STAFF PAPER SERIES

WHERE DOES MINNESOTA’S GRAIN CROP GO?
AN ANALYSIS OF MINNESOTA ELEVATOR GRAIN SHIPMENTS
FOR THE PERIOD, 7/99 - 6/00

by
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WHERE DOES MINNESOTA’S GRAIN CROP GO?
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This study describes the movements of grain shipments from Minnesota to their final destinations. A sample of approximately 100 (20 percent) of Minnesota grain elevators reported their monthly grain shipments by mode to each of nine destinations from July 1999 to June 2000. The researchers used this data to project grain shipments from Minnesota and each of six crop reporting districts by grain and by transportation mode to final destination.

Minneapolis and Mississippi River ports were the most important destinations, receiving 28.4 percent of all shipments. Pacific Northwest export ports received 17.9 percent. Minnesota based corn, soybean, and wheat processors received 16.6 percent of shipments. Duluth-Superior received 10.5 percent and Mexico received 7 percent.

Rail was utilized for 494 million bushels (14.1 million tons) or 64 percent of all grains. Rail shipments of 50 or more cars accounted for 47 percent of all elevator shipments. Both destination and modal percentages varied substantially by grain and by crop reporting district.
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EXECUTIVE SUMMARY

Introduction and Background

- A sample of about 100 (20%) Minnesota elevators reported their monthly grain shipments by mode to 9 destinations from July 1999 through June of 2000. We used the data from this sample to estimate total elevator shipments of all grain, corn, soybeans, and wheat from the state and from each of 6 Minnesota Crop Reporting Districts (CRD) that our sample size allowed. July 1999-2000 roughly corresponds to the 1999 crop year.

- We estimated that about 768 million (M) bushels or 21.5 M tons were shipped from Minnesota elevators to the 9 destinations. This included 418 M bushels of corn (11.7 M tons), 244 M bushels of soybeans (7.3 M tons), and 84.6 M bushels of wheat (2.4 M tons).

- Rail shipments accounted for 505 M bushels (14.1 M tons) or 64% of all grains. Truck shipments accounted for 263 M bushels (7.4 M tons) (Table 2).

- The total value of Minnesota elevator shipments based on 1999-2000 farmgate prices was $2.1 billion dollars. Corn accounted for $711 M, soybeans $1,109 M, and wheat $258 M. Note that the total farmgate value of Minnesota crops is substantially higher than $2.1 billion because much grain is fed or sold through channels other than elevators (Table 5).

- The authors compared their estimates from the sample with published secondary sources. They did not find any significant and/or unexplained inconsistencies between their estimates and the limited number of public data sources.
All Grain Destinations

- The most important destination for all grains shipped from Minnesota county elevators is **Minneapolis and the River**. This destination includes the river ports and rail switching area of the Twin Cities. It also includes downstream river ports in Minnesota as well as ports in northern Iowa that receive grains shipped on railroads in southern Minnesota.

**Minneapolis and the River** was the destination for 270 M bushels (5.9M tons) or 27.5% of total Minnesota elevator shipments. Shipments by rail to export ports in the **Pacific Northwest** accounted for 135 M bushels (3.8 M tons) or 17.8% of all shipments (Graph 1).

- **Minnesota Processors**, which includes soybean processors, ethanol and corn sweetener plants and flourmills, etc., were the third largest destination receiving 126 M bushels (3.7 M tons) or 17.2% of the total. Trucks accounted for over 88% of shipments to **Minnesota Processors**.

- **Duluth/Superior** received 80 M bushels (2.3 M tons) or 10.7% of Minnesota grain shipments. Rail shipments accounted for 79% of Minnesota elevator shipments to **Duluth/Superior**.

Individual Commodity Modes and Destinations

- Thirty-one percent of elevator shipments of **corn** are to the **Minneapolis and the River**, 29% go to the **Pacific Northwest**, and 10% to **Minnesota Processors**. Rail shipments account for 49% to **Minneapolis and the River**, 100% to the **Pacific Northwest**, and 8% to **Minnesota Processors** (Graph 28).
• Thirty-four percent of elevator shipments of soybeans go to Minnesota Processors, 21% to Minneapolis and the River, and 11% to Duluth/Superior. Rail shipments account for 12% of soybean shipments to Minnesota Processors, 52% to Minneapolis and the River, and 87% to Duluth/Superior (Graph 58).

• Mexico has become an important market for Minnesota soybeans and to a lesser extent corn. The Mexican market did not exist before NAFTA, but received over 38 M bushels of soybean and 15M bushels of corn in the 1999-2000 crop year. This is a rail market served by 50 and 100-car trains.

• Duluth/Superior has become an important market for Minnesota and North Dakota soybeans in the last few years. One reason for this is that the soybean growing area has expanded to the north and west from its traditional area in southern Minnesota as a result of the Freedom to Farm Bill and genetic improvements that have expanded the soybean growing area.

• Thirty-four percent of Minnesota wheat shipments go to Duluth/Superior, 31% to Minneapolis and the River, and 26% to Chicago and Beyond. Rail accounts for 56% of shipments to Duluth/Superior, 58% of shipments to Minneapolis and the River, and 99% of shipments to Chicago and Beyond (Graph 81).

Differences in Modes and Destinations by Crop Reporting Districts

• Destination and modal patterns vary greatly by CRD. This is due to combination of relative location, existing transportation infrastructure, and crop mix. The most striking example of these contrasts is between southeast Minnesota (CRD 9), which borders the Mississippi River, and CRD 7 in the southwestern corner of Minnesota. Seventy-eight
percent of all elevator shipments from CRD 9 are by truck to **Minneapolis and the River** while 88% of all CRD 7 shipments are by rail to the distant markets of the **Pacific Northwest, Mexico and Southeast Feed Markets** (Graphs 19 and 21).

- Sixty-seven percent of all shipments from northwest Minnesota (CRD 1) are to **Duluth/ Superior** and **Minneapolis and the River** and 35% of all shipments are by truck while 31% of all shipments from western Minnesota (CRD 4) are by rail to the **Pacific Northwest** (Graphs 16 and 17).

- Fifty-four percent of all grain shipped from west central Minnesota (CRD 5) goes to **Minneapolis and the River** and 21% goes to **Minnesota Processors**. Fifty-six percent of all grain from CRD 5 is shipped by truck. Thirty-four percent of all grain shipped from south central Minnesota (CRD 8) goes to **Minneapolis and the River** and 32% to **Minnesota Processors**. Forty-three percent of all grain from CRD 8 is shipped by truck (Graphs 18 and 20).

- North Dakota elevators ship approximately 424 M bushels (11.9 M tons) of all grain or about 55% as much grain as Minnesota elevators. **Minneapolis and the River** and **Duluth/ Superior** receive 26.5% and 15.7% of the total North Dakota shipments, respectively (Graph 100).
CHAPTER 1

BACKGROUND AND OBJECTIVES

The objective of this report is to analyze grain shipment survey data received from Minnesota grain elevators for the period July 1999 through June 2000. The monthly information, provided on a voluntary basis by the participating elevators, included the type of grain, the transportation mode and 9 destinations. A copy of the monthly survey form is included in Appendix A. The 8 general destinations (the ninth is other or unknown) and the transportation modal breakdown reported were selected by members of the Agricultural Transportation Database Advisory Committee in early 1999. This advisory committee is comprised of representatives from private firms, government agencies and interest groups participating in the Agricultural Transportation Database Consortium. There are approximately 20 members of the Consortium. A recent list of the Consortium membership is in Appendix A.

This information about transportation modal use and destinations of Minnesota grain elevators will be useful to transportation planners, policy analysts, and decision makers in both the public and private sectors. Similar data collected in the future should allow the development of reliable monthly or seasonal transportation demand indices and trends.

These results, used in conjunction with the concurrent study of animal feed consumption by county, \(^1\) will be an aid in plant location studies and in determining future transportation needs for agricultural processing industries and the growing numbers of large scale livestock operations. In addition, these databases and methodologies will have transference to potential future studies on fertilizer and animal waste transportation needs.
CHAPTER 2

METHODS

Because the elevator monthly shipment data is proprietary, absolute confidentiality about individual elevator shipments has been maintained. This was accomplished by having the participating elevators mail the monthly survey form directly to the Upper Great Plains Transportation Institute (UGPTI) in Fargo, North Dakota for processing. The UGPTI is part of North Dakota State University. It has been processing similar monthly data from North Dakota elevators for 30 years and is required by law to maintain high standards of confidentiality. (All grain elevators in North Dakota are required by that state’s laws to provide monthly grain reports to the UGPTI.) The UGPTI converts the number of rail cars and/or trucks, that the elevators reported shipping, to bushels for each mode for each grain.

Because of the proprietary nature of the data, the authors of this report did not have access to individual elevator reports. We were furnished a monthly list of the elevators reporting along with shipment data for each of Minnesota’s 9 Crop Reporting Districts (CRDs). A map of CRD boundaries is in the Appendix. To estimate CRD and state totals we computed an expansion factor for each CRD for each month. This expansion factor for each CRD is the total grain elevator storage capacity in the CRD divided by the sum of the storage capacity of the elevators in the CRD that reported that month. The expansion factor formula is: (total CRD elevator storage capacity) ÷ (sum of storage capacity of reporting CRD elevators). The typical expansion factor was about 5. The actual elevators reporting differed somewhat each month, changing the expansion factor, so it was necessary to compute it monthly. This computed expansion factor has shortcomings, e.g., it does not account for differences in turnover rates, and
obsolete and little-used storage has the same weight as more modern and heavily-used facilities. However, previous studies have found this expansion method to be better than alternatives such as the number of elevators, percent of loadout capacity, etc.

To ensure confidentiality, results were reported only from CRDS that could be expected to have 10 or more elevators report each month. That is, data and surveys from CRD 2 (North Central District), CRD 3 (Northeast District) and CRD 6 (East Central District) were not expanded or included in this study. (These CRDs in total accounted for less than 2% of the corn, soybeans, and wheat produced in Minnesota.) To further ensure confidentiality, estimates of shipments by mode and/or destinations were generally made only if the reported shipments of a grain type from a CRD were 1 million or more bushels. However, estimates of all shipments were included in the all grains tables and graphs.

The number of elevators reporting each month by CRD and the percentage of storage capacity represented are shown in Table 1.

Reported monthly shipments by grain by mode by destination were expanded by the expansion factor for that month for that CRD. The results are reported in tabular form in Tables 2-12 and graphically in the following sections of this report. Computations and graphs are generally available in both bushels and tons. The annual dollar value of shipments of corn, soybeans, and wheat was also computed and is available in Table 5 and graphs 5, 58 and 82. Dollar value was computed using the average price farmers received for the 12 month period July 1999 to June 2000 as reported in Minnesota Agricultural Statistics. These prices were $1.70, $4.55 and $3.05 for corn, soybeans and wheat, respectively.
DESCRIPTION OF SURVEY FORM

A copy of the survey form is in Appendix A. Information about shipments of each of the five Minnesota principal grains and oil seeds, i.e., corn, soybeans, wheat, barley and oats, was requested along with a space for “other” commodities.

Elevators recorded shipments as the number of truckloads or carloads received in one of nine destination columns on the survey. The destinations were defined as:

- **Duluth/Superior** - port elevators in the Duluth, Minnesota/Superior, Wisconsin area.
- **Minneapolis and River.** This column includes shipments to elevators in the Twin Cities rail switching area along with the Mississippi and Minnesota River ports such as Red Wing and Winona, and rail destinations on the Mississippi River in Iowa.
- **Pacific Northwest** includes the states of Oregon, Washington and Idaho. These destinations consist primarily of Columbia River and Seattle-Tacoma export elevators.
- **Chicago and Beyond.** This includes flour millers and corn and soybean processors in Illinois and eastern states as well as feed markets in the east and southeastern United States.
- **Kansas City and Beyond.** This include the milling and processing destinations and feeding operations on the central and high plains states such as Kansas, Colorado, and Oklahoma and Texas.
- **Mexico.** This destination is the points on, and/or beyond, the Mexican border.
- **Minnesota Processors.** This consists of locations in Minnesota other than Duluth and Twin City locations. It includes feedmills, feedlots and corn, soybean and other grain processors.
- **Southwest Feed Markets.** Domestic shipments to California, Arizona and New Mexico.
• **Other and Unknown.** Unknown destinations plus shipments to Iowa, Canada, Wisconsin and North and South Dakota.

The survey form required reporting elevators to report their shipments as rail or truck. Rail reporting was further divided by shipment sizes of 1-24 cars, 24-49 cars, 50-99 cars and 100+ cars. Grain transportation terminology sometimes refers to trains 50 cars or longer as shuttle trains or as unit trains.
CHAPTER 3

RESULTS

VOLUME ESTIMATES OF ALL GRAINS SHIPPED BY MINNESOTA ELEVATORS

Graphs 1-4 show the estimated quantities of all grains shipped from Minnesota to each of nine destination areas by mode. The detailed data for these graphs is available in Tables 2-5. The sample projection indicates that Minnesota elevators shipped 768 million bushels or 21.5 million tons of all grains during the 12-month period from July 1999 through June of 2000. Seven hundred forty-seven million bushels or over 97 percent of the shipments were corn, soybeans or wheat. Graph 1 shows shipments by mode in bushels. Graph 2 shows shipments by mode in tons. Graphs 3 and 4 show total shipments in bushels and tons.

Graphs 1-4 show that over 10.5% of Minnesota originated grain shipments were shipped through Duluth/Superior in the 12-month period. There was almost 4 times as much grain shipped to Duluth/Superior by rail as by truck. Minnesota grain shipped to Duluth/Superior is almost all exported although some may go to flour mills in the eastern United States by lake vessel or rail. Exports from Duluth-Superior are made both on ocean vessels (salties) that transverse the Great Lakes and St. Lawrence Seaway on their way to foreign ports, or on “lakers” that carry the grain through the Seaway. Their cargo is offloaded into elevators on the Gulf of St. Lawrence and then transferred to oceangoing ships.

The destination receiving the most shipments of Minnesota grain is Minneapolis and River. This destination includes the elevators in the Twin Cities rail switching areas, the Minnesota and Mississippi River ports including Savage, Minneapolis, St. Paul, Red Wing, Winona along with river ports in Iowa that have rail connections to southwest and south central
Minnesota. This destination received 28.4% (218 million bushels or 6.1 million tons) of Minnesota elevator grain shipments. As graph 1 shows, shipments to Minnesota and river ports were almost evenly split between the rail and truck modes.

The **Pacific Northwest** is the second largest destination for Minnesota grains. It received almost 17.9% of the shipments over the 12-month period. This grain is virtually all shipped by rail, predominantly in 100-car plus “shuttle” trains for export from ports in Washington and Oregon. The ultimate destinations are primarily the Pacific Rim countries such as China, Japan, Taiwan, and Korea.

About 7.4 percent of total grain shipments went to **Chicago and Beyond**. This destination includes processors and flourmills in Illinois and the east, and feedlots in the southeastern United States. Note, that due to the distances involved, this is primarily a rail market.

**Kansas City and Beyond** received about 3.5% of Minnesota shipments and is also rail market.

**Mexico** received 7 percent of Minnesota shipments. This is a market that has developed since the signing of NAFTA and did not exist for Minnesota shippers 10 years ago. These shipments are generally in trains of 50 cars or more and go directly to processors or feedlots in Mexico.

**Minnesota Processors**, which include soybean and ethanol plants, feed and flour mills, and local feedlots were the third largest recipients of Minnesota grain shipments with 16.6% of the total. These short distance shipments were predominantly by truck.
The **Southwest Feed Markets** (California, Arizona, New Mexico) received 3.2% of the shipments. This is also a rail market because of the distances involved. Shipments are generally made in trains of 50 or more cars.

**Other or Unknown** destinations accounted for 5.6% of Minnesota grain shipments. These destinations include Canada, and processing plants in Iowa and North and South Dakota. These markets are served by both rail and truck.

Estimated rail shipments of all grains during the 12-month period were greater than those shipments by truck by a factor of nearly 2 to 1, i.e., rail accounted for 66 percent of all shipments. The major Minnesota elevator truck destinations are the **Minneapolis and River** market and **Minnesota Processors**. Smaller quantities are trucked to Duluth/Superior and “other” destinations. The truck portion of **Other** includes shipments to processors in adjacent states and Canada and frequently may be “backhauls.” A backhaul occurs when a trucker obtains a payload for his return trip rather than drives back empty. Examples of common backhauls include ag supply trucks that deliver to rural communities and return with grain, and trucks hauling potash from Canada that take back truckloads of corn. Note that in agricultural transportation it is sometimes difficult to distinguish between the “fronthaul” and the “backhaul.”

Graph 2 shows Minnesota elevator shipments by destination by mode in tons rather than bushels. Graphs 3 and 4 show total estimated shipments from Minnesota elevators in terms of bushels and tons, respectively.

The ultimate disposition of the elevator shipments to **Minneapolis and River** is primarily barge shipments to Gulf of Mexico ports for exports. There are also some rail shipments to processors and feedlots in eastern states included in these estimates because the reporting
elevators sometimes do not know or control the final destination. The final destinations of most of the elevator shipments to the Pacific Northwest were Pacific Rim countries such as Japan and Korea. Shipments to Minnesota Processors include feed mills that provide feed to local farmers as well as flourmills and corn and soybean processing plants.

DOLLAR VALUE OF MINNESOTA GRAIN ELEVATOR SHIPMENTS

Graph 5 and Table 6 show the dollar value of Minnesota elevator shipments by destination. The dollar value is for corn, soybeans and wheat only and it is computed at the 1999 market year average prices reported in the 1999 Minnesota Agricultural Statistics. The average annual prices were $1.70, $4.55 and $3.05, respectively.

Graphs 5 shows that the most important destinations in terms of the dollar value of grains were Minneapolis and River, the Pacific Northwest, and the Minnesota Processors. The most important rail destination was the Pacific Northwest, while the most important truck destination in terms of market value was the Minnesota Processors market. Minneapolis and River was the second most important market in dollar terms for both truck and rail.

SEASONALITY

The destination of Minnesota elevator shipments can vary greatly over the course of a year. The magnitude of monthly shipments varies throughout the year for a variety of reasons. These include harvest time pressures and the opening and closing of the water shipment routes on the Mississippi and Great Lakes. These seasonal variations are also impacted by periodic rail car shortages, barge rates, low water conditions, price fluctuations and changes in the relationships between various domestic and foreign markets and other factors.
For example, the summer and fall of 1999 witnessed heavy rail shipments of corn, because of the timing of the release of corn from storage in government loan programs. Similarly, low water conditions on the Great Lakes contributed to less grain being shipped from Duluth/Superior in the spring of 2000. Although seasonal patterns should appear each year, graphs based on a single year’s data only tell part of the very complex relationships between transportation demand and grain markets.

Graph 6 shows the estimated monthly shipments of all grains from all Minnesota elevators by mode and in total. Monthly shipments vary greatly from low volumes in the winter months when navigation is closed on both the Great Lakes and Mississippi River and to peaks in summer and fall months. Table 3 records the monthly grain shipments by total, mode and destination.

Graphs 7 through 15 show the estimated monthly shipments patterns for each of the nine destinations recorded. Note the scale of the Y-axis when comparing graphs as this axis varies over the 9 graphs going from 0 to 45 M bushels for Minneapolis and from 0 to 7 M bushels for Kansas City. That is, equal heights of the bars on different graphs may not mean equal shipments.

Graph 7 shows projected shipments to Duluth/Superior. There were major rail movements in the summer and fall of 1999, followed by a winter lull when the Great Lakes were closed, followed by an increase in shipments when the Lakes opened in the spring. Note that truck shipments are smaller but much more constant throughout the year than rail.

Graph 8 shows elevator shipments to Minneapolis and River ports. Note the reduced shipments during December-March reflecting the closed shipping season on the river. This was
followed by an increase in shipments in June of 1999 due to low barge rates and related market opportunities. It should be noted that the data on the graphs are shipments from Minnesota elevators to river terminals—not shipments from river terminals. River terminals utilize their storage capacity to receive and store grain in the fall harvest season and often resulting inventories by rail throughout the winter.

Graphs 9-12 display shipment destinations that are primarily served by rail. More time periods of data are necessary to see if there are discernable seasonal patterns due to factors such as those listed earlier. For example, the spike in shipments to the Pacific Northwest in September of 1999 (Graph 9) was probably due to the late release of large amounts of Minnesota grain stocks from government programs in summer of 1999 rather than reflecting an annual pattern. The subsequent dip in shipments in October and November may be due to the redeployment of rail equipment to other routes in October to improve equipment utilization during a time of high demand. Rail shipments to the Chicago and Beyond were relatively high in October 1999, and those to Kansas City and Beyond spiked in October 1999. (See graphs 10 and 11.) Minnesota elevator shipments to Chicago and Beyond and Kansas City and Beyond were highest in the winter months. Rail shipments from Minnesota to these markets in the winter months occur because elevators and railroads are utilizing their grain handling capacity during the period when shipments on the Mississippi River and the Great Lakes are not possible.

Graph 12 shows estimated shipments to Mexico. More data is needed to determine if there is a seasonal increase in summer (because of a drawdown of available stocks nearer to Mexico earlier in the year) or whether any discernable seasonal pattern actually exists.
There are estimates of some grain being shipped by truck all the way to Mexico recorded on Graph 12 and Table 3. Although unexpected because such a long haul by truck would generally be considered uneconomical, these are probably backhauls resulting from a fronthaul of a high value product such as produce.

Graph 13 shows shipments to Minnesota Processors. Unlike shipments to most other locations, which have a seasonal pattern for one reason or another, shipments to processors are relatively constant from month to month. Most elevator shipments to processors are by truck because most are short distance movements. Graph 13, however, shows the rail movements to processors do occur on occasion when transportation economics warrant.

More observations are needed to determine if there is a seasonal pattern in shipments to the Southwest Feed Markets (Graphs 14). The spike in Aug-Oct.1999 may be related to the late release of grain from the government loan programs in 1999. Graph 15 shows shipments to Other and Unknown destinations. Shipments are largest during the harvest season.

MINNESOTA ELEVATOR SHIPMENTS OF ALL GRAINS BY CROP REPORTING DISTRICTS

Elevator grain shipments were estimated for each of the 6 CRDs for which there were sufficient elevators reporting to meet confidentiality and statistical requirements. Shipments from CRDS 2, 3, and 6 were not estimated. These CRDs produce less than 2% of the Minnesota grain crop. A map of CRD boundaries can be found in Appendix A.

Graphs 16-21 display elevator shipments from each CRD by mode in bushels. Graphs 22-27 show elevator shipments from each CRD in 2000 pound tons. The scale of the (Y) axis
may vary from graph to graph so that bars of equal height on separate graphs may not represent equal shipments.

CRD 1 in the northwest part of the state includes the Minnesota portion of the Red River Valley. Elevators in CRD1 ship primarily to Duluth/Superior, Minneapolis and River ports, Chicago and Beyond, and the Pacific Northwest. Rail shipments are somewhat greater than truck (Graphs 16 and 22). Wheat is the primary grain shipped from CRD1. Rail accounts for 65 percent of elevator grain shipments from CRD1.

Elevators in CRD 4 in west central Minnesota ship primarily by rail with the dominant destination (31%) being the Pacific Northwest. Truck shipments to Minnesota processors (16%) are also important in CRD 4. Over 75 percent of elevators grain shipments in CRD 4 are by rail (Graphs 17 and 23).

Elevators in CRD 5 in Central Minnesota (to the east of CRD 4) ship primarily to Minneapolis and River both by truck and rail. Minneapolis and River account for 59 percent of CRD 5 grain shipments. Minnesota Processors is the second most important destination receiving over 20 percent of the shipments almost all by truck (Graphs 18 and 24).

Elevators in CRD 7 (Graph 19 and 25) in southwest Minnesota ship primarily by rail with the largest markets being the Pacific Northwest (28%), Mexico (21%), and Minneapolis and River ports (16%). Over 87 percent of CRD 7 shipments are by rail.

CRD 8 ships the most grain to Mississippi and River ports (34%), Minnesota Processors (32%), and to the Southwest Feed Markets (12%). Shipments are 57% rail and 43% truck (Graphs 20 and 26). Elevators in CRD 9 in southeast Minnesota ship primarily to the Mississippi and River by truck. This accounts for 80 percent of total elevators shipments.
(Graphs 21 and 27). Other studies have shown that up to 50 percent of the grain raised in CRD 9 is shipped directly from area farms to Mississippi River elevators.³

Note that both the major destinations and mode are influenced by location and crop and vary substantially from CRD to CRD. For example, CRD 4 in West Central Minnesota, an area with a large corn surplus,⁴ ships primarily by rail to the Pacific Northwest export market. CRD 1, a wheat surplus area ships by both rail and truck to Duluth/Superior and Minneapolis And River ports and by rail to Chicago and Beyond east. CRDs 5 and 8 ship large quantities by truck to Minnesota Processors. CRD 7 in the southwest corner of the state ships primarily by rail to distant locations such as the Pacific Northwest and Mexico. Because of distance and the location of railroads, the shipments form CRD 7 to Minneapolis and the River are more likely to be to Mississippi River ports in Iowa than in Minnesota!

Finally, as noted earlier, CRD 9, which borders the Mississippi River, ships most of its grain by truck to Mississippi River terminals.
CHAPTER 4
CORN SHIPMENTS FROM MINNESOTA ELEVATORS

This section reviews the estimates of corn shipped from Minnesota elevators from July 1999 through June 30, 2000. Estimates by mode to each destination are shown in Table 5. Usually shipments would be primarily from the 1999 crop. However, because of the large 1998 corn crop and USDA program rules, shipments from Minnesota were delayed and much of the 1998 corn crop was not shipped until July-Sept. 1999.

Both the 1998 and 1999 Minnesota corn crops were about 1 billion bushels. Our expansion of the sample data estimates corn shipments during the 12-month period to be 418 million bushels. The concurrent feed surplus/deficit study estimated that 390 million bushels of corn are fed annually in a 12-month period. About 200 million bushels are probably delivered directly from farms to processors and Mississippi River ports. These direct deliveries and changes in yearend stocks are the major reasons for the difference between our estimate of elevator shipments and the annual production reported in *Minnesota Agricultural Statistics.*

Graphs 28 and 29 in bushels and tons show the relative importance of the 9 destinations for corn shipments. The most important is truck and rail to Minneapolis and River (31%) and by rail to the Pacific Northwest (29%). Truck shipments to Minnesota Processors account for 10% of annual shipments. Rail shipments of corn dominate except for Minnesota Processors and Other and Unknown destinations which receive substantial truck shipments.

Graph 30 and Table 6 show the value of the estimated corn shipments by mode to each market at the 1999 market year average farm price of $1.70 per bushel. It should be noted that
the 1995-1999 average market price was $2.23. In fact, the farm value of the 1999 Minnesota corn crop was the lowest since the 1993 marketing year.\textsuperscript{7}

It should also be noted that, unlike soybeans and wheat, much of the corn crop is disposed of locally. Table 6 reflects the farm value of only about 45% of the Minnesota corn crop. The rest is fed locally or bypasses local elevators when it is trucked to terminals.

Graph 31 shows estimated Minnesota elevator corn shipments by month and mode. Since the estimated corn shipments comprise 56\% of the estimated shipments of all grains, the seasonal pattern is quite similar to the statewide all-grain pattern exhibited in Graph 6. However, in this marketing year, the decline in corn shipments in January-March was greater than that for all grains.

Graphs 32-40 show monthly corn shipments by rail or truck to each of the destinations in bushels. Estimated shipments in tons as well as bushels can be found in Table 4. Graph 41 breaks down all corn shipments by size of train or truck. Thirty-eight percent of Minnesota elevator corn is shipped in 100 plus car trains. Twenty-nine percent is shipped by truck, 16\% in 50-99 car trains, 8\% in 25-49 car units and 9\% in 1-24 car shipments.

Graph 42 shows corn shipments to each destination by train size in bushels. The primary shipment size to the \textbf{Pacific Northwest} is 100 plus car trains. The second most important destination for 100 car trains is \textbf{Minneapolis and River}. However, 1-24 car and 25-49 car shipments are almost as important. Fifty to ninety-nine car trains account for the most rail shipments to \textbf{Duluth/Superior, Chicago, Mexico} and the \textbf{Southwest}.  

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CORN SHIPMENTS FROM MINNESOTA ELEVATORS BY CROP REPORTING DISTRICT

Graphs 44-49 show corn shipments from each CRD to destinations by mode in bushels. Graphs 50-55 show corn shipments in tons. The scale of the Y-axis (bushels or tons) varies, so equal heights on different graphs may not represent equal quantities.

Graph 44 shows that from the corn shipments from CRD 1 in northwest Minnesota are virtually all by truck. Other Markets can include North Dakota and Canada. Total shipments are only about 5 million bushels.

Corn shipments from CRD 4 (Graph 45) are primarily (58%) by rail to the Pacific Northwest.

Corn shipments from CRD 5, just east of CRD 4, are more evenly divided between the modes. Shipments are primarily to Minneapolis and River, Duluth/ Superior, and Other and Unknown, Minnesota Processors, Chicago and Beyond (Graph 46).

Corn shipments from CRD 7, in southwest Minnesota are predominately to the Pacific Northwest by rail (Graphs 47). This is the largest single market destination (68.6 M bushels) from a CRD. Corn shipments from this CRD are primarily by rail.

CRD 8, south central Minnesota, is shown by Graph 48 to have the most shipments to Minneapolis and River. These include Mississippi River ports in Iowa. Rail shipments of corn dominate from this CRD and include shipments to Mexico and the Southwest Feed Markets. Substantial truck shipments are made to Minneapolis and River and Minnesota Processors.

Elevators in CRD 9 (Graph 49) in southeast Minnesota use trucks to reach their major destinations at nearby Mississippi River ports.
CHAPTER 5

MINNESOTA ELEVATOR SOYBEAN SHIPMENTS

Estimated soybean shipments from Minnesota elevators to destinations are shown in bushels (Graph 56), tons (Graph 57) and value at the average 1999 market year farm price of $4.55 a bushel (Graph 58). This was the lowest average annual price since the 1986 crop-marketing year and lowest total farm value of the Minnesota soybean crop since 1993.8

Estimated soybean shipments from Minnesota elevators totaled 244.5 million bushels (Table 8 and 9).

Total production of soybeans in Minnesota was 285.6 million bushels in 1998 and 282.9 million in 1999. Seed use exceeds 7 million bushels per year. Some soybeans are moved directly from farms to processors and river terminals and are not represented in this survey.9

**Minnesota Processors** are the largest market for soybeans taking more than 34 percent of the annual crop primarily by truck. **Minneapolis and River** ports receive another 21% of the crop by rail and truck followed by of **Duluth/Superior** and **Mexico**, which received 16 and 11 percent of the shipments. The latter two are relatively new destinations for Minnesota soybean. Few soybeans were shipped through **Duluth/Superior** as recently as 1995.10 Mexico is relatively new as a major market for U.S. soybeans, let alone Minnesota. The development of this market for U.S. and Minnesota soybeans is one of the results of the NAFTA agreements.

Graph 59 shows estimated soybean shipments by month by mode. The seasonal variation is not as extreme as that of corn with neither rail nor truck shipments consistently dominant. One reason for less seasonality, is the relatively constant market for Minnesota soybeans form local processors.
Graphs 60 to 67 show the monthly shipments to markets that are estimated to receive more than 1 million bushels of soybeans per year. There is a strong seasonal pattern with the winter slowdown of shipments to Minneapolis and River ports that contrasts with the relatively constant movements to Minnesota Processors. The Minnesota Processors market is predominantly served by the truck mode because of the short distances involved.

ELEVATOR SHIPMENTS OF SOYBEANS BY CROP REPORTING DISTRICT

Graphs 68-73 show elevator shipments from each CRD. The scale of the Y-axis varies from 12 to 45 million bushels. Graphs 74-79 show estimated shipments in tons. Destinations for soybeans are not as varied as for corn as most CRD ship most of their beans to 3 or fewer locations.

Note that CRD 1 in northwest Minnesota (Graph 68) ships 71% of their beans to Duluth/Superior with an 80/21 rail-truck split. Another 20% goes to Minneapolis with a similar rail/truck split. The largest market for soybeans from elevators in CRD 4 is Minnesota Processors (32% of the CRD totals) with the truck mode predominating. The second and third largest destinations are by rail to Duluth/Superior, 16% and the Pacific Northwest, 15%. Five other locations each receive at least 5% of the CRD’s bean shipments.

Minneapolis and the River received 59% of CRD 5 shipments split between truck and rail while Minnesota Processors receive about 29% primarily by truck.

Mexico received 60% of the soybeans from CRD 7, almost all by rail, while Minnesota Processors received 20%, nearly 2/3 of which were by truck. Minnesota Processors received 85% of the soybean shipments from CRD 8 with the vast majority being by truck. Minneapolis
and River ports are the destination for 74% of CRD 9 soybeans. These beans are also shipped primarily by truck (88%).
CHAPTER 6

ESTIMATED WHEAT SHIPMENTS FROM MINNESOTA ELEVATORS

This section reviews the estimates of wheat shipments from country elevators during the 12 month period. Estimates by mode to each destination are shown in Table 1.

The 1998 Minnesota wheat crop was 80.4 M bushels and the 1999 crop was 79.2 M bushels. Estimated shipments from Minnesota elevators in the 1999 marketing year totaled 84.8 M bushels. Graph 80 (bushels) and Graph 81 (tons) show the relative importance of the various destination markets. Three markets account for over 90 percent of the estimated shipments. Thirty-four percent are to Duluth/Superior, 30.6% to Minneapolis and River ports and 25.8% to Chicago and Beyond. Chicago and Beyond is almost all by rail while the first two are balanced with about 55% shipped by rail and 45% by truck.

Graph 82 and Table 11 show the value of the estimated wheat shipments by mode to each destination at the 1999 market year average farm price of $3.05 a bushel. This was the lowest average farm price since 1990 and the lowest total farm value of the crop since 1994.11

Graph 83 shows estimated Minnesota elevator wheat shipments by month and mode. The annual seasonal is not particularly pronounced because of the large rail shipments to Chicago in the winter months. Graphs 84-87 show the by month by mode estimated shipments to destinations estimated to receive more than 1 million bushels of wheat.

ESTIMATED SHIPMENTS OF WHEAT FROM MINNESOTA BY CRD

Only 3 CRDS (1, 4, and 5) are estimated to ship more than 1 million bushels of wheat. Graphs 88-90 show estimated shipments to destinations by mode. Graphs 91-93 show estimated
shipments in tons. **Duluth/Superior, Mississippi and the River** and **Chicago and Beyond** are the most important destinations for CRD 1. The same 3 destinations (in reverse order) are also the most important destinations for CRD 4. Only 1.8 million bushels of wheat is shipped from CRD 5 with 75% of that moving by truck.
CHAPTER 7

ESTIMATED SHIPMENTS OF OTHER GRAINS FROM MINNESOTA ELEVATORS

Graphs 94 and 95 show estimated shipments of barley from Minnesota elevators during the marketing year. Minnesota barley production was 22.3 M bushels in 1998 and 8.5 M bushels in 1999. Estimated shipments during the 12-month period totaled 15.3 M bushels. Sixty-six percent of the Minnesota barley crop was shipped to Minneapolis and River ports and 17% was shipped to the Pacific Northwest, from CRDs 1 and 4.

Graphs 96 and 97 show the estimated elevator shipments of oats by mode by destination in bushels and tons. Production of oats in Minnesota was 19.5 M bushels in 1998 and 17.7 million bushels in 1999. Estimated elevator shipments were 1.9 M bushels.

Graphs 98 and 99 show the estimated shipment of other crops in bushels or hundredweight and tons. Total estimated shipments were 3.8 M bushels or cwt. Production of the largest “other crops” in 1999 sunflowers at 1.6 M cwt, dry edible beans at 2.6 M cwt and rye at 0.78 M bushels.
CHAPTER 8
NORTH DAKOTA

North Dakota is a major grain producing state and consequently ships large quantities of surplus grain to domestic and export locations. Because of the geographic proximity of North Dakota and Minnesota, the surplus grain destinations and routes of Minnesota and North Dakota are frequently the same. In the period of July 1999 through June 2000, North Dakota elevators shipped about 424 million bushels of all grains, or over 55% of that shipped from Minnesota elevators during the same time period, although the crop mix of the two states is much different. For example, corn accounts for 66% of Minnesota shipments versus 8.5% of North Dakota’s, while wheat and durum account for 55% of North Dakota’s shipments versus 11% of Minnesota’s. However, the destination points and transportation routes used are frequently the same.

Grain flow data from North Dakota elevators are collected monthly and processed by the Upper Great Plains Transportation Institute in a manner similar to the Minnesota data reported here. The major differences in the two sets of data are that the North Dakota data are inclusive of all shipments because North Dakota elevators are mandated by law to report their shipping mode and destination while we relied on a sample of volunteering elevators.

Table 12 shows the quantities of grain shipped by mode to the 8 destinations reported by North Dakota elevators. Graph 100 shows the destinations by mode for all grains. **Minneapolis and the River** receives 26.5% or more than a quarter of all grain shipped from North Dakota. This destination does not include Iowa river ports. Seventy-three percent of North Dakota shipments to **Minneapolis and the River** are by rail. Some of these rail shipments may
eventually go to points further east than Minneapolis because the rail destination may be changed after leaving the shipping elevator. Duluth/Superior and the Pacific Northwest are also major destinations accounting for 15.7% and 10.6% of North Dakota shipments. However, Other and Unknown, which includes Canada and North Dakota, each receive 17.4% of elevator. The only destination where truck shipments predominate is North Dakota with over an 82% share.

Graph 101 shows the destination for wheat, North Dakota’s most important export crop. The most important destination is Minneapolis and the River which receives 28.9% of shipments with near 73% rail shipments. Other and Unknown receive 22.4% of the wheat shipments of which 93% are by rail. Other and Unknown includes flourmills and processors throughout the country. Duluth/Superior and the Pacific Northwest received 16.4% and 13.5% of shipments primarily by rail, respectively.

Graph 102 shows the destinations of durum shipped from North Dakota elevators. Minneapolis and the River receives an even larger percentage of North Dakota durum than wheat.

Graph 103 shows North Dakota barley destinations. Minneapolis and the River received 43.4% of barley shipments. Because barley is used primarily for malting or feed, the export ports of Duluth/Superior and the Pacific Northwest receive very little barley.

Graph 104 shows the destination of North Dakota soybeans. Almost half goes to Duluth/Superior and over 20% to the Pacific Northwest. Unlike in Minnesota there is not a major soybean processor in North Dakota, so most beans are exported. Soybeans are a relatively new crop in North Dakota. The development of a soybean surplus in North Dakota and the Red
River Valley of Minnesota has caused the Port of Duluth-Superior to greatly increase soybean exports through the Great Lakes.

Graph 105 shows the destinations of North Dakota corn shipments. The most important market (32.2%) is the Pacific Northwest by rail, followed by Other and Unknown, which includes Canada and western states (24.8%). Duluth/Superior is third with 15.2%.
CHAPTER 9

ADECUACY OF SAMPLE AND COMPARISON WITH OTHER DATA SOURCES

Tables 1 and 2 show the number of elevators and the percentage of capacity reporting each month by CRD and for the 6 CRDs with 98% of Minnesota grain production. We have not reported the consistency of the individual elevators from month to month, but most reported 10 or more times during the 12-month period. The 18.7% average sampling rate and the 23.0% average elevator capacity reported should be more than adequate for projections if the respondents are representative of Minnesota elevators.

Table 13 is a comparison of the average production of the 3 major crops for 1998 and 1999 with our estimated shipments for the period July 1999 through June 2000. Marketing years are generally considered to be October-September for corn and soybeans and July-June for wheat (as well as barley and oats). Farm shipments of part of the 1998 Minnesota corn crop were delayed because of the government loan programs and some transportation equipment shortages, so on-farm stocks were expected to be larger than usual at the beginning of the 1999 marketing year. Table 13 shows our estimated total shipments of corn, soybeans and wheat and the difference between average production and estimated shipments. The total difference between average production and shipments was 627.9 M bushels. This difference should be adjusted for grain fed on farms and/or processed by local feed mills, grain used for seed, and grain delivered directly from farms to processors and river terminals. After making these adjustments, the difference between production, estimated shipments, and other uses is 80.4 M bushels for the 3
major grains (5.8% of production). The difference is 69.6 M bushels for corn (6.9%), 17.7 M bushels for soybeans 6.2%) and –7.0 M bushels for wheat (-8.7%).

Table 14 shows production and estimated shipments for corn, beans and wheat by CRD. These numbers are consistent: all major areas produced more than shipped, and differences between production and shipments are consistent with our concurrent feed-use study, and/or the likelihood of shipments directly from farm to processors and river terminal markets.

Other data sources confirm the grain movement patterns gleaned from the elevator data. For example, the Minneapolis Grain Exchange reports receipts and shipments of grains by month by mode of members for the Minneapolis/St. Paul, Red Wing and Winona Area Elevators. The Minnesota Office of Freight, Railroads and Waterways also has a terminal elevator report that is more inclusive than the Grain Exchange report which is limited to members. The Grain Exchange Report reports about 85 percent of the Mn/DOT Terminal Report. For the 7/99-6/00 period, Mn/DOT and the Grain Exchange reported 360 M and 341 M bushels of receipts, respectively. The survey had 207 M bushels. This pattern is consistent, as the survey total should be substantially less than actual receipts because of grain receipts from North Dakota, South Dakota and farms that bypass their local elevator and haul directly to river terminals.

Our review found that rail shipments reported to Minneapolis and River ports are substantially greater than Grain Exchange receipts. This is possible for at least 2 reasons. First, some rail grain from southern Minnesota goes to Iowa river ports that are not included in the Mn/DOT or Grain Exchange Reports. The second reason is that the ultimate destination of some of the rail grain originating to the west of the Twin Cities is not known at the time of shipment and the final destination is really not the Twin Cities.
Our conclusion is that there are no significant and/or unexplained inconsistencies from the estimates derived from the sample of reporting elevators when compared with data from public data sources.
ENDNOTES

1. Tiffany, Douglas G. and Jerry E. Fruin, “Filling the Feed Troughs of Minnesota and Beyond.”


5. Ibid., p. 19.


8. Ibid.


APPENDIX A
<table>
<thead>
<tr>
<th>Commodity</th>
<th>Mode</th>
<th>Duluth/Superior</th>
<th>River/Gulf Twp Cities-Winona</th>
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<th>Chicago &amp; Beyond</th>
<th>Kansas City &amp; Beyond</th>
<th>Mexico</th>
<th>MN Feed Use/Processors</th>
<th>SW Feed Mkt (CA/AZ)</th>
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<td>521</td>
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<td>561</td>
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<td>564</td>
<td>574</td>
<td>584</td>
<td>594</td>
</tr>
</tbody>
</table>

Please complete information in this report last day of each month and forwarded within 10 days to either:
Minnesota Department of Agriculture, Ag Certification Division, 90 W Plato Blvd., St. Paul, MN 55107-2094, or Fax: (651)297-2504,
or
Minnesota Grain & Feed Association, 852 Grain Exchange - 400 S 4th St., Minneapolis, MN 55415, or Fax: (612)339-5673.

For questions concerning this form, please call the Upper Great Plains Transportation Institute at P: (701)231-6427.
Minnesota Agricultural Transportation Database Consortium:

Minnesota Grain and Feed Association
Minnesota Department of Transportation
University of Minnesota Department of Applied Economics
Minnesota Department of Agriculture
Association of Minnesota Counties
Canadian Pacific Railway
Cenex Harvest States Cooperative
Dakota Minnesota & Eastern Railroad
I & M Rail Link
Minnesota Corn Research and Promotion Council
Minnesota Northern Railroad
Minnesota Regional Development Commissions
Minnesota Soybean Research and Promotion Council
Minnesota Trucking Association
Seaway Port Authority of Duluth
Twin Cities & Western Railroad
Minnesota’s Crop Reporting Districts
APPENDIX B
TABLES
**TABLE 1**

**ELEVATORS REPORTING BY MONTH**

<table>
<thead>
<tr>
<th>ELEVATORS REPORTING BY MONTH</th>
<th>NUMBER OF ELEVATORS REPORTING BY MONTH</th>
<th>AVE. FOR YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELEVATORS &gt; AVE. 10000 BU. CAP</td>
<td>Jul-99 Aug-99 Sep-99 Nov-99 Dec-99 Jan-00 Feb-00 Mar-00 Apr-00 May-00 Jun-00</td>
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</tr>
<tr>
<td>CRD1</td>
<td>95</td>
<td>18</td>
</tr>
<tr>
<td>CRD4</td>
<td>96</td>
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<tr>
<td>CRD5</td>
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<td>CRD7</td>
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<td>13</td>
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<td>CRD8</td>
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<td>12</td>
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<tr>
<td>CRD9</td>
<td>76</td>
<td>12</td>
</tr>
<tr>
<td>TOTAL</td>
<td>549</td>
<td>86</td>
</tr>
</tbody>
</table>

**PERCENTAGE OF ELEVATORS REPORTING BY MONTH**

| CRD1 | 20.9% | 27.3% | 30.8% | 25.7% | 23.5% | 23.2% | 23.0% | 23.3% | 21.1% | 26.2% | 26.0% | 23.7% | 26.7% |
| CRD4 | 17.4% | 15.7% | 17.3% | 16.5% | 17.6% | 20.0% | 23.0% | 20.0% | 19.3% | 19.4% | 21.9% | 21.1% | 20.4% |
| CRD5 | 17.4% | 14.9% | 11.5% | 12.8% | 12.7% | 12.6% | 12.4% | 12.5% | 16.5% | 12.6% | 10.4% | 10.5% | 14.1% |
| CRD7 | 15.1% | 14.9% | 15.4% | 16.5% | 15.7% | 18.9% | 15.9% | 15.8% | 17.4% | 16.5% | 14.6% | 13.2% | 19.2% |
| CRD8 | 14.0% | 15.7% | 13.5% | 17.4% | 18.6% | 16.8% | 12.4% | 15.0% | 12.8% | 13.6% | 13.5% | 17.1% | 15.3% |
| CRD9 | 14.0% | 10.7% | 11.5% | 11.0% | 10.8% | 8.4% | 11.5% | 12.5% | 12.8% | 11.7% | 12.5% | 14.5% | 15.9% |
| AVERAGE | 15.7% | 22.0% | 18.9% | 19.9% | 18.6% | 17.3% | 20.6% | 21.9% | 19.9% | 18.8% | 17.5% | 13.8% | 18.7% |

**PERCENT OF ELEVATOR CAPACITY REPORTING BY CRD**

<table>
<thead>
<tr>
<th>BUSHEL CAPACITY</th>
<th>Jul-99</th>
<th>Aug-99</th>
<th>Sep-99</th>
<th>Oct-99</th>
<th>Nov-99</th>
<th>Dec-99</th>
<th>Jan-00</th>
<th>Feb-00</th>
<th>Mar-00</th>
<th>Apr-00</th>
<th>May-00</th>
<th>Jun-00</th>
<th>12 Mon Ave</th>
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<td>CRD1</td>
<td>35,761,000</td>
<td>0.17122</td>
<td>0.34733</td>
<td>0.30631</td>
<td>0.28962</td>
<td>0.25749</td>
<td>0.23733</td>
<td>0.28774</td>
<td>0.33352</td>
<td>0.29499</td>
<td>0.29770</td>
<td>0.27726</td>
<td>0.21378</td>
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<td>CRD4</td>
<td>57,228,000</td>
<td>0.20752</td>
<td>0.23814</td>
<td>0.24430</td>
<td>0.21240</td>
<td>0.22905</td>
<td>0.28769</td>
<td>0.34256</td>
<td>0.34534</td>
<td>0.29341</td>
<td>0.31469</td>
<td>0.32012</td>
<td>0.22354</td>
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<td>CRD5</td>
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<td>0.23182</td>
<td>0.28449</td>
<td>0.19357</td>
<td>0.19188</td>
<td>0.22911</td>
<td>0.17948</td>
<td>0.30211</td>
<td>0.36037</td>
<td>0.37068</td>
<td>0.23371</td>
<td>0.14098</td>
<td>0.11573</td>
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<td>CRD7</td>
<td>70,799,000</td>
<td>0.21562</td>
<td>0.25687</td>
<td>0.20817</td>
<td>0.25305</td>
<td>0.20817</td>
<td>0.25003</td>
<td>0.27510</td>
<td>0.27236</td>
<td>0.28061</td>
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<td>CRD8</td>
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<td>0.14426</td>
<td>0.20230</td>
<td>0.13866</td>
<td>0.21846</td>
<td>0.24898</td>
<td>0.22447</td>
<td>0.21079</td>
<td>0.23588</td>
<td>0.19216</td>
<td>0.14786</td>
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<td>CRD9</td>
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<td>0.14456</td>
<td>0.12065</td>
<td>0.16404</td>
<td>0.20092</td>
<td>0.20559</td>
<td>0.18492</td>
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<td>STATE(6 CRDS)</td>
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<td>0.25247</td>
<td>0.20741</td>
<td>0.21981</td>
<td>0.21956</td>
<td>0.21661</td>
<td>0.26372</td>
<td>0.29140</td>
<td>0.27290</td>
<td>0.23675</td>
<td>0.21742</td>
<td>0.16501</td>
<td>0.22963</td>
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### TABLE 2
**JULY 1999-JUNE 2000  SHIPMENTS OF ALL GRAIN FROM MINNESOTA ELEVATORS**

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<th>DESTINATION</th>
<th>12 MONTHS ALL GRAINS</th>
<th>12 MONTHS ALL GRAINS</th>
<th>12 MONTHS ALL GRAINS</th>
<th>12 MONTHS ALL GRAINS</th>
<th>12 MONTHS ALL GRAINS</th>
<th>PERCENT of TOTAL SHIPMENTS</th>
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<td>BUSHELS</td>
<td>BUSHELS</td>
<td>TONS</td>
<td>TONS</td>
<td>TOTAL SHIPMENTS</td>
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<tr>
<td>DULUTH-SUPERIOR</td>
<td>63,345,207</td>
<td>16,935,877</td>
<td>80,281,084</td>
<td>1,773,666</td>
<td>474,205</td>
<td>2,247,870 10.46%</td>
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<tr>
<td>MINNEAPOLIS &amp; RIVER</td>
<td>111,079,397</td>
<td>107,092,624</td>
<td>218,172,021</td>
<td>3,110,223</td>
<td>2,998,593</td>
<td>6,108,817 28.42%</td>
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<tr>
<td>PACIFIC NORTHWEST</td>
<td>137,741,941</td>
<td>7,446</td>
<td>137,749,387</td>
<td>3,856,774</td>
<td>209</td>
<td>3,856,983 17.94%</td>
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<tr>
<td>CHICAGO &amp; BEYOND</td>
<td>56,188,465</td>
<td>303,367</td>
<td>56,491,833</td>
<td>1,573,277</td>
<td>8,494</td>
<td>1,581,771 7.36%</td>
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<td>KANSAS CITY &amp; BEYOND</td>
<td>26,347,750</td>
<td>324,027</td>
<td>26,671,777</td>
<td>737,737</td>
<td>9,073</td>
<td>746,810 3.47%</td>
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<td>MEXICO</td>
<td>53,245,628</td>
<td>579,933</td>
<td>53,825,560</td>
<td>1,490,878</td>
<td>16,238</td>
<td>1,507,116 7.01%</td>
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<td>MINNESOTA PROCESSORS</td>
<td>14,618,611</td>
<td>112,644,770</td>
<td>127,263,381</td>
<td>409,321</td>
<td>3,154,054</td>
<td>3,563,375 16.58%</td>
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<td>SOUTHWEST FEED MARKETS</td>
<td>23,308,447</td>
<td>1,068,867</td>
<td>24,377,314</td>
<td>652,637</td>
<td>29,928</td>
<td>682,565 3.18%</td>
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<td>OTHER</td>
<td>19,200,762</td>
<td>23,640,664</td>
<td>42,841,426</td>
<td>537,621</td>
<td>661,939</td>
<td>1,199,560 5.58%</td>
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<tr>
<td><strong>TOTAL SHIPMENTS</strong></td>
<td>505,076,374</td>
<td>262,597,575</td>
<td>767,673,949</td>
<td>14,142,138</td>
<td>7,352,732</td>
<td>21,494,871 100.00%</td>
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</table>

*University of Minnesota*


**TABLE 3**  
ALLGRAIN SHIPMENTS BY MONTH BY DESTINATION IN BUSHELS

<table>
<thead>
<tr>
<th>MODE</th>
<th>Jul-99</th>
<th>Aug-99</th>
<th>Sep-99</th>
<th>Oct-99</th>
<th>Nov-99</th>
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<th>Jan-00</th>
<th>Feb-00</th>
<th>Mar-00</th>
<th>Apr-00</th>
<th>May-00</th>
<th>Jun-00</th>
<th>YTD</th>
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<tbody>
<tr>
<td><strong>RAIL</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DULUTH-SUPERIOR</td>
<td>13,137,218</td>
<td>12,251,605</td>
<td>11,529,542</td>
<td>6,549,596</td>
<td>8,825,789</td>
<td>819,636</td>
<td>884,912</td>
<td>404,201</td>
<td>1,451,906</td>
<td>563,085</td>
<td>3,211,681</td>
<td>3,716,037</td>
<td>63,345,207</td>
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<tr>
<td>MINNEAPOLIS &amp; RIVER</td>
<td>11,598,779</td>
<td>16,195,698</td>
<td>6,431,370</td>
<td>11,066,619</td>
<td>12,171,055</td>
<td>3,236,550</td>
<td>2,511,279</td>
<td>6,800,977</td>
<td>6,486,139</td>
<td>12,339,477</td>
<td>11,545,668</td>
<td>10,661,853</td>
<td>111,079,397</td>
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<tr>
<td>PACIFIC NORTHWEST</td>
<td>12,233,060</td>
<td>5,939,569</td>
<td>21,066,174</td>
<td>2,990,199</td>
<td>6,728,362</td>
<td>9,516,971</td>
<td>11,916,461</td>
<td>10,430,229</td>
<td>6,131,116</td>
<td>10,407,325</td>
<td>10,943,460</td>
<td>25,066,543</td>
<td>137,741,947</td>
</tr>
<tr>
<td>CHICAGO &amp; BEYOND</td>
<td>1,884,736</td>
<td>5,710,866</td>
<td>13,022,031</td>
<td>6,299,233</td>
<td>2,885,834</td>
<td>5,072,879</td>
<td>7,002,747</td>
<td>2,489,630</td>
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<td>56,188,485</td>
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<tr>
<td><strong>RAIL</strong></td>
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<td>3,470,810</td>
<td>1,867,710</td>
<td>4,232,793</td>
<td>3,399,679</td>
<td>1,979,710</td>
<td>14,669</td>
<td>1,993,847</td>
<td>0</td>
<td>26,347,750</td>
</tr>
<tr>
<td>KANSAS CITY &amp; BEYOND</td>
<td>16,278,834</td>
<td>5,085,260</td>
<td>3,655,782</td>
<td>44,083</td>
<td>1,546,069</td>
<td>2,930,634</td>
<td>2,407,056</td>
<td>2,178,454</td>
<td>2,405,149</td>
<td>3,794,651</td>
<td>7,624,925</td>
<td>5,283,749</td>
<td>53,245,828</td>
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<tr>
<td>MINNESOTA PROCESSERS</td>
<td>90,083</td>
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<td>1,169,616</td>
<td>2,879,255</td>
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| TOTAL                        | 57,046,000 | 62,755,348 | 58,336,019 | 38,990,629 | 41,269,601 | 29,118,288 | 34,838,786 | 34,840,119 | 25,520,533 | 30,344,921 | 42,013,448 | 50,002,683 | 505,076,209 |

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| TOTAL                        | 49,209,405 | 10,718,039 | 3,809,680 | 2,178,454 | 1,426,544 | 3,399,679 | 6,850,977 | 6,469,139 | 12,338,477 | 11,545,668 | 10,661,853 | 111,079,397 |

University of Minnesota

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<td>729,040</td>
<td>$20,124,409</td>
<td>$24,138,723</td>
<td>$44,263,133</td>
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<td>418,223,342</td>
<td>8,366,949</td>
<td>3,343,304</td>
<td>11,710,254</td>
<td>$507,993,360</td>
<td>$202,986,321</td>
<td>$710,979,681</td>
<td>100.00%</td>
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</tr>
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### TABLE 7

**JULY 1999-JUNE 2000 CORN SHIPMENTS BY MONTH BY DESTINATION IN BUSHELS**

<table>
<thead>
<tr>
<th>DESTINATION</th>
<th>Jul-99</th>
<th>Aug-99</th>
<th>Sep-99</th>
<th>Oct-99</th>
<th>Nov-99</th>
<th>Dec-99</th>
<th>Jan-00</th>
<th>Feb-00</th>
<th>Mar-00</th>
<th>Apr-00</th>
<th>May-00</th>
<th>Jun-00</th>
<th>YEAR TOTAL</th>
<th>PERCENT</th>
</tr>
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<td>TOTAL</td>
<td>TOTAL</td>
<td>TOTAL</td>
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<td>TOTAL</td>
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<td>TOTAL</td>
<td>TOTAL</td>
</tr>
<tr>
<td>---</td>
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<td>---</td>
<td>---</td>
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<td>---</td>
<td>---</td>
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<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
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<td>7,350,784</td>
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<td>6,604,562</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>23,929,725</td>
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<td>953,063</td>
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<td>7,344,887</td>
<td>3,090,019</td>
<td>328,752</td>
<td>391,983</td>
<td>3,919,983</td>
<td>9,199,331</td>
<td>9,347,156</td>
<td>7,902,452</td>
<td>7,002,452</td>
<td>121,546,860</td>
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<td>8,310,395</td>
<td>17,656,752</td>
<td>1,893,267</td>
<td>5,196,705</td>
<td>8,725,002</td>
<td>10,270,211</td>
<td>9,818,486</td>
<td>4,231,676</td>
<td>9,609,492</td>
<td>10,926,283</td>
<td>23,593,219</td>
<td>121,546,860</td>
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<td>3,434,048</td>
<td>1,404,514</td>
<td>3,155,445</td>
<td>1,184,659</td>
<td>6,003,922</td>
<td>1,643,760</td>
<td>1,785,179</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>18,611,528</td>
<td>4.45%</td>
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<td>9,045</td>
<td>110,950</td>
<td>85,445</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>407,222</td>
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<td>370,877</td>
<td>2,508,061</td>
<td>1,184,659</td>
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<td>0</td>
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<td>0</td>
<td>0</td>
<td>710,796</td>
<td>224,146</td>
<td>2,327,564</td>
<td>178,487</td>
<td>0</td>
<td>0</td>
<td>159,508</td>
<td>126,103</td>
<td>3,816,718</td>
<td>0.91%</td>
</tr>
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<td>5,434,133</td>
<td>3,549,876</td>
<td>1,184,659</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>940,372</td>
<td>1,098,646</td>
<td>2,615,928</td>
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<td>331,322</td>
<td>695,000</td>
<td>144,651</td>
<td>1,785,179</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>33,817,211</td>
<td>38,159,138</td>
<td>40,028,660</td>
<td>20,068,631</td>
<td>17,047,602</td>
<td>11,017,607</td>
<td>21,943,627</td>
<td>27,626,748</td>
<td>32,618,632</td>
<td>298,819,624</td>
<td>71.45%</td>
<td>0.91%</td>
<td>3,816,718</td>
<td>0.91%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>33,817,211</td>
<td>38,159,138</td>
<td>40,028,660</td>
<td>20,068,631</td>
<td>17,047,602</td>
<td>11,017,607</td>
<td>21,943,627</td>
<td>27,626,748</td>
<td>32,618,632</td>
<td>298,819,624</td>
<td>71.45%</td>
<td>0.91%</td>
<td>3,816,718</td>
<td>0.91%</td>
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</table>

**University of Minnesota**

B-7
**TABLE 8**

**JULY 1999-JUNE 2000 SOYBEAN SHIPMENTS FROM MINNESOTA ELEVATORS**

<table>
<thead>
<tr>
<th>DESTINATION</th>
<th>12 MONTHS SOYBEANS BUSHELS</th>
<th>12 MONTHS SOYBEANS BUSHELS</th>
<th>12 MONTHS SOYBEANS BUSHELS</th>
<th>12 MONTHS SOYBEANS TONS</th>
<th>12 MONTHS SOYBEANS TONS</th>
<th>12 MONTHS SOYBEANS TONS</th>
<th>12 MONTHS SOYBEANS VALUE</th>
<th>PERCENT of TOTAL VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>DULUTH-SUPERIOR</td>
<td>23,188,408</td>
<td>3,456,591</td>
<td>26,644,999</td>
<td>695,652</td>
<td>103,698</td>
<td>799,350</td>
<td>$105,507,255</td>
<td>$15,727,490</td>
</tr>
<tr>
<td>MINNEAPOLIS &amp; RIVER</td>
<td>27,174,309</td>
<td>24,802,300</td>
<td>51,976,609</td>
<td>815,229</td>
<td>744,069</td>
<td>1,559,298</td>
<td>$123,643,106</td>
<td>$112,850,464</td>
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<td>13,324,470</td>
<td>399,734</td>
<td>0</td>
<td>399,734</td>
<td>$60,626,336</td>
<td>$0</td>
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<tr>
<td>CHICAGO &amp; BEYOND</td>
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<td>16,098</td>
<td>15,558,777</td>
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<td>483</td>
<td>466,763</td>
<td>$70,719,191</td>
<td>$73,246</td>
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<td>4,913,331</td>
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<td>0</td>
<td>147,400</td>
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<td>38,147,926</td>
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<td>6,252</td>
<td>1,144,438</td>
<td>$172,624,816</td>
<td>$948,248</td>
</tr>
<tr>
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<td>10,380,721</td>
<td>73,066,491</td>
<td>83,447,212</td>
<td>311,422</td>
<td>2,191,995</td>
<td>2,503,416</td>
<td>$47,232,280</td>
<td>$332,452,535</td>
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<td>258,716</td>
<td>0</td>
<td>7,761</td>
<td>7,761</td>
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<td>$1,177,159</td>
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<td>94,080</td>
<td>194,509</td>
<td>288,589</td>
<td>$14,268,820</td>
<td>$29,500,493</td>
</tr>
<tr>
<td>TOTAL SHIPMENTS</td>
<td>135,599,442</td>
<td>108,292,227</td>
<td>243,891,669</td>
<td>4,067,983</td>
<td>3,248,767</td>
<td>7,316,750</td>
<td>$616,977,461</td>
<td>$492,729,635</td>
</tr>
</tbody>
</table>
### TABLE 9

**JULY 1999-JUNE 2000 SOYBEAN SHIPMENTS BY MONTH BY DESTINATION IN BUSHELS**

<table>
<thead>
<tr>
<th>DESTINATION</th>
<th>Jul-99</th>
<th>Aug-99</th>
<th>Sep-99</th>
<th>Oct-99</th>
<th>Nov-99</th>
<th>Dec-99</th>
<th>Jan-00</th>
<th>Feb-00</th>
<th>Mar-00</th>
<th>Apr-00</th>
<th>May-00</th>
<th>Jun-00</th>
<th>TOTAL OF TOTAL</th>
</tr>
</thead>
<tbody>
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<td><strong>MODE</strong></td>
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<td>RAIL</td>
<td>RAIL</td>
<td>RAIL</td>
<td>RAIL</td>
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<td>RAIL</td>
<td>RAIL</td>
<td>RAIL</td>
<td>RAIL</td>
<td>RAIL</td>
<td>RAIL</td>
</tr>
<tr>
<td>DULUTH-SUPERIOR</td>
<td>3,363,810</td>
<td>2,212,620</td>
<td>137,726</td>
<td>4,922,906</td>
<td>4,756,154</td>
<td>410,289</td>
<td>866,540</td>
<td>43,569</td>
<td>814,131</td>
<td>563,085</td>
<td>3,211,681</td>
<td>2,115,897</td>
<td>23,188,408</td>
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<td>3,958,230</td>
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<td>4,756,655</td>
<td>3,483,991</td>
<td>146,532</td>
<td>84,247</td>
<td>4,847,060</td>
<td>546,630</td>
<td>1,139,576</td>
<td>1,065,694</td>
<td>288,531</td>
<td>27,174,309</td>
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<td>64,125</td>
<td>222,296</td>
<td>102,094</td>
<td>64,125</td>
<td>92,999</td>
<td>193,176</td>
<td>222,716</td>
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<td>288,653</td>
<td>831,762</td>
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<td>0</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0.00%</td>
</tr>
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<td>0.00%</td>
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<td>0</td>
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</tr>
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<td>5,122,767</td>
<td>7,050,483</td>
<td>6,377,226</td>
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<td>7,252,151</td>
<td>6,851,182</td>
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<td>0</td>
<td>0</td>
<td>0</td>
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<td>331,785</td>
<td>261,239</td>
<td>285,356</td>
<td>310,459</td>
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<td>7,945,083</td>
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<td>19,987,673</td>
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<td>17,958,473</td>
<td>23,844,072</td>
<td>23,982,176</td>
<td>21,327,176</td>
<td>21,541,823</td>
<td>21,126,509</td>
<td>21,727,678</td>
<td>22,367,548</td>
<td>243,891,669</td>
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</table>

University of Minnesota

B-9
# TABLE 10

JULY 1999-JUNE 2000 WHEAT SHIPMENTS FROM MINNESOTA ELEVATORS

<table>
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<tr>
<th>DESTINATION</th>
<th>12 MONTHS</th>
<th>12 MONTHS</th>
<th>12 MONTHS</th>
<th>12 MONTHS</th>
<th>12 MONTHS</th>
<th>12 MONTHS</th>
<th>12 MONTHS</th>
<th>12 MONTHS</th>
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<td></td>
<td>RAIL</td>
<td>TRUCK</td>
<td>TOTAL</td>
<td>RAIL</td>
<td>TRUCK</td>
<td>TOTAL</td>
<td>RAIL</td>
<td>TRUCK</td>
<td>TOTAL</td>
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<tr>
<td>DULUTH-SUPERIOR</td>
<td>16,044,768</td>
<td>12,747,375</td>
<td>28,792,143</td>
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<td>356,926</td>
<td>806,180</td>
<td>$48,936,543</td>
<td>$38,879,493</td>
<td>$87,816,037</td>
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<td>MINNEAPOLIS &amp; RIVER</td>
<td>14,896,742</td>
<td>10,991,237</td>
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<td>417,109</td>
<td>307,755</td>
<td>724,863</td>
<td>$45,435,064</td>
<td>$33,523,272</td>
<td>$78,958,337</td>
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<td>0</td>
<td>324,905</td>
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<td>0</td>
<td>9,097</td>
<td>$990,959</td>
<td>$0</td>
<td>$990,959</td>
</tr>
<tr>
<td>CHICAGO &amp; BEYOND</td>
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<td>68,446</td>
<td>21,830,853</td>
<td>1,917</td>
<td>611,264</td>
<td>66,375,340</td>
<td>$208,762</td>
<td>$66,584,102</td>
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<td>2,783,007</td>
<td>51,693</td>
<td>2,834,700</td>
<td>1,447</td>
<td>79,372</td>
<td>8,488,171</td>
<td>$157,664</td>
<td>$8,645,835</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
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<td>11,793</td>
<td>3,526</td>
<td>15,319</td>
<td>$1,284,577</td>
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<td>0</td>
<td>0</td>
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<td>$0</td>
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<td>1,666,270</td>
<td>701,769</td>
<td>2,368,040</td>
<td>$181,504,441</td>
<td>$76,442,727</td>
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<td>Aug-99</td>
<td>Sep-99</td>
<td>Oct-99</td>
<td>Nov-99</td>
<td>Dec-99</td>
<td>Jan-00</td>
<td>Feb-00</td>
<td>Mar-00</td>
</tr>
<tr>
<td>----------------------</td>
<td>--------</td>
<td>---------</td>
<td>---------</td>
<td>--------</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td>DULUTH-SUPERIOR</td>
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<td>3,225,834</td>
<td>4,623,319</td>
<td>89,641</td>
<td>3,200,885</td>
<td>409,347</td>
<td>0</td>
<td>360,632</td>
<td>637,776</td>
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<td>MINNEAPOLIS &amp; RIVER</td>
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<td>1,703,969</td>
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<td>298,803</td>
<td>0</td>
<td>1,942,571</td>
<td>1,454,957</td>
<td>1,648,590</td>
<td>1,983,612</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>324,905</td>
<td>0</td>
<td>0</td>
<td>324,905</td>
</tr>
<tr>
<td>CHICAGO &amp; BEYOND</td>
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<td>195,111</td>
<td>427,499</td>
<td>1,284,852</td>
<td>1,630,357</td>
<td>1,379,651</td>
<td>2,704,742</td>
<td>3,249,047</td>
<td>721,313</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>1,637,388</td>
<td>1,145,619</td>
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<td>0</td>
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<td>0</td>
</tr>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>SOUTHWEST FEED MARKETS</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>OTHER</td>
<td>221,789</td>
<td>572,325</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>6,175,984</td>
<td>5,697,240</td>
<td>5,573,316</td>
<td>2,495,004</td>
<td>5,668,856</td>
<td>3,426,386</td>
<td>6,350,714</td>
<td>4,913,615</td>
<td>6,425,893</td>
</tr>
</tbody>
</table>

| TRUCK                | TOTAL  | DULUTH-SUPERIOR | 3,681,787 | 4,705,703 | 5,458,616 | 571,305 | 3,579,488 | 849,658 | 537,492 | 849,779 | 1,199,137 | 1,079,696 | 1,505,159 | 2,683,203 | 12,747,375 | 15.07% |
| TOTAL                | 2,722,885 | 3,365,228 | 1,936,371 | 1,186,249 | 1,458,620 | 1,801,638 | 1,303,917 | 1,504,379 | 1,984,688 | 1,726,007 | 2,382,496 | 3,690,730 | 25,063,189 | 29.64% |
| DULUTH-SUPERIOR      | 3,681,787 | 4,705,703 | 5,458,616 | 571,305 | 3,579,488 | 849,658 | 537,492 | 849,779 | 1,199,137 | 1,079,696 | 1,505,159 | 2,683,203 | 12,747,375 | 15.07% |
| MINNEAPOLIS & RIVER  | 3,122,038 | 3,499,219 | 1,560,292 | 987,464 | 1,072,046 | 1,349,209 | 706,703 | 759,881 | 561,784 | 370,253 | 578,002 | 10,991,237 | 13.00% |
| PACIFIC NORTHWEST    | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00% |
| CHICAGO & BEYOND     | 1,859,619 | 195,111 | 427,499 | 1,284,852 | 1,630,357 | 1,379,651 | 2,704,742 | 3,249,047 | 721,313 | 1,903,165 | 0 | 3,144,526 | 21,762,407 | 25.73% |
| KANSAS CITY & BEYOND | 0 | 0 | 0 | 0 | 0 | 1,637,388 | 1,145,619 | 0 | 0 | 0 | 0 | 324,905 | 3,247,954 | 3.82% |
| MEXICO               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00% |
| MINNESOTA PROCESSERS | 0 | 10,397 | 0 | 0 | 0 | 0 | 56,404 | 0 | 0 | 0 | 0 | 523,956 | 41,593 | 0.15% |
| SOUTHWEST FEED MARKETS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00% |
| OTHER                | 13,637 | 79,712 | 63,280 | 11,942 | 0 | 0 | 3,318 | 33,030 | 25,650 | 3,318 | 430,620 | 413,616 | 1,078,502 | 1.28% |
| TOTAL                | 2,722,885 | 3,365,228 | 1,936,371 | 1,186,249 | 1,458,620 | 1,801,638 | 1,303,917 | 1,504,379 | 1,984,688 | 1,726,007 | 2,382,496 | 3,690,730 | 25,063,189 | 29.64% |

<p>| TOTAL                | 8,898,869 | 9,062,468 | 7,509,888 | 3,681,253 | 7,127,477 | 5,228,024 | 7,654,631 | 8,410,560 | 6,417,994 | 3,410,560 | 4,805,460 | 6,418,500 | 10,357,920 | 84,572,842 | 100.00% |</p>
<table>
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<th>North Dakota</th>
<th>H.R. Wheat</th>
<th>H.R. Wheat</th>
<th>Durum</th>
<th>Durum</th>
<th>Barley</th>
<th>Barley</th>
<th>Sunflowers</th>
<th>Sunflowers</th>
<th>Soybeans</th>
<th>Soybeans</th>
<th>Corn</th>
<th>Corn</th>
<th>Total</th>
<th>Total</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rail</td>
<td>Truck</td>
<td>Rail</td>
<td>Truck</td>
<td>Rail</td>
<td>Truck</td>
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<td>Truck</td>
<td>Rail</td>
<td>Truck</td>
<td>Rail</td>
<td>Truck</td>
<td>Rail</td>
</tr>
<tr>
<td>DUL-SUP</td>
<td>20,634,000</td>
<td>7,651,000</td>
<td>6,166,000</td>
<td>2,204,000</td>
<td>2,896,000</td>
<td>339,000</td>
<td>723,000</td>
<td>66,000</td>
<td>19,401,000</td>
<td>783,000</td>
<td>5,465,000</td>
<td>76,000</td>
<td>55,285,000</td>
<td>11,119,000</td>
<td>66,404,000</td>
</tr>
<tr>
<td>MPLS&amp;RIVER</td>
<td>36,418,000</td>
<td>13,553,000</td>
<td>17,475,000</td>
<td>3,783,000</td>
<td>19,623,000</td>
<td>11,538,000</td>
<td>1,271,000</td>
<td>895,000</td>
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<td>138,000</td>
<td>82,019,000</td>
<td>30,190,000</td>
<td>112,209,000</td>
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<td>845,000</td>
<td>665,000</td>
<td>1,000</td>
<td>641,000</td>
<td>90,000</td>
<td>46,000</td>
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<td>88,000</td>
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<td>1,282,000</td>
<td>44,922,000</td>
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<td>4,549,000</td>
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<td>43,000</td>
<td>377,000</td>
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<td>393,000</td>
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<td>1,768,000</td>
<td>31,697,000</td>
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<td>1,718,000</td>
<td>2,601,000</td>
<td>598,000</td>
<td>3,961,000</td>
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<td>161,000</td>
<td>3,906,000</td>
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<td>8,686,000</td>
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<td>3,568,000</td>
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<td>60,399,000</td>
<td>13,155,000</td>
<td>73,554,000</td>
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<td>13,662,000</td>
<td>2,305,000</td>
<td>26,911,000</td>
<td>57,000</td>
<td>603,000</td>
<td>2,269,000</td>
<td>2,112,000</td>
<td>16,559,000</td>
<td>57,236,000</td>
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<td>5,837,000</td>
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<td>38,068,000</td>
<td>2,802,000</td>
<td>27,857,000</td>
<td>8,549,000</td>
<td>300,358,000</td>
<td>123,436,000</td>
<td>423,794,000</td>
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### TABLE 13
#### COMPARISON OF ESTIMATED GRAIN SHIPMENTS WITH TOTAL MINNESOTA GRAIN PRODUCTION IN THOUSAND BUSHELS

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<tr>
<th></th>
<th>CORN</th>
<th>SOYBEANS</th>
<th>WHEAT</th>
<th>TOTAL</th>
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<td>TOTAL</td>
<td>TOTAL</td>
<td>TOTAL</td>
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<tr>
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<td>282,900</td>
<td>79,210</td>
<td>1,352,110</td>
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<td>84,805</td>
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<td>8,000</td>
<td>2,000</td>
<td>13,500</td>
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<td>90,000</td>
</tr>
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<td>FARM TO RIVER</td>
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<td>2,000</td>
<td>547,500</td>
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TABLE 14
COMPARISON OF SHIPMENTS AND PRODUCTION
BY GRAIN AND CRD IN THOUSAND BUSHELS

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<th>PRODUCTION</th>
<th>SHIPMENTS</th>
<th>PRODUCTION</th>
<th>SHIPMENTS</th>
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<tbody>
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<td></td>
<td>CORN</td>
<td>CORN</td>
<td>SOYBEANS</td>
<td>SOYBEANS</td>
<td>WHEAT</td>
<td>WHEAT</td>
</tr>
<tr>
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<td>12835</td>
<td>4919</td>
<td>19558</td>
<td>17436</td>
<td>50775</td>
<td>43967</td>
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<td>182659</td>
<td>78840</td>
<td>62546</td>
<td>61336</td>
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<td>1803</td>
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APPENDIX C

GRAPHS
GRAPH 1
MINNESOTA ESTIMATED ALLGRAIN DESTINATIONS 7/99-6/00
BUSHELS
GRAPH 2
MINNESOTA ESTIMATED ALLGRAIN DESTINATIONS
7/99-6/00 TONS
GRAPH 4
MINNESOTA ESTIMATED ALLGRAIN DESTINATIONS 7/99-6/00
TOTAL TONS

DESTINATION

DULUTH-SUPERIOR
MINNEAPOLIS & RIVER
PACIFIC NORTHWEST
CHICAGO & BEYOND
KANSAS CITY & BEYOND
MEXICO
MINNESOTA PROCESSERS
SOUTHWEST FEED MARKETS
OTHER

TONS
GRAPH 5
VALUE OF MINNESOTA MAJOR GRAINS BY DESTINATION
7/99-6/00

DOLLARS

DESTINATION

DUL-SUP  MPL&RIVER  PAC NW  CHIC&EAST  KC&Beyond  MEXICO  MN PLANTS  SW FEED  OTHER

RAIL  TRUCK
GRAPH 6
MINNESOTA ELEVATOR SHIPMENTS OF ALL GRAINS BY MONTH
7/99-6/00

BUSHELS

MONTH

RAIL
TRUCK
TOTAL

Jul-99 Aug-99 Sep-99 Oct-99 Nov-99 Dec-99 Jan-00 Feb-00 Mar-00 Apr-00 May-00 Jun-00
GRAPH 7
MINNESOTA GRAIN SHIPMENTS TO DULUTH SUPERIOR BY MONTH
7/99-6/00

MONTH

BUSHELS

RAIL
TRUCK
TOTAL

University of Minnesota

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GRAPH 8
MINNESOTA GRAIN SHIPMENTS TO MINNEAPOLIS AND RIVER BY MONTH 7/99 6/00
GRAPH 9
MINNESOTA GRAIN SHIPMENTS TO PACIFIC NORTHWEST BY
MONTH 7/99-6/00

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<td>Jun-00</td>
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Legend:
- RAIL
- TRUCK
- TOTAL
GRAPH 10
MINNESOTA GRAIN SHIPMENTS TO CHICAGO AND BEYOND BY MONTH 7/99-6/00

![Bar chart showing grain shipments by month from July 1999 to June 2000, with separate bars for rail, truck, and total shipments.](image)
GRAPH 11
MINNESOTA GRAIN SHIPMENTS TO KANSAS CITY AND BEYOND BY MONTH 7/99-6/00

MONTH

BUSHELS

RAIL
TRUCK
TOTAL
GRAPH 12
MINNESOTA GRAIN SHIPMENTS TO MEXICO BY MONTH 7/99-6/00

BUSHELS

MONTH

RAIL
TRUCK
TOTAL
GRAPH 13
MINNESOTA GRAIN SHIPMENTS TO MINNESOTA PROCESSORS BY MONTH 7/99-6/00
GRAPH 14
MINNESOTA GRAIN SHIPMENTS TO SOUTHWEST FEED MARKETS
BY MONTH 7/99-6/00
GRAPH 15
MINNESOTA GRAIN SHIPMENTS TO OTHER AND UNKNOWN MARKETS BY MONTH 7/99-6/00
GRAPH 16
ESTIMATED CRD 1 ALLGRAIN DESTINATIONS 7/99-6/00
BUSHELS

- DUL-SUP
- MPLS&RIVER
- PAC NW
- CHI&BEYOND
- KC&BEYOND
- MEXICO
- MINN PROC
- SW FEED MKTS
- OTHER

BUHELS

RAIL
TRUCK

University of Minnesota
GRAPH 17
ESTIMATED CRD 4 ALLGRAIN DESTINATIONS 7/99-6/00
BUSHELS

DUL-SUP
MPLS&RIVER
PAC NW
CHI&BEYOND
KC&BEYOND
MEXICO
MINN PROC
SW FEED MKTS
OTHER

RAIL
TRUCK
GRAPH 19
ESTIMATED CRD 7 ALLGRAIN DESTINATIONS 7/99-6/00
BUSHELS
GRAPH 20
ESTIMATED CRD 8 ALLGRAIN DESTINATIONS 7/99-6/00
BUSHELS
GRAPH 21
ESTIMATED CRD 9 ALLGRAIN DESTINATIONS 7/99-6/00
BUSHELS

RAIL
TRUCK

DUL-SUP
MPLS&RIVER
PAC NW
CHI&BEYOND
KC&BEYOND
MEXICO
MINN PROC
SW FEED MKTS
OTHER
GRAPH 22
ESTIMATED CRD 1 ALLGRAIN DESTINATIONS 7/99-6/00
TONS

DESTINATION

RAIL
TRUCK

TONS

DUL-SUP
MPL&RIVER
PAC NW
CHIC& EAST
KC&BEYOND
MEXICO
MN PLANTS
SW FEED
OTHER

0
100,000
200,000
300,000
400,000
500,000
600,000
GRAPH 23
ESTIMATED CRD 4 ALLGRAIN DESTINATIONS 7/99-6/00
TONS

DUL-SUP
MPL&RIVER
PAC NW
CHIC&EAST
KC&BEYOND
MEXICO
MN PLANTS
SW FEED
OTHER

RAIL
TRUCK
GRAPH 24
ESTIMATED CRD 5 ALLGRAIN DESTINATIONS 7/99-6/00
TONS

- DUL-SUP
- MPL & RIVER
- PAC NW
- CHIC & EAST
- KC & BEYOND
- MEXICO
- MN PLANTS
- SW FEED
- OTHER

RAIL
TRUCK
GRAPH 25
ESTIMATED CRD 7 ALLGRAIN DESTINATIONS 7/99-6/00
TONS

DESTINATION

RAIL
TRUCK

TONS

0
100,000
200,000
300,000
400,000
500,000
600,000
700,000
800,000
900,000
1,000,000
1,100,000
1,200,000
1,300,000

DUL-SUP
MPL&RIVER
PAC NW
CHIC&EASt
KC&BEYOND
MEXICO
MN PLANTS
SW FEED
OTHER
GRAPH 26
ESTIMATED CRD 8 ALLGRAIN DESTINATIONS 7/99-6/00
TONS

- DUL-SUP
- MPL&RIVER
- PAC NW
- CHIC&EAST
- KC&BEYOND
- MEXICO
- MN PLANTS
- SW FEED
- OTHER

TONS
0 100,000 200,000 300,000 400,000 500,000 600,000 700,000 800,000 900,000 1,000,000 1,100,000 1,200,000 1,300,000 1,400,000 1,500,000

RAIL
TRUCK
GRAPH 27
ESTIMATED CRD 9 ALLGRAIN DESTINATIONS 7/99-6/00
TONS

TONS

DESTINATION

RAIL
TRUCK
GRAPH 28
MINNESOTA CORN DESTINATIONS 7/99-6/00 IN BUSHELS

DESTINATION

RAIL
TRUCK
GRAPH 29
MINNESOTA CORN DESTINATIONS 7/99-6/00 TONS

DESTINATION

TONS

RAIL
Truck
GRAPH 30
VALUE OF MINNESOTA CORN SHIPMENTS 7/99-6/00
AT $1.70 PER BUSHEL

DOLLARS

DESTINATION

DULUTH-SUPERIOR
MINNEAPOLIS and RIVER
PACIFIC NORTHWEST
CHICAGO & BEYOND
KANSAS & BEYOND
MEXICO
OTHER MINNESOTA
SOUTHWEST FEED MARKET
OTHER MARKETS

RAIL
Truck
GRAPH 32
MINNESOTA CORN SHIPMENTS TO DULUTH SUPERIOR BY MONTH
7/99-6/00

BUSHELS

RAIL
TRUCK
TOTAL

MONTH
GRAPH 33
MINNESOTA CORN SHIPMENTS TO MINNEAPOLIS AND RIVER PORTS BY MONTH 7/99-6/00

MONTH

BUSHELS

RAIL
TRUCK
TOTAL

JUL-99  AUG-99  SEP-99  OCT-99  NOV-99  DEC-99  JAN-00  FEB-00  MAR-00  APR-00  MAY-00  JUN-00

University of Minnesota
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GRAPH 34
MINNESOTA CORN SHIPMENTS TO PACIFIC NORTHWEST BY MONTH 7/99-6/00

MONTHLY SHIPMENTS

- RAIL
- TRUCK
- TOTAL

BUSHELS

MONTH

JUL-99  AUG-99  SEP-99  OCT-99  NOV-99  DEC-99  JAN-00  FEB-00  MAR-00  APR-00  MAY-00  JUN-00

BUSHELS

0  5,000,000  10,000,000  15,000,000  20,000,000  25,000,000

University of Minnesota
GRAPH 35
MINNESOTA CORN SHIPMENTS TO CHICAGO AND BEYOND BY MONTH 7/99-6/00

MONTH

BUSHELS

RAIL
TRUCK
TOTAL
GRAPH 36
MINNESOTA CORN SHIPMENTS TO KANSAS CITY AND BEYOND BY MONTH 7/99-6/00

MONTH
BUSHELS
RAIL
TRUCK
TOTAL

Jul-99 Aug-99 Sep-99 Oct-99 Nov-99 Dec-99 Jan-00 Feb-00 Mar-00 Apr-00 May-00 Jun-00
GRAPH 37
MINNESOTA CORN SHIPMENTS TO MEXICO BY MONTH 7/99-6/00

MONTH
RAIL
TRUCK
TOTAL
BUSHELS

Jul-99 Aug-99 Sep-99 Oct-99 Nov-99 Dec-99 Jan-00 Feb-00 Mar-00 Apr-00 May-00 Jun-00
GRAPH 38
MINNESOTA CORN SHIPMENTS TO MINNESOTA PROCESSORS BY MONTH 7/99-6/00

MONTH
Jul-99 Aug-99 Sep-99 Oct-99 Nov-99 Dec-99 Jan-00 Feb-00 Mar-00 Apr-00 May-00 Jun-00

BUSHELS
0 1,000,000 2,000,000 3,000,000 4,000,000 5,000,000 6,000,000

RAIL
TRUCK
TOTAL
GRAPH 39
MINNESOTA CORN SHIPMENTS TO SOUTHWEST FEED MARKET BY MONTH 7/99-6/00

MONTH

- Jul-99
- Aug-99
- Sep-99
- Oct-99
- Nov-99
- Dec-99
- Jan-00
- Feb-00
- Mar-00
- Apr-00
- May-00
- Jun-00

RAIL
TRUCK
TOTAL

BUSHELS

0
1,000,000
2,000,000
3,000,000
4,000,000
5,000,000
6,000,000
7,000,000
8,000,000
GRAPH 40
MINNESOTA CORN SHIPMENTS TO OTHER AND
UNKNOWN MARKETS BY MONTH 7/99-6/00
GRAPH 41
MINNESOTA CORN SHIPMENTS BY MODE 7/99-6/00

BUSHELS

0
20,000,000
40,000,000
60,000,000
80,000,000
100,000,000
120,000,000
140,000,000
160,000,000
180,000,000

1-24 CARS
24-49 CARS
50-99 CARS
100+ CARS
TRUCK
GRAPH 43
MINNESOTA CORN SHIPMENTS BY MONTH AND MODE
7/99-6/00

MONTH

BUSHELS

1-24 CAR RAIL
25-49 CARS RAIL
50-99 CAR SRAIL
100+ CAR TRAIN
TRUCK
GRAPH 44
ESTIMATED CRD1 CORN DESTINATIONS 7/99-6/00
IN BUSHELS

DESTINATION

DUULTH-SUPERIOR
MINNEAPOLIS and RIVER
PACIFIC NORTHWEST
CHICAGO & BEYOND
KANSAS & BEYOND
MEXICO
OTHER MINNESOTA
SOUTHWEST FEED MARKET
OTHER MARKETS

BUSHELS
0
500,000
1,000,000
1,500,000
2,000,000
2,500,000
3,000,000
3,500,000
4,000,000

RAIL
TRUCK
GRAPH 45
ESTIMATED CRD 4 CORN DESTINATIONS 7/99-6/00
IN BUSHELS
GRAPH 46
ESTIMATED CRD 5 CORN DESTINATIONS 7/99-6/00
IN BUSHELS
GRAPH 47
ESTIMATED CRD 7 CORN DESTINATIONS 7/99-6/00
IN BUSHELS
GRAPH 48
ESTIMATED CRD 8 CORN DESTINATIONS 7/99-6/00
IN BUSHELS

DESTINATION

DULUTH-SUPERIOR
MINNEAPOLIS and RIVER
PACIFIC NORTHWEST
CHICAGO & BEYOND
KANSAS & BEYOND
MEXICO
OTHER MINNESOTA
SOUTHWEST FEED MARKET
OTHER MARKETS

BUSHELS

RAIL
TRUCK
GRAPH 49
ESTIMATED CRD 9 CORN DESTINATIONS 7/99-6/00
IN BUSHELS
GRAPH 50
ESTIMATED CRD1 CORN DESTINATIONS 7/99-6/00
TONS

DESTINATIONS

TONS

DULUTH-SUPERIOR
MINNEAPOLIS and RIVER
PACIFIC NORTHWEST
CHICAGO & BEYOND
KANSAS & BEYOND
MEXICO
OTHER MINNESOTA
SOUTHWEST FEED MARKET
OTHER MARKETS
GRAPH 51
ESTIMATED CRD 4 CORN DESTINATIONS  7/99-6/00
TONS

DESTINATIONS

TONS

RAIL
Truck

DULUTH-SUPERIOR
MINNEAPOLIS and RIVER
PACIFIC NORTHWEST
CHICAGO & BEYOND
KANSAS & BEYOND
MEXICO
OTHER MINNESOTA
SOUTHWEST FEED MARKET
OTHER MARKETS
GRAPH 52
ESTIMATED CRD 5 CORN DESTINATIONS 7/99-6/00
TONS

DESTINATIONS

TONS

DULUTH-SUPERIOR
MINNEAPOLIS and RIVER
PACIFIC NORTHWEST
CHICAGO & BEYOND
KANSAS & BEYOND
MEXICO
OTHER MINNESOTA
SOUTHWEST FEED MARKET
OTHER MARKETS

RAIL
Truck
GRAPH 53
ESTIMATED CRD 7 CORN DESTINATIONS 7/99-6/00
TONS
GRAPH 54
ESTIMATED CRD 8 CORN DESTINATIONS 7/99-6/00
TONS

DESTINATIONS

TONS

RAIL
Truck

DULUTH-SUPERIOR
MINNEAPOLIS and RIVER
PACIFIC NORTHWEST
CHICAGO & BEYOND
KANSAS & BEYOND
MEXICO
OTHER MINNESOTA
SOUTHWEST FEED MARKET
OTHER MARKETS

University of Minnesota
GRAPH 55
ESTIMATED CRD 9 CORN DESTINATIONS 7/99-6/00
TONS

DESTINATION

- DULUTH-SUPERIOR
- MINNEAPOLIS and RIVER
- PACIFIC NORTHWEST
- CHICAGO & BEYOND
- KANSAS & BEYOND
- MEXICO
- OTHER MINNESOTA
- SOUTHWEST FEED MARKET
- OTHER MARKETS

TONS

- RAIL
- Truck
GRAPH 56
MINNESOTA SOYBEAN DESTINATIONS 7/99-6/00
BUSHELS
GRAPH 57
MINNESOTA SOYBEAN DESTINATION  7/99-6/00
TONS

- Rail
- Truck

DESTINATION

- DULUTH-SUPERIOR
- MINNEAPOLIS & RIVER
- PACIFIC NORTHWEST
- CHICAGO & BEYOND
- KANSAS CITY & BEYOND
- MEXICO
- MINNESOTA PROCESSERS
- SOUTHWEST FEED MARKETS
- OTHER
GRAPH 58
VALUE OF MINNESOTA SOYBEAN SHIPMENTS 7/99-6/00 AT $4.55 PER BUSHEL
GRAPH 59
MINNESOTA SOYBEAN SHIPMENTS BY MONTH
7/99-6/00

MONTH

RAIL
TRUCK
TOTAL

BUSHELS

Jul-99  Aug-99  Sep-99  Oct-99  Nov-99  Dec-99  Jan-00  Feb-00  Mar-00  Apr-00  May-00  Jun-00
GRAPH 60
MINNESOTA SOYBEAN SHIPMENTS TO DULUTH SUPERIOR
BY MONTH 7/99-6/00

BUSHELS

MONTH

RAIL
TRUCK
TOTAL

University of Minnesota C-60
GRAPH 61
MINNESOTA SOYBEAN SHIPMENTS TO MINNEAPOLIS AND RIVER
BY MONTH 7/99-6/00

MONTH
Jul-99 Aug-99 Sep-99 Oct-99 Nov-99 Dec-99 Jan-00 Feb-00 Mar-00 Apr-00 May-00 Jun-00

BUSHELS
0 2,000,000 4,000,000 6,000,000 8,000,000 10,000,000

RAIL
TRUCK
TOTAL
GRAPH 62
MINNESOTA SOYBEAN SHIPMENTS TO PACIFIC NORTHWEST BY
MONTH 7/99-6/00

BUSHELS

MONTH
Jul-99  Aug-99  Sep-99  Oct-99  Nov-99  Dec-99  Jan-00  Feb-00  Mar-00  Apr-00  May-00  Jun-00

RAIL
TRUCK
TOTAL
GRAPH 63
MINNESOTA SOYBEAN SHIPMENTS TO CHICAGO AND BEYOND BY MONTH 7/99-6/00

MONTH

BUSHELS

RAIL
TRUCK
TOTAL
GRAPH 64
MINNESOTA SOYBEAN SHIPMENTS TO KANSAS CITY AND BEYOND
BY MONTH 7/99-6/00

MONTH
Jul-99 Aug-99 Sep-99 Oct-99 Nov-99 Dec-99 Jan-00 Feb-00 Mar-00 Apr-00 May-00 Jun-00

BUSHELS
0 500,000 1,000,000 1,500,000 2,000,000 2,500,000

RAIL
TRUCK
TOTAL
GRAPH 66
MINNESOTA SOYBEAN SHIPMENTS TO MINNESOTA PROCESSORS
BY MONTH 7/99-6/00
GRAPH 67
MINNESOTA SOYBEAN SHIPMENTS TO OTHER AND UNKNOWN MARKETS BY MONTH 7/99-6/00

MONTH

BUSHELS

RAIL
TRUCK
TOTAL

MONTH

Jul-99 Aug-99 Sep-99 Oct-99 Nov-99 Dec-99 Jan-00 Feb-00 Mar-00 Apr-00 May-00 Jun-00
GRAPH 68
ESTIMATED CRD 1 SOYBEAN DESTINATIONS 7/99-6/00
BUSHELS

- Duluth-Superior
- Minneapolis & River
- Pacific Northwest
- Chicago & Beyond
- Kansas City & Beyond
- Mexico
- Minnesota Processors
- Southwest Feed Markets
- Other

BUSHELS
0
2,000,000
4,000,000
6,000,000
8,000,000
10,000,000
12,000,000

DESTINATIONS

Rail
Truck
GRAPH 69
ESTIMATED CRD 4 SOYBEAN DESTINATIONS 7/99-6/00
BUSHELS

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<td>CHICAGO &amp; BEYOND</td>
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Rail
Truck
GRAPH 70
ESTIMATED CRD 5 SOYBEAN DESTINATIONS 7/99-6/00
BUSHELS

DULUTH-SUPERIOR
MINNEAPOLIS & RIVER
PACIFIC NORTHWEST
CHICAGO & BEYOND
KANSAS CITY & BEYOND
MEXICO
MINNESOTA PROCESSERS
SOUTHWEST FEED MARKETS
OTHER

DESTINATIONS

BUSHELS
0
2,000,000
4,000,000
6,000,000
8,000,000
10,000,000
12,000,000

Rail
Truck
GRAPH 73
ESTIMATED CRD 9 SOYBEAN DESTINATIONS 7/99-6/00
BUSHELS

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<td>KANSAS CITY &amp; BEYOND</td>
<td>RAIL</td>
</tr>
<tr>
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<td>Truck</td>
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0 2,000,000 4,000,000 6,000,000 8,000,000 10,000,000 12,000,000

RAIL  Truck
GRAPH 74
ESTIMATED CRD 1 SOYBEAN DESTINATIONS 7/99-6/00 TONS

- DULUTH-SUPERIOR
- MINNEAPOLIS & RIVER
- PACIFIC NORTHWEST
- CHICAGO & BEYOND
- KANSAS CITY & BEYOND
- MEXICO
- MINNESOTA PROCESSERS
- SOUTHWEST FEED MARKETS
- OTHER

TONS

Rail
Truck
 GRAPH 75
ESTIMATED CRD 4 SOYBEAN DESTINATIONS 7/99-6/00 TONS

DESTINATIONS

DULUTH-SUPERIOR
MINNEAPOLIS & RIVER
PACIFIC NORTHWEST
CHICAGO & BEYOND
KANSAS CITY & BEYOND
MEXICO
MINNESOTA PROCESSORS
SOUTHWEST FEED MARKETS
OTHER

TONS

0 100,000 200,000 300,000 400,000 500,000 600,000 700,000

Rail
Truck
GRAPH 76
ESTIMATED CRD 5 SOYBEAN DESTINATIONS 7/99-6/00 TONS

DESTINATION

- DULUTH SUPERIOR
- MINNEAPOLIS & RIVER
- PACIFIC NORTHWEST
- CHICAGO & BEYOND
- KANSAS CITY & BEYOND
- MEXICO
- MINNESOTA PROCESSERS
- SOUTHWEST FEED MARKETS
- OTHER

TONS

- Rail
- Truck
GRAPH 77
ESTIMATED CRD 7 SOYBEAN DESTINATIONS 7/99-6/00 TONS

TONS

DULUTH-SUPERIOR  MINNEAPOLIS & RIVER  PACIFIC NORTHWEST  CHICAGO & BEYOND  KANSAS CITY & BEYOND  MEXICO  MINNESOTA PROCESSERS  SOUTHWEST FEED MARKETS  OTHER

DESTINATION

Rail
Truck

University of Minnesota
C-77
GRAPH 78
ESTIMATED CRD 8 SOYBEAN DESTINATIONS 7/99-6/00 TONS

TONS

DULUTH-SUPERIOR
MINNEAPOLIS & RIVER
PACIFIC NORTHWEST
CHICAGO & BEYOND
KANSAS CITY & BEYOND
MEXICO
MINNESOTA PROCESSORS
SOUTHWEST FEED MARKETS
OTHER

DESTINATION

Rail
Truck

0 200,000 400,000 600,000 800,000 1,000,000 1,200,000 1,400,000
GRAPH 80
MINNESOTA WHEAT SHIPMENTS IN BUSHELS 7/99-6/00

BUSHELS

DESTINATION

DULUTH-SUPERIOR
MINNEAPOLIS & RIVER
PACIFIC NORTHWEST
CHICAGO & BEYOND
KANSAS CITY & BEYOND
MEXICO
MINNESOTA PROCESSORS
SOUTHWEST FEED MARKETS
OTHER

RAIL
TRUCK
GRAPH 81
MINNESOTA WHEAT SHIPMENTS IN TONS
7/99-6/00

TONS

DESTINATION

DULUTH-SUPERIOR
MINNEAPOLIS & RIVER
PACIFIC NORTHWEST
CHICAGO & BEYOND
KANSAS CITY & BEYOND
MEXICO
MINNESOTA PROCESSERS
SOUTHWEST FEED MARKETS
OTHER

RAIL
TRUCK
GRAPH 82
VALUE OF MINNESOTA WHEAT SHIPMENTS 7/99-6/00 AT $3.05 PER BUSHEL
GRAPH 83
MINNESOTA WHEAT SHIPMENTS BY MONTH 7/99-6/00
GRAPH 84
MINNESOTA WHEAT SHIPMENTS TO DULUTH SUPERIOR BY MONTH
7/99-6/00

MONTH

 Jul-99 Aug-99 Sep-99 Oct-99 Nov-99 Dec-99 Jan-00 Feb-00 Mar-00 Apr-00 May-00 Jun-00

BUSHELS

0 1,000,000 2,000,000 3,000,000 4,000,000 5,000,000 6,000,000

RAIL

TRUCK

TOTAL

University of Minnesota
GRAPH 85
MINNESOTA WHEAT SHIPMENTS TO MINNEAPOLIS AND RIVER PORTS BY MONTH 7/99-6/00

BUSHELS

MONTH

RAIL
TRUCK
TOTAL

JUL-99  AUG-99  SEP-99  OCT-99  NOV-99  DEC-99  JAN-00  FEB-00  MAR-00  APR-00  MAY-00  JUN-00
GRAPH 87
MINNESOTA WHEAT SHIPMENTS TO OTHER DESTINATIONS BY MONTH 7/99-6/00

MONTH

BUSHELS

RAIL
TRUCK
TOTAL

Jul-99  Aug-99  Sep-99  Oct-99  Nov-99  Dec-99  Jan-00  Feb-00  Mar-00  Apr-00  May-00  Jun-00

University of Minnesota
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GRAPH 88
CRD 1 WHEAT SHIPMENTS IN BUSHELS
7/99-6/00

DESTINATION

DULUTH-SUPERIOR
MINNEAPOLIS & RIVER
PACIFIC NORTHWEST
CHICAGO & BEYOND
KANSAS CITY & BEYOND
MEXICO
MINNESOTA PROCESSORS
SOUTHWEST FEED MARKETS
OTHER

RAIL
TRUCK

BUSHELS
GRAPH 89
CRD 4 WHEAT SHIPMENTS IN BUSHELS
7/99-6/00

DESTINATION

DULUTH-SUPERIOR
MINNEAPOLIS & RIVER
PACIFIC NORTHWEST
CHICAGO & BEYOND
KANSAS CITY & BEYOND
MEXICO
MINNESOTA PROCESSORS
SOUTHWEST FEED MARKETS
OTHER

BUSHELS

RAIL
TRUCK

0
1,000,000
2,000,000
3,000,000
4,000,000
5,000,000
6,000,000
7,000,000
8,000,000
9,000,000
10,000,000
GRAPH 90
CRD 5 WHEAT SHIPMENTS IN BUSHELS
7/99-6/00

DESTINATION

DULUTH-SUPERIOR
MINNEAPOLIS & RIVER
PACIFIC NORTHWEST
CHICAGO & BEYOND
KANSAS CITY & BEYOND
MEXICO
MINNESOTA PROCESSERS
SOUTHWEST FEED MARKETS
OTHER

BUSHELS

RAIL
TRUCK
GRAPH 91
CRD 1 WHEAT SHIPMENTS IN TONS
7/99-6/00

TONS

DESTINATION

DULUTH-SUPERIOR
MINNEAPOLIS & RIVER
PACIFIC NORTHWEST
CHICAGO & BEYOND
KANSAS CITY & BEYOND
MEXICO
MINNESOTA PROCESSERS
SOUTHWEST FEED MARKETS
OTHER

RAIL
TRUCK
GRAPH 92
CRD 4 WHEAT SHIPMENTS IN TONS
7/99-6/00
GRAPH 94
MINNESOTA ELEVATOR BARLEY SHIPMENTS BY DESTINATION IN BUSHELS 7/99-6/00

DESTINATIONS

- DULUTH-SUPERIOR
- MINNEAPOLIS and RIVER
- PACIFIC NORTHWEST
- CHICAGO & BEYOND
- KANSAS & BEYOND
- MEXICO
- OTHER MINNESOTA
- SOUTHWEST FEED MARKET
- OTHER MARKETS

RAIL
TRUCK

BUSHELS

0

1,000,000

2,000,000

3,000,000

4,000,000

5,000,000

6,000,000
GRAPH 95
MINNESOTA ELEVATOR BARLEY SHIPMENTS BY DESTINATION IN TONS 7/99-6/00

DESTINATIONS

TONS

RAIL
TRUCK

DULUTH-SUPERIOR
MINNEAPOLIS and RIVER
PACIFIC NORTHWEST
CHICAGO & BEYOND
KANSAS & BEYOND
MEXICO
OTHER MINNESOTA
SOUTHWEST FEED MARKET
OTHER MARKETS
GRAPH 96
MINNESOTA ELEVATOR OAT SHIPMENT DESTINATIONS IN BUSHELS 7/99-6/00

DESTINATIONS

- RAIL
- TRUCK

BUSHELS

0
200,000
400,000
600,000
800,000
1,000,000
1,200,000

DULUTH-SUPERIOR
MINNEAPOLIS and RIVER
PACIFIC NORTHWEST
CHICAGO & BEYOND
KANSAS & BEYOND
MEXICO
OTHER MINNESOTA
SOUTHWEST FEED MARKET
OTHER MARKETS

University of Minnesota
C-96
GRAPH 97
MINNESOTA ELEVATOR OAT SHIPMENTS BY DESTINATION IN TONS 7/99-6/00

DESTINATIONS

TONS

RAIL
TRUCK

0
5,000
10,000
15,000
20,000
25,000
30,000

DULUTH-SUPERIOR
MINNEAPOLIS and RIVER
PACIFIC NORTHWEST
CHICAGO & BEYOND
KANSAS & BEYOND
MEXICO
SOUTHWEST FEED MARKET
OTHER MARKETS
OTHER MINNESOTA
GRAPH 98
MINNESOTA ELEVATOR OTHER CROP
SHIPMENTS BUSHELS/CWT 7/99-6/00

[Graph showing shipments by destination for various regions, including Duluth-Superior, Minneapolis and River, Pacific Northwest, Chicago & Beyond, Kansas & Beyond, Mexico, Other Minnesota, Southwest Feed Market, Other Markets.]

DESTINATIONS

BU/CWT

RAIL
TRUCK
GRAPH 99
MINNESOTA ELEVATOR OTHER CROP
SHIPMENTS IN TONS 7/99-6/00

DESTINATIONS

TONS

DULUTH-SUPERIOR
MINNEAPOLIS and RIVER
PACIFIC NORTHWEST
CHICAGO & BEYOND
KANSAS & BEYOND
MEXICO
OTHER MINNESOTA
SOUTHWEST FEED MARKET
OTHER MARKETS

RAIL
TRUCK
GRAPH 100
NORTH DAKOTA ALLGRAIN DESTINATIONS
7/99-6/00 BUSHELS

[Bar chart showing grain destinations and modes of transport.]
GRAPH 101
NORTH DAKOTA  WHEAT DESTINATIONS 7/99-6/00  BUSHELS

<table>
<thead>
<tr>
<th>DESTINATIONS</th>
<th>BUSHELS</th>
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<tbody>
<tr>
<td>DUL-SUP</td>
<td>Rail</td>
</tr>
<tr>
<td>MPLS&amp;RIVER</td>
<td>Truck</td>
</tr>
<tr>
<td>PAC NW</td>
<td>Rail</td>
</tr>
<tr>
<td>MIDLAND&amp;GULF</td>
<td>Rail</td>
</tr>
<tr>
<td>MN &amp; WIS</td>
<td>Rail</td>
</tr>
<tr>
<td>OTHER</td>
<td>Rail</td>
</tr>
<tr>
<td>NORTH DAKOTA</td>
<td>Truck</td>
</tr>
</tbody>
</table>
GRAPH 102
NORTH DAKOTA DURUM DESTINATIONS
7/99-6/00 BUSHELS

- Dul-Sup
- MPLS&RIVER
- PAC NW
- MIDLAND&GULF
- MN & WIS
- OTHER
- NORTH DAKOTA

BUSHELS

0 5,000,000 10,000,000 15,000,000 20,000,000

DESTINATIONS

Rail
Truck
GRAPH 103
NORTH DAKOTA BARLEY DESTINATIONS
7/99-6/00 BUSHELS

DESTINATIONS

BUSHELS

0
20,000,000
15,000,000
10,000,000
5,000,000

Rail
Truck

DUL-SUP
MPLS&RIVER
PAC NW
MIDLAND&GULF
MN & WIS
OTHER
NORTH DAKOTA
GRAPH 104
NORTH DAKOTA SOYBEANS DESTINATIONS
7/99-6/00 BUSHELS

DESTINATIONS

<table>
<thead>
<tr>
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<tr>
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<tr>
<td>MPLS&amp;RIVER</td>
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<tr>
<td>PAC NW</td>
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<tr>
<td>MIDLAND&amp;GULF</td>
<td>1,000,000</td>
</tr>
<tr>
<td>MN &amp; WIS</td>
<td>500,000</td>
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<tr>
<td>OTHER</td>
<td>1,000,000</td>
</tr>
<tr>
<td>NORTH DAKOTA</td>
<td>1,000,000</td>
</tr>
</tbody>
</table>

Rail

Truck