 112 million bushels while Duluth shipments of hard red spring wheat have averaged over 142 million bushels. Assuming an average covered hopper loading of 3,300 bushels there is a potential yearly covered hopper movement from North Dakota to Minneapolis of approximately 34,000 hoppers and to Duluth of approximately 43,000 hoppers.

Every elevator in the state does not ship hard red spring wheat to Minneapolis or Duluth. During the 1975-76 crop year, only 499 of the state's elevators shipped hard red spring wheat to Minneapolis and 558 elevators shipped hard red spring wheat to Duluth. The average potential yearly hard red spring wheat shipments to Minneapolis and Duluth are presented in (Table 1). Caution must be taken in analyzing these figures since they assume no truck movements of hard red spring wheat to either Minneapolis or Duluth. The absence of truck movements was assumed so that the full potential of multiple car rates could be studied.

²A crop year is from July of one year through June of the next year.

TABLE 1. AVERAGE POTENTIAL YEARLY HARD RED SPRING WHEAT SHIPMENTS FOR ELEVATORS THAT MARKETING HARD RED SPRING WHEAT IN MINNEAPOLIS AND/OR DULUTH.			
	Covered Hoppers		
Destination	Average	Low	High
Minneapolis	20	0.2	229
Duluth	40	0.2	326

A breakdown of the state's elevator population by their normal potential covered hopper shipments is presented in (Table 2). For the 1975-76 crop year, 72 percent of the state's elevators who shipped hard red spring wheat to Minneapolis shipped less than the equivalent of 25 covered hoppers. For Duluth movements, 46 percent of the state's elevators who shipped hard red spring wheat to Duluth shipped less than the equivalent of 25 covered hoppers in 1976.

TABLE 2. BREAKDOWN OF ANNUAL POTENTIAL COVERED HOPPER SHIPMENTS FOR ELEVATORS THAT MARKETING HARD RED SPRING WHEAT IN MINNEAPOLIS AND/OR DULUTH.						
Destination	5 cars or less	10 cars or less	15 cars or less	20 cars or less	25 cars or less	50 cars or less
	(Percentage of Total Elevators)					
Minneapolis	28	48	60	67	72	92
Duluth	12	21	28	36	46	70

Many of the elevators in North Dakota do not receive daily rail service. However, the elevators are required to load and bill cars for shipment within the required loading times applicable to the rate. In 1976 there were no elevators in the state that had the potential to ship at least five cars per service (Table 3).

TABLE 3. AVERAGE POTENTIAL COVERED HOPPER SHIPMENTS PER SERVICE PER YEAR.			
	Covered Hoppers		
Destination	Average	Low	High
Minneapolis	0.16	0.0007	1.50
Duluth	0.33	0.002	4.55

SURVEY RESULTS

A mail survey of North Dakota country elevator operators was developed to obtain data to analyze the effects of multiple car rates. A total of 257 out of 617 questionnaires sent out were completed in a usable manner and returned.

Under the assumption of a 24 hour loading time requirement for multiple car rates the loading capacity of an elevator becomes a major determinant of the elevator's ability to utilize a multiple car rate. The average loading capacity for North Dakota country elevators is 6.5 cars in a normal eight hour day (Table 4).

TABLE 4. AVERAGE LOADING CAPACITY OF NORTH DAKOTA COUNTRY ELEVATORS.			
	Rail Cars		
Item	Average	Low	High
Loading Capacity- Eight hour day	6.5	2	25

A majority of the elevator operators surveyed reported that they could take advantage of a five car multiple rate on hard red spring wheat given 24 hours loading time (Table 5). However, the number of operators that felt they could utilize more than a five car rate dropped significantly with each increase in the number of cars required for the rate.

TABLE 5. ELEVATOR OPERATOR'S OPINION OF THE SIZE MULTIPLE CAR RATE THEY COULD TAKE ADVANTAGE OF GIVEN 24 HOURS LOADING TIME.

Item	Elevator Operator's Opinion			
	Yes	No	Don't Know	No Response
	(%)	(%)	(%)	(%)
5 car rate	80	11	5	4
10 car rate	39	57	-	4
15 car rate	14	82	-	4
25 car rate	5	91	-	4
50 car rate	1	95	-	4

Another factor influencing the use of multiple car rates is the ability of an elevator operator to negotiate a sale large enough to facilitate the use of a multiple car rate. As was noted with loading capacity, a majority of the elevator operators felt that they could negotiate a sale large enough to take advantage of a five car rate (Table 6). However, as the minimum number of cars increased, the number of operators that reported they could sell in that quantity dropped substantially.

TABLE 6. ELEVATOR OPERATOR'S OPINION AS TO THE SIZE OF HARD RED SPRING WHEAT SALES THEY COULD NEGOTIATE TO TAKE ADVANTAGE OF MULTIPLE CAR RATES.

Item	Elevator Operator's Opinion			
	Yes	No	Don't Know	No Response
	(%)	(%)	(%)	(%)
5 car rate	71	10	11	8
10 car rate	33	59	-	8
15 car rate	13	79	-	8
25 car rate	5	87	-	8
50 car rate	2	90	-	8

The elevator operator's perception of what effect multiple car rates would have on North Dakota country elevators are presented in (Table 7). Only 21 percent of the elevator operators felt that multiple car rates would have a positive effect while 38 percent reported that multiple car rates would be bad for the small elevator or have a negative effect on North Dakota country elevators.

TABLE 7. ELEVATOR OPERATOR'S PERCEPTION OF THE EFFECTS OF MULTIPLE CAR RATES.	
Item	Percent of Total Respondents
Negative effect	5
Positive effect	21
No effect	13
Bad for the small elevator	33
Don't know	12
No response	16

SUMMARY

The historical hard red spring wheat shipments from North Dakota country elevators indicate that a majority of the state's elevators could not take full advantage of multiple car rates. The annual potential covered hopper shipments of hard red spring wheat for elevators that shipped to Minneapolis averaged 20 cars per elevator and 40 cars per elevator for those elevators that shipped to Duluth. Over 72 percent of the state's elevators that marketed in Minneapolis shipped less than the equivalent of 25 covered hoppers of hard red spring wheat to Minneapolis during the 1975-76 crop year. For Duluth movements, 46 percent of the state's elevators that marketed in Duluth shipped less than the equivalent of 25 covered hoppers of hard red spring wheat to that market during the 1975-76 crop year. Given a minimum five car rate, on the average North Dakota elevators at a maximum could have used a five car multiple rate less than five times to Minneapolis and eight time to Duluth during the 1975-76 crop year.

The reported physical capacity of North Dakota elevators indicate that a majority of the state's elevators could load enough grain, given 24 hours loading time, to facilitate the use of a five car multiple rate. The elevator operators also reported marketing abilities that indicate that a majority of North Dakota's elevators could utilize a five car multiple rate. However, the number of elevators that, given their existing loading capacity and marketing ability, could utilize a ten car or greater multiple car rate drops considerably. While 80 percent of the state's elevator operators reported the ability to load under a five car rate only 39 percent report enough capacity to load under a ten car rate. Additionally, while 71 percent of the state's elevator operators feel they could negotiate a five car sale only 33 percent feel they could negotiate a ten car sale.

CONCLUSIONS

It is likely that multiple car rates on hard red spring wheat would be harmful to small elevators in North Dakota. Although a majority of the elevator operators reported both the loading and marketing ability to utilize a five car rate, the historical grain shipments per elevator indicate a lack of throughput sufficient to take full advantage of even a five car multiple rate. Under the assumption of reduced rates for multiple car shipments, larger throughput elevators would gain a competitive advantage over smaller throughput elevators that could not use multiple car rates as frequently as the larger elevators.

Although the advent of the multiple car rates may alter the industry's shipping and marketing patterns, multiple car rates would work towards the demise of smaller country elevators. To profit from multiple car rates an elevator needs not only loading and marketing ability but also the throughput to provide grain for these rates. Presently only two elevators have historically demonstrated the potential to ship large enough quantities of hard red spring wheat to Duluth to utilize a five car rate on a weekly basis. Only one elevator in the 1975-76 crop year had a potential covered hopper movement large enough to take advantage of a five car rate on hard red spring wheat to Minneapolis on a weekly basis.

The minimum shipment and the amount the rates would be reduced would determine the magnitude of the effects of multiple car rates on the North Dakota country elevator system. While a five car rate may not have a substantial effect a 25 or 50 car rate would have a definite impact on North Dakota country elevators. The introduction of multiple car rates would pave the way for a reduced total number of elevators in the state each with larger capacities. Since the present trend in North Dakota has been towards a

decrease in the number and increase in the size of elevators it is likely that a multiple car rate structure would speed up this trend and hasten the demise of smaller country elevators.

Under the assumption of substantially reduced rates under a multiple car rate structure, the most substantial savings would accrue to the elevators with the physical capacity, marketing ability, and the throughput to use the rate the most often. The major limiting factor would be diseconomies of scale that may offset any savings from reduced freight rates. Multiple car rates would thus encourage the physical and marketing expansion of an elevator up to the point of offsetting the savings from reduced multiple car rates by diseconomies of scale. Thus, given two elevators with comparable shipping histories, the elevator with the largest physical and marketing capacity would benefit the most from multiple car rates and have the best chance to survive in the long run. This would not preclude the other elevators from expanding their capacity in an attempt to benefit from the new rates. However, given a relatively fixed shipment of grain from an area, as each elevator sought to increase its marketings and physical capacity, those who succeed would do so at the expense of the other elevators in the area. Therefore, a multiple car rate structure would lead to a smaller total number of elevators each with larger capacities in the state of North Dakota.