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The 2007/08 Iowa Grain and Biofuel Flow Study: A Survey Report

Tun-Hsiang (Edward) Yu and Chad Hart

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**Center for Agricultural and Rural Development
Iowa State University
Ames, Iowa 50011-1070
www.card.iastate.edu**

Tun-Hsiang (Edward) Yu is an assistant professor of agricultural economics at the University of Tennessee. Chad Hart is an assistant professor of economics and grain markets specialist at Iowa State University.

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Questions or comments about the contents of this paper should be directed to Tun-Hsiang (Edward) Yu, 314A Morgan Hall, The University of Tennessee, Knoxville, TN 37996-4518, Ph.: (865) 974-7411, Fax: (865) 974-9492, E-mail: tyu1@utk.edu; or Chad Hart, 468E Heady Hall, Iowa State University, Ames, IA 50011, Ph.: (515) 294-9911, Fax: (515) 294-0221, E-mail: chart@iastate.edu.

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The 2007/08 Iowa Grain and Biofuel Flow Study: A Survey Report

Prepared by Tun-Hsiang “Edward” Yu and Chad Hart

Supporting Organizations:

- Agribusiness Association of Iowa
- Iowa Biodiesel Board
- Iowa Corn Promotion Board
- Iowa Farm Bureau Federation
- Iowa Institute for Cooperatives
- Iowa Renewable Fuels Association
- Iowa Soybean Association
- Iowa Department of Economic Development
- Iowa Department of Transportation

Project Partners:

- Iowa Department of Agriculture and Land Stewardship
- Iowa Office of the National Agricultural Statistics Service,
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Executive Summary

Driven by the expanding production of biofuels, the linkage between the agricultural and energy markets is evolving, and that has changed the market for agricultural commodities dramatically. These developments in agricultural markets consequently shifted the distribution of domestic grains and feeds and the utilization of shipping modes for these agricultural products. As the leading producer of corn, soybeans, and biofuels, Iowa is at the forefront of this shift. Because of the importance of maintaining an adequate state transportation system to accommodate the evolving patterns of grain and biofuel flows, it is important to have current information about grain flows from farms and country elevators to destination markets, along with the information about transportation modes utilized for the shipments. Information about biofuel distribution is also crucial for agricultural and transportation policymakers so that they can provide relevant assistance for this growing industry. This study is designed to meet these needs and to provide updated information on grain and biofuel flows in Iowa during the 2006 and 2007 marketing years.

Statewide surveys for Iowa grain producers, grain handlers, corn processors (including ethanol plants), soybean processors, and biodiesel plants were conducted in the fall and winter of 2007 and 2008 to collect information on grain and biofuel flows and transportation utilization. In comparison to earlier grain flow surveys conducted for the 1999 marketing year, this study has several important observations and implications regarding grain flows.

- Driven by the expanding ethanol industry, the share of Iowa corn sold directly to processors (including ethanol plants) by farms doubled between 1999/2000 and 2006/2007 and continuously expanded, reaching 32 percent in 2007/08. The percentage of corn delivered from country elevators to processors also expanded, from 44 percent to 53 percent, during the same period. With the biofuel mandates in the Energy Independence and Security Act (EISA) of 2007 and possible shifts to higher blends of ethanol, corn shipments from Iowa farms and country elevators to ethanol plants are expected to increase further.
- The share of other markets for corn sales from Iowa farms has declined. For instance, the share of corn sales from farms to river terminals shrank significantly, from 14 percent in 1999/2000 to about 5 percent in 2007/08, indicating the lessening of the impact of export markets for Iowa corn producers. Similar trends are also observed for feeders and country processors. The competition for corn between the ethanol industry and other markets is likely to remain strong given the biofuel mandates.
- Country elevators remained the largest market for farm corn sales; however, the share gradually declined between 1999/2000 and 2007/08. This can be attributed to the increasing number of semi-trucks owned by grain producers, as the heavier and larger vehicles provide farmers more mobility and an efficient and economical means to directly reach processors.
- Increased transportation mobility for grain producers is expected to be a key factor for state agencies and private sector companies, such as rail companies, to determine investment in the transportation infrastructure system.

The development of biofuels and their co-products is a new component for this set of surveys. The distribution of those products observed in 2006/07 and 2007/08 provide some insights into this fast-expanding industry.

- Most of the feedstocks for Iowa ethanol plants are provided by local producers. Iowa ethanol and co-products, such as dried distillers grain (DDG) and others, were primarily sold to out-of-state buyers in 2006/07; however, the utilization of both ethanol and DDG within Iowa in the 2007 marketing year has increased.
- Trucks were the major mode of transportation for Iowa ethanol plants to deliver the products within state, while rail lines were the primary mode used for out-of-state shipments.
- Most ethanol plants were extracting corn oil or expected to begin doing so to generate more revenue. The cellulosic ethanol capability in Iowa was not considered by most processors in both the 2006/07 and 2007/08 surveys.
- Biodiesel plants used soybean oil as the major feedstock; however, a majority of plants would like to explore alternative feedstocks for production. The capacity utilization of biodiesel plants improved from 40 to 70 percent between 2006/07 and 2007/08.
- Biodiesel was primarily sold in domestic market in the 2006 marketing year; however, international sales doubled to nearly one-fifth of total sales in 2007/08. In contrast, glycerin sales have shifted from international markets to domestic buyers during the same period.

Evaluation of transportation infrastructure and potential marketing hindrances were also included in each group's survey. In general, interstate highways received the highest satisfaction ratings by all surveyed groups, while unimproved gravel roads received the most criticism. Common marketing hindrances identified by each group were the high transportation costs caused by surging energy prices over the last two years, particularly in the summer of 2008. Investment in and management of road maintenance, primarily in rural areas, is likely to be a crucial issue for Iowa agricultural and transportation agencies given the expected increases in local traffic from the expansion of the biofuel industry.

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Introduction

Biofuels continue to affect and shape U.S. agricultural commodity markets. Ethanol has grown to become the second-largest use of U.S. corn. Biodiesel represents a sizable portion of demand for U.S. soybean oil. The co-products of biofuel production continue to enter the feed rations of U.S. and international livestock. As the linkage between the agricultural and energy markets evolves, the distribution of domestic grains and feeds has been quickly shifting, as has the utilization of shipping modes for these agricultural products.

As the leading producing state in corn, soybeans, and biofuels, Iowa is at the forefront of this shift. The development of the biofuel industry in Iowa, in combination with strong crop production, implies that Iowa needs to maintain its transportation system services and information to continue to foster these industries. In order to track the changes in grain flows, biofuel movements, and transportation demands, Iowa State University teamed up with the Iowa Department of Agriculture and Land Stewardship and the Iowa field office of the National Agricultural Statistics Service to conduct a set of five-section surveys on grain, biofuels, and biofuel co-product flows in Iowa. The first set of surveys covered the 2006/07 marketing year (Sept. 1, 2006 to Aug. 31, 2007). The second set of surveys, and the focus of this report, covered the 2007/08 marketing year (Sept. 1, 2007 to Aug. 31, 2008). For each set of surveys, the first section dealt with the movement of grain from the farm to the market. The second section dealt with grain flows via grain handlers, such as elevators. The third, fourth, and fifth sections examined grain and related product movements for Iowa's corn and soybean processors, ethanol plants, and biodiesel operations. The questionnaires build on previous surveys that examined Iowa grain flows (Baumel et al., 1996, 2001). The surveys can help policymakers and industries analyze the impact the fast-growing biofuel industry is having on grain flows and help Iowa maintain an updated transportation system for stakeholders.

Because the 2007 surveys serve as a follow-up to the 2006 surveys, only the respondents to the 2006 farmer and grain handler surveys were resurveyed for the 2007 marketing year. Given the small number of grain processors and biofuel facilities, a comprehensive census was conducted for those sections of the survey. Within each of the five survey sections, the response rate exceeded 33 percent.

This report is divided into two sections. The first part reports the statewide results for each of five surveyed groups listed in Table 1. The state-level results provide a general idea of the grain and biofuel flows that occurred and the transportation that was utilized in the biofuel-boom era.

In order to gain further insights into the regional level data, we present the survey results of grain marketers and handlers in each crop reporting district (CRD) in the second part of the report. The regional data can highlight the spatial characteristics of the survey results and distinguish the transportation needs among regions. Because of the small population of grain processors and

biofuel plants and to assure confidentiality, the CRD level results from the processors and biodiesel sections are not shown.

Part I: Statewide Survey Data of Iowa Grain Marketers, Handlers, Processors, and Biofuel Plants

Statewide Grain Marketers Survey Results

The grain marketers section of the survey asked farmers about their land allocation between corn and soybeans, their production during the year, their marketing/disposal of the crop, their use of various modes of transportation, and the impact of natural disasters on their crop marketing. Producers were also asked to assess the transportation system in Iowa and provide their opinion of possible hindrances to efficient grain marketing. The following provides a brief summary of the survey results for this section.

Corn flows

During the 2007/08 marketing year, Iowa corn producers planted 14.2 million acres, producing 2.38 billion bushels of corn. Both acreage and production were up from the previous year. The survey results indicate that 90 percent of that corn was sold during the marketing year, 8 percent was utilized on the farm, and 2 percent had not been sold yet but was expected to be marketed in the near future. In comparison to the 2006 marketing year, more corn was sold during the marketing year and less was held for later sale. Figure 1 shows the marketing of Iowa's corn production. The largest percentage of Iowa corn, 49 percent, was sold to cooperative elevators, followed by Iowa ethanol plants at 20 percent. About 11 percent went to private elevators and another 10 percent was marketed to processors. Roughly 5 percent went directly to river terminals and 2 percent went to other farm/feeding operations. In general, 60 percent of Iowa's marketed corn went to elevators and 32 percent to ethanol plants and other corn processors.

In comparison, the 2007 survey (for the 2006/2007 marketing year) showed that 82 percent of Iowa corn was sold by farms during the marketing year, 11 percent was used on farm, and 7 percent remained to be sold. In that year, 62 percent of Iowa corn went to elevators, while 27 percent was sent to corn processors, including ethanol plants. About 7 percent entered river terminals and 1 percent went to other farm/feeding operations. This shows that ethanol plants and other corn processors continue to gain market share of corn sold by Iowa producers.

To move corn around the state, producers used a variety of vehicles, from small wagons to semis. Figure 2 shows the mode of transportation used to transport corn from the farm to the market. Roughly 67 percent of Iowa's marketed corn left the farm by semis. Corn movement by semi has increased by approximately 20 percentage points over the past eight years. Wagons of all sizes hauled 24 percent and other trucks carted off roughly 9 percent. Semi transport dominated shipping to almost all markets, except for delivery to grain elevators. As was noted with last year's survey, farmers have shifted away from wagons and trucks toward semis. This tendency is primarily driven by the hauling efficiency, as a semi has much larger bushel capacity

compared to a wagon, single-axle, or tandem-axle truck. Also, a semi can help producers reach more distant markets economically. The shift to semis has been quite dramatic. For the 1994/95 crop year, Iowa producers moved 578 million bushels of corn by semi. By the 1999/2000 crop year, 647 million bushels of corn was shipped by semi. For the 2006/07 crop year, the semi load increased to 1.18 billion bushels of corn. For 2007/08, 1.44 billion bushels of corn were loaded into semis.

Soybean flows

During the 2007/08 marketing year, Iowa crop producers planted 8.65 million acres to soybeans, producing 449 million bushels. Soybean acreage and production was lower than in the previous year. A vast majority of those soybeans (98 percent) were sold during the marketing year. Only 0.1 percent was utilized on the farm and 2 percent was expected to be marketed in the near future. As with corn, Iowa producers sold more of the crop during the 2007/08 marketing year than during the previous year. Figure 3 shows where Iowa soybeans were sold. As with corn, the largest percentage went to cooperative elevators (56 percent), while 16 percent was sold to Iowa soybean processors or crushers. Another 12 percent went to private elevators. Nearly 7 percent went directly to river terminals. In total, 68 percent of Iowa's marketed soybeans went to elevators, 17 percent to processors, 7 percent to river terminals, and 8 percent went to unknown destinations.

The previous survey (for the 2006/2007 marketing year) showed that 92 percent of Iowa soybean production was sold during the marketing year, 1 percent was used on farm, and 7 percent remained to be sold. In that year, 64 percent of Iowa's marketed soybeans went to elevators whereas 19 percent went to soybean crushers. Roughly 8 percent went to river terminals and 9 percent went to unknown destinations.

Figure 4 presents the mode of transportation used to transport soybeans from the farm to the market. Just less than 59 percent of Iowa soybean production was shipped by semi. Wagons of all sizes hauled 30 percent, and other trucks carted off roughly 11 percent. Semi transport again dominated shipping to almost all markets, except for delivery to grain elevators. In the 2001 survey, roughly 45 percent of Iowa soybean production was shipped in semis, 31 percent by wagon, and 24 percent by truck. Similarly, the semi share gained because of the greater hauling and distance capacity. As with corn, soybean producers have shifted significant bushels to semis. In the 1994/95 crop year, Iowa producers moved 137 million bushels of soybeans by semi. By 1999/2000, that jumped to 201 million bushels of soybeans. For the 2006/07 crop year, the semi load increased to 310 million bushels of soybeans. And even with the drop in soybean acreage and production in 2007/08, 260 million bushels of soybeans were loaded into semis.

Transportation fleet

As Figures 2 and 4 show, semis have become the preferred mode of grain transportation. Table 2 summarizes the current inventory of grain hauling vehicles operated by grain producers (based on the 2006/07 survey) and the changes they planned to make by 2012. In the 2006/07 survey, producers indicated a 25 percent increase in semis by 2012, a small increase in large wagons, and substantial declines in all other vehicles. The current survey shows some small changes from

those plans, with some of the large wagons being replaced by more semis. As mentioned in the report for the 2006/07 survey, several factors are likely leading to the shift to semis, including the possible time savings in hauling more grain in fewer loads and fewer delays in unloading combines.

Table 3 contains the average and maximum distances farmers move grain. As expected, wagons were primarily used for shipping crops to the closest market, while semis were used to deliver grains to much more distant markets. Wagon loads were often taken 4-5 miles, with a maximum trip of approximately 8 miles. Truck loads were usually taken 7-11 miles and did not normally exceed 20 miles. Semi loads traveled roughly 25 miles and were hauled nearly 50 miles on occasion. The distances reported for 2007/08 were roughly the same as those reported in the 1999/2000 and 2006/07 marketing years.

Table 4 summarizes the average hauling distances from farms to reach their most frequently used market by type of road. The shortest distance for hauling was on unimproved gravel roads, roughly 3 miles in 2007/08. Paved county roads constituted 6 miles of hauling, whereas the average haul for state highways was 19 miles. Compared to the 2006/07 survey results, the average distances grain was hauled from farms on those three types of roads all decreased slightly.

Other topics

In the 1999/2000, 2006/07, and 2007/08 surveys, farmers were asked about containerizing their grain and oilseed production for shipping. In 1999/2000, less than 2 percent of farmers indicated they were containerizing. By 2006, roughly 4 percent of the producers who responded containerized some of their crop. For 2007, approximately 7 percent of the producers who responded had containerized some of their crop.

The National Agricultural Statistics Service (NASS) had surveyed Iowa producers and found that they had 1.85 billion bushels of on-farm storage capacity as of Dec. 1, 2007. In the survey, farmers were asked how they had used this capacity for the 2007/08 crops. The results showed that 76 percent of the storage capacity was used for corn, 14 percent for soybeans, less than 1 percent for other crops, and roughly 10 percent was not used during the year.

The extreme flooding in Iowa in the summer of 2008, along with the severe spring weather that resulted in the Parkersburg tornado, had a significant impact on the marketing of the 2007/08 crops. Producers were asked if the natural disasters had affected their marketing and transportation decisions. Eighteen percent of respondents indicated the natural disasters did impact their decisions. But the proportion of the crop impacted was relatively small, less than 3 percent of the overall crop for both corn and soybeans. However, the natural disasters did lengthen the trip to market grain. Producers indicated that their typical distance to market was 25 to 30 miles. Rerouting due to the disasters added 14 to 22 miles to the trip.

As with the previous year's survey, we had a series of questions evaluating freight infrastructure in the state and possible barriers preventing efficient grain marketing. For the infrastructure rating, producers were given a 5-point scale with 1 being poor, 3 being average, and 5 being

excellent. For the possible hindrances, a 5-point scale was also used, with 1 representing “not at all,” 3 being “somewhat,” and 5 being “definitely.” For both parts, producers could also indicate if the infrastructure and/or hindrance was not applicable (N/A) to their business. Tables 5 and 6 summarize the results for the infrastructure rating, and Tables 7 and 8 present the results for the possible hindrance rating.

Overall, producers rated Iowa’s infrastructure as average. Only the interstate system rated above average. Unimproved gravel roads received the largest percentage of poor ratings, followed by rail lines. In general, the ratings for the transportation pathways declined from last year, possibly showing the impact of the natural disasters. For the hindrances, in almost all cases the largest percentage of producers indicated no significant issues, with the exception being transportation costs. Over 10 percent of producers indicated definite issues with road and bridge weight restrictions, elevator unloading times, trucking costs, rail access, rail service reliability, and rail service costs. These results are consistent with last year’s figures.

Statewide Grain Handlers Survey Results

A majority of surveyed grain handlers are country elevators (86 percent), while grain dealers without licensed warehouse and storage capacity account for 7 percent. Barge terminals and terminal elevators comprise a small share of this group, with 6 percent of respondents classifying themselves in other ways.

Corn flows

Iowa country handlers, that is, county elevators, received 1.28 billion bushels of corn from producers between September 1, 2007 and August 31, 2008. About 93 percent of the corn purchased/received by Iowa country elevators was sent to the market in the 2007/08 marketing year. Figure 5 presents the destination of the corn processed by the handlers. Dedicated ethanol plants and feeders in Iowa were the major destinations of county elevators’ corn; each market received 31 percent of corn shipments from county elevators. Iowa feeders’ share increased from 23 to 31 percent between 2006/07 and 2007/08; meanwhile, Iowa’s dedicated ethanol plants also expanded their market share from 26 to 31 percent. Iowa processors ranked as the third-largest market in 2007/08 and maintained a similar share in the corn market compared to the previous year, accounting for 17 percent of county elevators’ corn shipments. Out-of-state feeders purchased 9 percent of corn, while out-of-state processors absorbed 4 percent. River elevators (Mississippi, Illinois, and Missouri) together received less than 3 percent of handlers’ corn, which is lower than last year’s share (about 5 percent). Export markets experienced the greatest loss in market share during the 2007/08 marketing year. Last season, these markets absorbed more than 10 percent of county elevators’ corn deliveries; however, less than 4 percent of corn went directly to export markets (Gulf Coast, West Coast, Mexico, and others) in 2007/08. In total, about 40 percent of Iowa handlers’ corn entered the feeder market, 32 percent to ethanol plants, 21 percent to corn processors, and a modest amount to river terminals and export markets. As expected, the shift from export-destined markets to domestic customers is continuously driven by strong demand for corn from the local livestock and ethanol industries.

Truck and rail are the transportation modes most utilized by grain handlers. The current survey results indicate that almost 77 percent of corn was transported by trucks, up from 63 percent in 2006/07 and 43 percent in 1999/2000. Utilization of rail transportation for moving corn dropped from 28 to 22 percent between 2006/07 and 2007/08. This change again demonstrates the shift in corn markets. In the grain handlers survey, the questions did not differentiate between semis and straight trucks, so the truck category includes both types of vehicles.

Soybean flows

Figure 6 summarizes the destination markets for Iowa soybeans handled by country elevators. The majority of soybeans were sold to in-state processors (72 percent) while another 11 percent of soybeans were delivered to out-of-state processors. About 8 percent of soybeans entered the river terminals, while nearly 10 percent was directly transported to export markets. In total, 83 percent of Iowa's soybeans went to processors, which increased from 71 percent in 2006/07. The share of river terminals and export markets declined between 2006/07 and 2007/08. This change is likely the result of expanding biodiesel production and livestock numbers in the state.

In 2007/08, truck transportation was the major mode used by county elevators for soybeans (63 percent), while rail transportation accounted for 34 percent of soybean movements. In the previous survey, trucking was also the top soybean shipping mode, and, interestingly, barge transportation was important for soybean shipment, accounting for 15 percent of shipments in 2006/07. In this survey, barges were much less utilized (3 percent), indicating the smaller market share of international buyers for Iowa soybeans.

Other topics

Similar to the previous survey, the 2007/08 survey also asked about country elevators' Similar to the previous survey, the 2007/08 survey also asked about country elevators' experience with handling ethanol co-products. In comparison to the 2006 marketing year, ethanol co-products handled by country elevators more than doubled, to 4.8 million tons. About 42 percent of the country elevators handled ethanol co-products, and the average distance between the source and handlers was roughly 42 miles. For the containerized grain shipments, a small but steady portion of corn and soybeans were transported in containers to destination markets (1.5 percent for each). Those statistics are similar to 2006/07 survey results.

Table 9 shows, on average, most of Iowa country elevators shipped 50-74 rail cars per shipment for both corn and soybeans in 2007/08, which is larger than the size in the previous survey (25-49 cars). About one-quarter of handlers utilized a smaller size of shipment (25-49 rail cars). At least 20 percent of handlers chose unit train (100+ rail cars) transportation for corn and soybean shipments.

Tables 10 and 11 summarize grain handlers' ratings of the freight infrastructure in the state and likely hindrances to more efficient grain marketing, respectively. A smaller number implies a lower rating for the infrastructure, with 1 being poor, 3 average, and 5 excellent. For the possible hindrances, a 5-point scale was also used, with 1 representing "not at all," 3 "somewhat," and 5

“definitely.” For both parts, country elevators could also indicate if the infrastructure and/or hindrance was not applicable to their business.

Overall, country elevators rated Iowa’s infrastructure as average. Similar to the previous survey, the interstate system received the most positive evaluation, while unimproved gravel roads were less satisfactory to grain handlers, followed by paved county roads, rated as least satisfactory.

Trucking costs were again the biggest hindrances for handlers in efficiently marketing their grain in 2007/08, while seasonal labor availability was considered an issue for the country elevators. In addition, over 10 percent of country elevators identified definite issues with bridge weight restrictions, elevator storage capacity and unloading times, rail access, and rail costs.

Statewide Corn Processors Survey Results

During the 2007/08 marketing year, the majority of Iowa corn processors (73 percent) utilized dry-mill processes and produced ethanol and its co-products. For this survey we assume the ethanol and co-products are sold in the same marketing year. Survey results indicate that most sales of ethanol and dried distillers grain (DDG) were delivered to out-of-state destinations whereas wet distillers grain (WDG) was primarily utilized in Iowa. Figure 7 presents where ethanol, DDG, and WDG were delivered. For ethanol sales, about 30 percent of ethanol production was used in state while other states received almost two-thirds of Iowa-made ethanol. The in-state market for ethanol expanded relatively quickly from last season, increasing from 7 to 30 percent. The international market for Iowa ethanol tripled, from 2 to 6 percent, between 2006/07 and 2007/08. By volume, over 60 percent of the distillers grain was marketed dry. Significant growth in the local market for DDG was observed between the 2006/07 and 2007/08 marketing years (30 percent versus 48 percent). International markets for DDG decreased slightly from the previous year as domestic use expanded. As expected, WDG was still mainly utilized in local feedlots because it is challenging to store and transport this product.

The survey took the further step of exploring the markets in other states for ethanol and DDG sales. We grouped several states for each region and asked the corn processors to determine the share of their sales to those states. Figure 8 indicates that, aside from the in-state market, the northeast region (Pennsylvania, New Jersey, Maryland, Delaware, Virginia, and West Virginia) was the largest market for Iowa ethanol in 2007/08 (16 percent), followed by the New England states (New York, Maine, New Hampshire, Massachusetts, Rhode Island, Vermont, Connecticut). Western states (California, Arizona, Nevada, and Utah) received about 9 percent of ethanol whereas 8 percent of Iowa ethanol entered North Carolina, South Carolina, and Georgia. About 7 percent of ethanol was destined to southern states, such as Texas, Oklahoma, and New Mexico.

Similarly, detailed information about DDG sales destinations is summarized in Figure 9. Of those states the survey has specified, western states received nearly 12 percent of Iowa DDG production while international shipments accounted for about 11 percent of Iowa DDG. Since DDG is particularly suitable for ruminants, it is not a surprise to see that the western states purchased Iowa DDG, as California is a major dairy production state. Also, about 9 percent of Iowa DDG was delivered to a close market, the Eastern Corn Belt (Illinois, Indiana, and Ohio).

The Pacific Northwest (Washington, Oregon, Idaho) received about 5 percent of Iowa DDG, as did the Southern Plains states. Nearly 95 percent of WDG sales remained in Iowa. The rest of the WDG sales were, of course, concentrated in the states surrounding Iowa.

Other topics

In the survey, corn processors were asked questions regarding fractionation processes. Similar to last season, a fractionation process prior to fermentation was still not commonly employed by processors in 2007/08. Only a small portion of processors plan to adopt this process by 2012. Regarding corn oil extraction, more than one-third (36 percent) of processors extracted corn oil in 2007/08, and more than 70 percent of the processors expected to implement it by 2012. Cellulosic ethanol capability was not considered by most processors in 2007/08.

Tables 14 and 15 summarize the results of the infrastructure ratings by corn processors and Tables 16 and 17 include results of the possible hindrance ratings. Overall, Iowa's infrastructure was rated as average by corn processors. The rail lines, interstates, and primary state highways earned the most satisfaction among the state's freight systems. None of the freight infrastructures was rated as poor. For the hindrances, storage capacity was the biggest logistical issue for corn processors. Trucking costs, rail costs, and rail service reliability were also identified as definite challenges for corn processors in marketing their products.

Statewide Soybean Processors Survey Results

In last year's survey, Iowa processors indicated they had the capacity to crush approximately 300 million bushels of soybeans annually. For the 2007 marketing year (Sept. 1, 2007 to Aug. 31, 2008), Iowa soybean processors purchased 325 million bushels of soybeans and sold 1.6 billion pounds of food-use soybean oil, and 8.8 million tons of soybean meal. On average, about 52 percent of total dollar sales were from soybean meal, 27 percent from soybean oil, and 21 percent from other products. In comparison to 2006/07, meal sales increased while the share of other products declined.

Surveyed processors indicated that more than 99 percent of all soybeans processed were received from Iowa and shipped by truck (semi and straight truck). Average truck hauls were 65 miles. Soybean meal sales were fairly dispersed. Nearly half of all soybean meal sales went to other states. About 49 percent of the soybean meal was sold within Iowa and just over 3 percent was exported to other countries. Nearly all of the reported Iowa soybean meal sales were shipped by truck, with an average haul of 43 miles. Compared to 2006/07, more out-of-state soybean meal sales were shipped by truck (38 percent versus less than 10 percent), but rail shipments still dominated in these sales. All of the reported international sales were shipped by rail.

As with the corn processors, we grouped several states into regions and asked soybean processors to determine the share of their sales to those regions. Figure 10 summarizes the results, indicating that about 49 percent of soybean meal was sold to Iowa buyers. Arkansas, Kentucky, Missouri, and Tennessee purchased 12 percent of Iowa's soybean meal. The Lake States (Minnesota, Wisconsin, and Michigan) obtained 10 percent. The sales in 2007/08 were more highly concentrated in the upper Midwest, with fewer sales to the coasts.

Iowa soybean processors' evaluations of the state's freight infrastructure and likely barriers to more efficient marketing for their products are presented in Tables 18 through 21. In general, soybean processors rated Iowa's infrastructure as average. As for the hindrances, rail concerns were the most significant issues for soybean processors.

Statewide Biodiesel Producers Survey Results

For the 2006/07 marketing year, the surveyed biodiesel plants had a total nameplate production capacity of 256 million gallons per year. By 2012, those same plants plan to have a total nameplate capacity of 294 million gallons per year. The 2007/08 survey found capacity had increased to 268 million gallons. Biodiesel production totaled 188 million gallons during the period between September 1, 2007, and August 31, 2008. This implies a 70 percent capacity utilization rate for the Iowa biodiesel industry.

A majority of the biodiesel plants in 2006/07 indicated they were not looking to add on-site soybean crushing capacity, and none of the plants surveyed in 2007/08 planned to so. For the 2007/08 marketing year, biodiesel represented 93 percent of the total biodiesel-related sales in dollar terms. Glycerin made up 6 percent, with other co-products adding 1 percent of sales.

While a variety of feedstocks were used to create biodiesel, soybean oil dominated the Iowa production scene. In the 2006/07 marketing year, the surveyed plants indicated that 733 million pounds of soybean oil were converted to biodiesel. For 2007/08, 1.1 billion pounds were converted. All of the responding plants utilized soybean oil for biodiesel production, but other products were used as well. Half of the responding plants indicated that animal fats and corn oil were used as feedstocks. One-third of the plants had used other vegetable oils besides soybean oil. This trend of using multiple feedstocks for biodiesel production looks to continue as a majority of the plants indicated that they would explore alternative feedstocks. Most of the soybean oil was purchased from out-of-state sources (67 percent), and all of the in-state soybean oil reported was shipped by truck. The average one-way shipment for in-state soybean oil was 125 miles. Of the out-of-state soybean oil, 32 percent was shipped by truck with the rest shipped by rail. For animal fats, there was roughly a 50/50 split between in-state and out-of-state sources. As with soybean oil, the in-state shipments were by truck and the out-of-state shipments used truck and rail.

Figure 11 shows the breakdown of reported Iowa biodiesel and glycerin sales. Nearly half of Iowa's biodiesel was sold in state while international exports grew in importance, with nearly 20 percent of the market. Changes in international, especially European Union, biodiesel tariffs have likely reduced the U.S. biodiesel export market since the time of this survey. About 66 percent of Iowa's in-state biodiesel was shipped by truck, with the rest shipped by rail. Biodiesel shipments to other states were mostly by truck (56 percent) while rail captured the remainder. For 2006/07, the glycerin market was dominated by international sales. For 2007/08, domestic usage took over as 57 percent of the glycerin was sold in-state and 34 percent was purchased by users in other states

Figures 12 and 13 provide a closer look at the biodiesel and glycerin markets. Beyond the in-state market, Iowa biodiesel sales were targeted for the Eastern Corn Belt (Illinois, Indiana, and Ohio), with 20 percent of the market, and the international market, with 19 percent. In 2006/07, the Pacific Northwest (Washington, Oregon, and Idaho) accounted for more than 12 percent of Iowa biodiesel sales, while the Southern Plains states (Texas, Oklahoma, and New Mexico) purchased almost 9 percent. Most Iowa glycerin sales went to domestic markets. The Eastern Corn Belt was the main out-of-state market for glycerin.

As in the other project surveys, we asked Iowa's biodiesel producers to rate the freight infrastructure in the state and possible barriers to more efficient marketing for their products. Tables 22 and 23 summarize the results of the infrastructure ratings, and Tables 24 and 25 present the ratings of possible hindrances. Interstates were still the most preferred infrastructure by biodiesel producers, while unimproved gravel roads received the most negative feedback. Also, high transportation costs were identified as the most significant obstacles for producers in marketing their biodiesel.

Part II: Crop Reporting District Survey Data for Grain Marketers and Handlers

This section presents the details of survey data at the crop reporting district level for grain marketers and handlers. The purpose of this section is to illustrate the spatial characteristics of the survey data and compare the variations and similarities of grain flows, transportation mode utilization, and other responses to interesting questions among crop reporting districts (see Figure 14 for a map of the counties in each district).

Crop Reporting District Survey Results for Grain Marketers

Corn flows

Table 26 outlines the 2007 corn planted area and production by crop reporting district (CRD) as published by the USDA's NASS. The table also shows the disposition of the crops. The lowest percentage of corn sold off the farm is in Northeast Iowa, where roughly 77 percent was sold and over 22 percent was used on the farm, the highest percentage in the state. The only other section of the state where over 10 percent of the corn produced was used on farm was in East Central Iowa. In six of the nine districts, less than 2 percent of the corn crop remained to be sold or used at the end of the 2007 marketing year. The highest percentage of unsold or unutilized corn was in Southwest Iowa at 6.7 percent.

Figure 15 and Table 27 display the share of corn producers' markets by each district. Country elevators were the top destination market for corn sales in most of the CRDs. However, country elevators in the Northwest, North Central, and West Central were the particularly dominant markets, accounting for more than 70 percent of corn sales in those regions. The extensive network of train-loading facilities was identified as the foremost advantage of those country elevators. For the East Central and Southeast districts, Iowa corn processors (non-ethanol) and Mississippi River terminals were the top destinations. Iowa ethanol plants absorbed at least 10

percent of all corn sold in every district with the exception of East Central Iowa. The ethanol industry captured over 30 percent of the corn in the Central and Southwest districts and absorbed over 20 percent of corn sales in the Northwest, North Central, Northeast, and West Central districts.

The makeup of Iowa's corn transportation off the farm varies from north to south in the state. Figure 16 and Table 28 show the share by CRD of various types of vehicles used to move corn. It is clear that semi usage dominated in each district, while large wagons were used relatively more often in northern Iowa. In the East Central, Southwest, and Southeast CRDs, semis moved at least 80 percent of the corn crop. The utilization of truck by size was directly related to the destination markets of each crop district. As Figure 15 shows, corn processors and barge terminals on the Mississippi River were the major destinations of South Central and East Iowa; consequently, semis became the primary vehicle for corn shipment in those districts. Similarly, the Southwest CRD targeted Omaha-Council Bluffs and Kansas City markets, so semis were most in use in that CRD. In Northwest, North Central and Central CRDs, wagons were commonly operated for corn shipments because of the extensive network of train-loading elevators in those regions. The hauling distance of wagons was relatively shorter than distances of other vehicles so corn producers preferred wagons for local shipment to those elevators.

Soybean flows

The 2007 CRD acreage and production for soybeans are given in Table 29. Over 96 percent of the 2007 soybean crop in each district had been sold by August 31, 2008, with the exception of Southwest Iowa. On-farm usage exceeded 1 percent in only one district, East Central Iowa. Producers in Southwest Iowa were holding a larger percentage of their soybean crop in inventory than the rest of the state. All of the producers who responded from Southeast Iowa had marketed all of their soybean crops.

Figure 17 and Table 30 illustrate the markets for Iowa soybeans by district. Similar to corn, elevators were often the largest market for soybeans. However, the share of the markets still varied between geographic locations. The proportion of the soybean crop headed to country elevators generally increases as we move from Southeast to Northwest in Iowa. In-state crushing facilities were big players in the soybean market, receiving the crop directly from producers. In South Central Iowa, the in-state crushers were the largest single market. For East Central and Southwest Iowa, the in-state crushers captured over 20 percent of the marketed soybeans. Producers in Southwest Iowa sent over 10 percent of their soybeans (and over 8 percent of their corn) to Missouri River terminals. These terminals have both rail and barge access to secondary markets.

As with corn, the share of soybeans delivered from farms by type of vehicle in each CRD changes from northern to southern Iowa. Figure 18 and Table 31 present the share of soybean shipments by various types of vehicles in each CRD. Wagons played a greater role in northern Iowa. Semis moved less than 60 percent of the soybeans in the Northwest, North Central, and Central parts of the state, whereas in all three southern Iowa CRDs semis were used to ship over 70 percent of the soybeans sold.

Table 32 displays the average distances traveled on various types of roads to get the crops to market. In most districts, state highways represented the longest stretches of those hauls. Unimproved gravel roads made up a smaller part of the trip in East Central Iowa. Typically, shipping patterns were similar across corn and soybeans, but there were some exceptions. Soybeans were hauled farther in Northeast, Southwest, and Southeast Iowa. The average and maximum shipping distances from farms to markets by vehicle type in each CRD are summarized in Tables 33 and 34. As expected, semis were used for longer hauls, while wagons covered the shorter trips (less than 5 miles). Also, the travel distances of semis were longer in the southern and eastern parts of the state. This again shows the different target markets among districts: corn processors and river terminals for the East zone, Omaha-Council Bluffs and Kansas City for the Southwest, and country elevators for the Northwest quadrant of the state.

Other topics

The district breakdown for containerized shipments is given in Table 35. Containerized shipments were up in all regions for both crops with two exceptions, East Central and Southeast soybeans. In fact, for the 2006 marketing year, only two districts reported over 10 million bushels of corn containerized; while for 2007, eight of the nine districts reported over 10 million bushels.

For the 2007 marketing year, questions were added to the survey that dealt with storage utilization and the impact of natural disasters on marketing. Table 36 contains the results for the storage question. Over half of the storage in all nine districts was used for corn sometime during the year. In Northeast, Central, and Southeast Iowa, over 80 percent of the storage capacity was dedicated to corn. Soybeans took up anywhere from 12 to 25 percent of the storage room, with the higher percentages in Southwest and South Central Iowa. Central and South Central Iowa reported small amounts of other crops being stored, with the rest of the storage capacity not being used.

Iowa had its share of natural disasters in 2008, between the heavy spring storms that resulted in the tornado at Parkersburg and the flooding that followed. The 2008 tornado season in Iowa was highly eventful, with the second-highest total number of tornadoes in the state over the course of the year. To trace how these events impacted Iowa agriculture, the survey included questions asking how many producers were affected and how their marketing of crops was affected. Producers in every part of the state indicated some impact from natural disasters. The highest percentages were in East Central (flooding) and Southwest (tornadoes) Iowa. At least 10 percent of respondents in each district, with the exception of Northwest Iowa, reported some impact from the natural disasters. And while the storms and flooding had significant impacts on the 2008 crop that was being grown at the time, the impact on the marketing of the 2007 crop was relatively small. While the number of producers affected was relatively high, the percentage of 2007 crop affected was significantly smaller. Crop marketings were affected for over 5 percent of the corn and soybean crops in only two of the nine districts, Northeast and South Central Iowa for corn and Central and Southeast Iowa for soybeans.

Tables 38 through 43 contain the district ratings of Iowa's freight infrastructure. The percentages are based on the number of responses to the question, which varied by district and by question.

Rail lines received relatively lower ratings in the East Central, South Central, and Southeast districts. For each of those districts, over 10 percent of respondents rated the rail lines as poor. The rail lines received the highest ratings in Northwest Iowa. The interstates were generally rated average to good, with the lowest ratings in Southwest Iowa. The primary state highways received some of their highest and lowest ratings in Northwest Iowa, with 14 percent of respondents indicating the highways were in excellent condition and 9 percent indicating the highways were in poor condition. Compared with the ratings in the last survey, more producers in Southwest Iowa rated the interstates lower (below average) than the state highways.

The paved county roads received the lowest ratings in Southwest and South Central Iowa. Over 35 percent of respondents in these two regions rated the county roads below average or worse. As one might expect, the unimproved gravel roads received the lowest ratings of the roadways. In South Central Iowa, 33 percent of respondents indicated the district's gravel roads were in poor shape (up from 24 percent in the last survey), while no producers indicated the roads were excellent. East Central Iowa gravel roads also received many poor ratings. Iowa's waterways were generally rated average. However, 25 percent of respondents in South Central Iowa considered the waterway they accessed to be in poor condition, while more than 10 percent of respondents in the West Central, Central, and Southwest districts rated accessed waterway conditions poor.

Tables 44 through 55 show the ratings by CRD of marketing hindrances. Based on the responses, rail service costs were the biggest marketing hindrance in Northwest, North Central, Central, and Southwest Iowa. Trucking costs were the biggest marketing hindrance in West Central, East Central, South Central, and Southeast Iowa. Bridge weight restrictions were the biggest marketing hindrance in Northeast Iowa. Over 10 percent of respondents in all nine districts said rail service access and trucking costs definitely hindered marketing.

Road weight restrictions were more of an issue in the Central, East Central, Southwest, and Southeast districts. Bridge weight restrictions were seen as a definite marketing hindrance by over 20 percent of the respondents in Northeast, West Central, Central, and Southwest Iowa.

Crop Reporting District Survey Results for Grain Handlers

Corn flows

The share of the corn market for grain handlers in each CRD is presented in Figure 19 and Table 56. In the 2007/08 marketing year, feedlots remained the major destination markets for country elevators in the western CRDs, particularly in this West Central district. At least 15 percent of corn was sold to the ethanol industry in the northern and central CRDs. Ethanol plants in the Northeast and North Central districts were the dominant market, accounting for about 45 percent of corn sales from elevators in 2007/08. At least 22 percent of corn sold by country elevators in the eastern region went to wet milling processors. Wet milling processors significantly dominated the corn sales in the East Central district (62 percent). As expected, the share of international or distant domestic markets continuously dropped in 2007/08 compared to the previous marketing years. Mississippi River terminals, which received 8 to 25 percent of corn sales in the eastern districts in 2006/07, absorbed less than 10 percent of corn sales in the

2007/08 marketing year. Similarly, Mexico became a much smaller market for corn sold by country elevators in Northwest, North Central, and Central districts.

Figure 20 presents the share of corn delivered from country elevators by shipping mode in each CRD. In general, trucks were mostly used for corn shipments; however, rail dominated corn deliveries from the Southwest district because of distant target markets. Compared to the 2006/07 survey results, the utilization of trucks by country elevators continued to increase in most districts. This shift of mode again suggests that demand from local markets has been increasing and that the ethanol industry has played an important role in this transition. In the Southeast district, barges were an important mode for corn movement. Detailed numeric data for Figure 20 can be found in Table 57.

Soybean flows

Figure 21 and Table 58 summarize the shares of the soybean destination market taken by country elevators in each CRD. Crushers remained the leaders in purchasing soybeans sold by country elevators, accounting for at least 66 percent of all sales, with the exception of the Southeast region. Mississippi River terminals received more than 28 percent of soybeans sold in the Southeast and East Central districts. In general, the distribution pattern of soybean sales by country elevators in 2007/08 does not vary from that of the previous year.

Trucks continue to be the foremost shipping mode in the northern and central regions. Figure 22 illustrates the obvious contrast between trucks and other transportation modes. Rail carriers carried almost 60 percent of soybean shipments in the Southwest district because of remote out-of-state markets. Barges were certainly the dominant means for shipping soybeans from Southeast country elevators, accounting for more than 42 percent of their soybean sales. Table 59 summarizes detailed statistics on the share of each mode.

Other topics

The volume of ethanol co-products (such as dried or wet distillers grains, corn gluten feed or meal, brewers grains, and condensed distillers solubles) handled, brokered, mixed, or processed by CRD country elevators is presented in Table 60. Country elevators in the Northwest district handled the most ethanol co-products among all CRDs, receiving almost 3.3 million tons of co-products in the 2007/08 marketing year. This volume of co-products in the Northwest district surged from 900,000 tons from 2006/07. Country elevators in the West Central district surpassed the North Central district to handle the second-largest volume of co-products (628,027 tons in 2007/08). Because of limited responses from Central, East Central, Southwest, and South Central districts, their statistics are not being released for confidentiality. The average one-way distance ranges between 20 and 64 miles, suggesting most of the co-products were obtained from regional ethanol plants.

Table 61 presents the percentage of vehicles utilized by country elevators in each district by weight in 2006/07 and 2007/08. The vehicle numbers in the southern and central regions are not reported in 2007/08 because of the limited response number. For the northern districts, the percentage of vehicles by weight remained stable. The average and maximum one-way distances

feed trucks traveled by size and by CRD are summarized in Table 62. Clearly, semi trucks were primarily used for more distant markets, while country elevators utilized smaller trucks (e.g., 6-ton trucks) for close markets. With the increasing numbers of heavier trucks traveling longer distances, the demand for road maintenance will be increasing.

Tables 63 through 68 summarize the CRD country elevator ratings of Iowa's freight infrastructure. The percentages are based on the number of responses to the question, which varied by district and by question. Most of the country elevators rated the rail lines average or above average. About 20 percent of country elevators in West Central and East Central districts rated the rail lines poor. The interstate highway system was again the most satisfactory infrastructure and was generally rated average to excellent. The primary state highways generally received a rating of average to above average. Paved county roads were generally rated average or higher in all CRDs, except for the Northeast district, where more than 50 percent of respondents considered the condition of the paved county roads below average. The unimproved gravel roads received the lowest ratings of the roadways. More than half of respondents in Northeast, East Central, and Southeast districts indicated the districts' gravel roads were below average. Iowa's waterways were generally rated average, while 50 percent of respondents in the Central district considered the waterway they use below average.

Tables 69 through 80 show the country elevators' ratings of marketing hindrances for each CRD. More than 10 percent of respondents in the Northeast, Central, East Central, and Southwest districts considered road weight restrictions a definite hindrance for marketing crops in 2007/08. Bridge weigh restrictions were a significant hurdle for the country elevators in the Southeast and Northeast districts. Seasonal labor availability was a significant concern for grain marketing by country elevators in all districts except for the Southeast district. The shortage of seasonal labor became a more serious hindrance to marketing grain for country elevators in most CRDs in 2007/08 compared to 2006/07. Storage capacity on site was also a challenge for country elevators in marketing their grain in the 2007 marketing year. More than 20 percent of respondents in Northeast and Southwest districts considered storage capacity a definite hurdle for their grain marketing.

As expected, high energy costs in summer 2008 made trucking costs a common challenge for country elevators in all CRDs, while rail costs also put considerable pressure on grain elevators except for those in the Southeast district. More than 20 percent of respondents in the North, East Central, and Southwest districts chose rail service access as a marketing hindrance, while rail service reliability was the biggest challenge for grain elevators in North, Central, and Southwest districts. Barge service and costs were considered definite issues for country elevators in Northwest and North Central Iowa.

Conclusions

To follow up on the evolution in Iowa's grain and biofuel distribution and use of transportation modes observed in the *2006/07 Iowa Grain and Biofuel Flow Study*, this report provides updated information about grain flows from Iowa farms and country elevators to destination markets and associated use of transportation modes between September 1, 2007, and August 31, 2008.

Similar to the previous report, the feedstock resources and product markets for the Iowa biofuel industry are also a study focus. In addition, the survey again includes evaluations of transportation infrastructures and likely hindrances to efficient marketing of commodities.

In 2007, Iowa corn planted area expanded by nearly 13 percent at the expense of soybean acreage because of the growing interest in ethanol production. As a result, corn production increased by 16 percent, to 2.38 billion bushels, while soybean production dropped by 12 percent. Country elevators remained the primary market for Iowa grain producers during the 2007/08 marketing year, accounting for 60 percent of corn and 68 percent of soybeans sold by farms statewide. However, the share of corn sales direct from farms to processors (including ethanol plants) again increased. The corn market share of ethanol plants expanded in all CRDs except for the East Central district. The share of river terminals for corn sales by farms has dropped from the 1999 to the 2006 marketing years and has declined again in 2007/08. Unlike corn sales, the share of direct soybean sales from farms to processors remained stable.

Both the 2006/07 and 2007/08 survey results suggest that grains shipped by semis from Iowa farms increased, and this trend is expected to continue for the next five years. Meanwhile, the share of small wagons used by Iowa grain producers for corn and soybean shipments fell. This growing share of semi hauls off farms will translate into an increasing number of heavier vehicles on county roads and state highways, implying a greater demand for road and infrastructure maintenance. Since the 1999/2000 crop year, the amount of corn transported by semi has basically doubled while the average distance shipped has fallen by two to three miles per trip.

Regarding the destination markets for country elevators, a growing amount of corn went to the livestock industry and ethanol plants during the 2007/08 marketing year. The share of corn sold to river terminals by country elevators declined because of strong competition from local feeders and ethanol plants. Soybean shipments from country elevators to processors surged from 72 to 83 percent between the 2006 and 2007 marketing years. The share of soybean sales to crushers from elevators increased in all CRDs, resulting from a stronger demand in the meal and oil markets.

As discussed in the 2006/07 report, the expanding ethanol industry is likely to have a two-sided impact on country elevators, as observed again in this year's survey results. Country elevators' share in local corn markets declined, as direct deliveries off farms to processors/ethanol plants increased; however, country elevators also benefited from the ethanol industry because of the emerging sales of ethanol co-products, such as DDG and WDG. The volume of ethanol co-products handled by elevators more than doubled between the 2006 and 2007 marketing years. Meanwhile, country elevators maintained a leading role in purchasing corn from farms (64 percent versus 62 percent in the last survey).

Truck transportation gained favor over the rail line service for country elevators since in-state corn shipments continued to rise. Both the 2006 and 2007 surveys showed that the share of rail hauls for corn from country elevators declined in most of the CRDs. Country elevators expanded their use of large-size (24-ton) semis, considered the most efficient and economical means of transport.. Semis are expected to be the major delivery vehicle through 2012.

As expected, Iowa ethanol plants received most of their feedstocks from state corn production. The destination market for Iowa ethanol was primarily out of state while DDG sales were split between local and out-of-state markets. In the 2007 marketing year, nearly one-third of Iowa ethanol sales went to the eastern states, while about 10 percent went to the western states. The Southern Plains states absorbed more than 7 percent of ethanol sold by Iowa. For DDG sales, more than 17 percent of DDG was sold to the western states while bordering states, such as Illinois, Missouri and Minnesota, absorbed 15 percent of Iowa DDG.

Most ethanol plants had not extracted corn oil in the 2006 marketing year. However, in 2007/08, more than one-third of processors extracted corn oil and more than 70 percent of the processors were expected to begin oil extraction by 2012. This increase in corn oil production could generate more revenue for ethanol plants and also provide a significant additional feedstock to Iowa's biodiesel refineries.

Iowa's other biofuel industry, biodiesel, continued to produce, though on a smaller scale than ethanol. Soybean oil was the major feedstock; however, the trend of using multiple feedstocks for biodiesel production is likely to continue, as a majority of the plants face economic pressure to explore alternative feedstocks, given the higher soybean oil prices seen throughout 2007 and early 2008. One departure from the previous survey report is that soybean oil was primarily purchased from out-of-state processors in 2007/08 and transported by truck. Nearly half of Iowa's biodiesel was sold in-state, while nearly 20 percent of biodiesel sales entered the international market. Illinois and Minnesota absorbed a sizeable share (almost 30 percent) of Iowa biodiesel sales. Most of the co-product (glycerin) stayed in the local market whereas more than one-third of biodiesel sales entered Illinois. Trucks were commonly used for in-state deliveries; however, sales to other markets were shipped by rail lines.

In 2007/08, soybean processors received a major portion of their sales from soybean meal, followed by soybean oil and other products. Nearly half of soybean meal sales were utilized within Iowa and the other half of sales went to other states, with a high concentration in the upper Midwest. Trucks were mostly used for in-state sales, while rail lines generally dominated out-of-state deliveries. In contrast to the 2006 survey, industrial use accounted for a big share of soybean oil sales in 2007/08, likely because of the expanding biodiesel industry.

Evaluations of transportation infrastructures and likely hindrances to marketing were generally consistent between the 2006/07 and 2007/08 surveys. The interstate system was most satisfactory, while most criticisms were targeted at unimproved gravel roads. Not surprisingly, the most recognized hindrance to marketing by respondents was high transport costs. Transport costs usually account for a significant portion of the sales price of agricultural products, so the skyrocketing energy costs in summer 2008 were a considerable challenge to marketing. A shortage of seasonal labor and storage capacity were also cited by country elevators as big challenges in 2007/08.

Tables

Table 1. Iowa grain flow survey participation

Survey section	Sample	Useable returns	Response rate
Grain marketers	1,234	432	35.0%
Grain handlers	353	132	37.4%
Corn processors/ethanol	32	11	34.4%
Soybean processors	30	10	33.3%
Biodiesel	13	6	46.2%

Table 2. Current and projected grain hauling vehicles

Vehicle type	Inventory in 2006	Projected Change by 2012	
		2006 Survey	2007 Survey
Wagon – less than 500 bu.	95,867	-43%	-39%
Wagon – 500 bu. or more	38,378	6%	-1%
Single axle truck	8,284	-48%	-45%
Tandem axle truck	8,332	-17%	-29%
Semi	16,972	25%	27%
Other	1,516	-32%	-29%

Table 3. Average and maximum distances of grain movement by farmers

Vehicle type	Corn		Soybean	
	Average	Maximum	Average	Maximum
	(miles)			
Wagon – less than 500 bu.	4	6	4	6
Wagon – 500 bu. or more	5	8	5	8
Single axle truck	6	11	7	12
Tandem axle truck	11	17	11	19
Semi	22	43	26	46
Other	8	8	8	11

Table 4. Road types and miles to most frequently used market

Road Type	Corn	Soybean
Unimproved gravel roads	3	3
Paved county roads	6	6
State highways	17	21

Table 5. Rating Iowa's freight infrastructure by grain marketers

Transportation system	Poor		Average		Excellent		N/A	No Response
	1	2	3	4	5			
Rail lines	6%	12%	36%	22%	6%	11%	7%	
Interstates	0%	5%	30%	40%	12%	7%	6%	
Primary state highways	3%	12%	41%	28%	8%	2%	5%	
Paved county roads	6%	16%	42%	26%	6%	1%	4%	
Unimproved gravel roads	14%	25%	37%	14%	4%	2%	5%	
Waterways	5%	13%	29%	10%	1%	28%	13%	

Table 6. Rating infrastructure by grain marketers (excluding not applicable and no response)

Transportation system	Poor		Average		Excellent	
	1	2	3	4	5	
Rail lines	8%	14%	44%	27%	7%	
Interstates	1%	6%	34%	46%	14%	
Primary state highways	4%	13%	44%	30%	9%	
Paved county roads	6%	17%	44%	27%	6%	
Unimproved gravel roads	15%	26%	40%	15%	4%	
Waterways	8%	23%	50%	18%	2%	

Table 7. Rating hindrances to efficient grain marketing by grain marketers

Marketing hindrances	Not at all		Somewhat		Definitely		N/A	No Response
	1	2	3	4	5			
Grain hauling equipment size	40%	13%	22%	8%	5%	5%	6%	
Road weight restrictions	31%	16%	24%	7%	11%	6%	7%	
Bridge weight restrictions	31%	13%	19%	10%	13%	7%	6%	
Availability of seasonal labor	30%	13%	23%	9%	9%	11%	5%	
Lack of on-farm storage	34%	15%	21%	13%	7%	5%	5%	
Elevator storage capacity	32%	25%	17%	10%	4%	6%	6%	
Elevator unloading time	26%	19%	20%	14%	11%	5%	5%	
Distance to market	30%	25%	20%	12%	4%	3%	6%	
Trucking costs	15%	13%	24%	16%	20%	5%	7%	
Rail access	22%	16%	16%	9%	13%	16%	8%	
Rail service reliability	18%	13%	18%	12%	11%	20%	9%	
Rail service costs	16%	9%	16%	13%	13%	22%	10%	

Table 8. Rating hindrances by grain marketers (excluding not applicable and no response)

Marketing hindrances	Not at all		Somewhat		Definitely
	1	2	3	4	5
Grain hauling equipment size	45%	15%	25%	9%	6%
Road weight restrictions	35%	18%	27%	8%	12%
Bridge weight restrictions	36%	14%	22%	12%	15%
Availability of seasonal labor	36%	16%	27%	10%	11%
Lack of on-farm storage	38%	17%	23%	14%	8%
Elevator storage capacity	37%	28%	19%	12%	4%
Elevator unloading time	29%	21%	22%	16%	12%
Distance to market	33%	27%	22%	13%	5%
Trucking costs	17%	15%	27%	18%	23%
Rail access	29%	21%	22%	12%	17%
Rail service reliability	25%	19%	25%	16%	15%
Rail service costs	24%	13%	24%	19%	20%

Table 9. Number of rail cars utilized by country elevators per shipment

Crop	Number of rail cars				
	1-24	25-49	50-74	75-99	100+
Corn	20%	25%	30%	5%	20%
Soybeans	11%	28%	33%	6%	22%

Table 10. Rating Iowa's freight infrastructure by country elevators

Transportation system	Poor		Average		Excellent	N/A	No Response
	1	2	3	4	5		
Rail lines	2%	6%	27%	12%	1%	42%	9%
Interstates	2%	3%	40%	35%	6%	11%	4%
Primary state highways	4%	17%	45%	30%	1%	1%	3%
Paved county roads	6%	24%	48%	18%	1%	1%	2%
Unimproved gravel roads	12%	30%	36%	16%	1%	2%	2%
Waterways	1%	3%	22%	8%	0%	56%	10%

Table 11. Rating infrastructure by country elevators (excluding not applicable and no response)

Transportation system	Poor		Average		Excellent
	1	2	3	4	5
Rail lines	4%	13%	56%	25%	2%
Interstates	2%	3%	47%	41%	7%
Primary state highways	4%	18%	46%	31%	1%
Paved county roads	6%	25%	49%	19%	1%
Unimproved gravel roads	13%	32%	38%	17%	1%
Waterways	3%	9%	65%	24%	0%

Table 12. Rating hindrances to efficient marketing by country elevators

Marketing hindrances	Not at all	Somewhat			Definitely	N/A	No Response
	1	2	3	4	5		
Road weight restrictions	26%	23%	26%	8%	8%	6%	2%
Bridge weight restrictions	26%	18%	22%	12%	14%	8%	2%
Availability of seasonal labor	12%	18%	24%	17%	20%	8%	2%
Elevator storage capacity	14%	19%	25%	19%	13%	6%	3%
Elevator unloading time	26%	17%	25%	13%	12%	5%	2%
Trucking costs	2%	5%	25%	26%	38%	2%	3%
Rail access	20%	11%	5%	8%	12%	40%	3%
Rail service reliability	12%	8%	8%	8%	8%	52%	4%
Rail service costs	11%	4%	8%	10%	12%	54%	2%
Barge access	18%	7%	2%	5%	2%	62%	4%
Barge service reliability	12%	9%	3%	4%	3%	66%	2%
Barge service costs	12%	4%	5%	5%	5%	66%	4%
Other hindrances	2%	0%	0%	0%	1%	22%	76%

Table 13. Rating hindrances by country elevators (excluding not applicable and no response)

Marketing hindrances	Not at all	Somewhat			Definitely
	1	2	3	4	5
Road weight restrictions	29%	25%	29%	9%	9%
Bridge weight restrictions	28%	20%	24%	13%	15%
Availability of seasonal labor	13%	20%	26%	19%	22%
Elevator storage capacity	16%	21%	28%	21%	14%
Elevator unloading time	28%	18%	27%	14%	13%
Trucking costs	2%	5%	26%	27%	40%
Rail access	36%	20%	9%	14%	21%
Rail service reliability	27%	18%	18%	18%	18%
Rail service costs	24%	9%	18%	22%	27%
Barge access	53%	21%	6%	15%	6%
Barge service reliability	39%	29%	10%	13%	10%
Barge service costs	39%	13%	16%	16%	16%
Other hindrances	67%	0%	0%	0%	33%

Table 14. Rating Iowa's freight infrastructure by corn processors

	Poor		Average		Excellent		N/A	No Response
	1	2	3	4	5			
Rail lines	0%	9%	27%	45%	18%	0%	0%	
Interstates	0%	0%	36%	45%	18%	0%	0%	
Primary state highways	0%	0%	64%	18%	18%	0%	0%	
Paved county roads	0%	0%	55%	36%	9%	0%	0%	
Unimproved gravel roads	0%	9%	73%	18%	0%	0%	0%	
Waterways	0%	0%	55%	9%	0%	36%	0%	

Table 15. Rating infrastructure by corn processors (excluding not applicable and no response)

	Poor		Average		Excellent	
	1	2	3	4	5	
Rail lines	0%	9%	27%	45%	18%	
Interstates	0%	0%	36%	45%	18%	
Primary state highways	0%	0%	64%	18%	18%	
Paved county roads	0%	0%	55%	36%	9%	
Unimproved gravel roads	0%	9%	73%	18%	0%	
Waterways	0%	0%	86%	14%	0%	

Table 16. Rating hindrances to efficient marketing by corn processors

	Not at all		Somewhat		Definitely		N/A	No Response
	1	2	3	4	5			
Road weight restrictions	36%	18%	27%	9%	9%	0%	0%	
Bridge weight restrictions	45%	18%	27%	0%	9%	0%	0%	
Storage capacity	0%	27%	36%	0%	36%	0%	0%	
Unloading time	36%	45%	9%	0%	9%	0%	0%	
Trucking costs	9%	27%	18%	27%	18%	0%	0%	
Rail access	36%	27%	36%	0%	0%	0%	0%	
Rail service reliability	36%	27%	0%	18%	18%	0%	0%	
Rail service costs	9%	9%	45%	18%	18%	0%	0%	
Barge access	18%	27%	0%	0%	0%	55%	0%	
Barge service reliability	18%	27%	0%	0%	0%	55%	0%	
Barge service costs	18%	9%	18%	0%	0%	55%	0%	

Table 17. Rating hindrances by corn processors (excluding not applicable and no response)

	Not at all		Somewhat		Definitely
	1	2	3	4	5
Road weight restrictions	36%	18%	27%	9%	9%
Bridge weight restrictions	45%	18%	27%	0%	9%
Storage capacity	0%	27%	36%	0%	36%
Unloading time	36%	45%	9%	0%	9%
Trucking costs	9%	27%	18%	27%	18%
Rail access	36%	27%	36%	0%	0%
Rail service reliability	36%	27%	0%	18%	18%
Rail service costs	9%	9%	45%	18%	18%
Barge access	40%	60%	0%	0%	0%
Barge service reliability	40%	60%	0%	0%	0%
Barge service costs	40%	20%	40%	0%	0%

Table 18. Rating Iowa's freight infrastructure by soybean processors

	Poor		Average		Excellent		No Response
	1	2	3	4	5	N/A	
Rail lines	0%	10%	40%	0%	0%	10%	40%
Interstates	0%	0%	30%	20%	10%	0%	40%
Primary state highways	0%	0%	40%	10%	10%	0%	40%
Paved county roads	0%	0%	40%	10%	10%	0%	40%
Unimproved gravel roads	0%	10%	20%	10%	0%	0%	60%
Waterways	0%	0%	20%	0%	0%	20%	60%

Table 19. Rating infrastructure by soybean processors (excluding not applicable and no responses)

	Poor		Average		Excellent
	1	2	3	4	5
Rail lines	0%	20%	80%	0%	0%
Interstates	0%	0%	50%	33%	17%
Primary state highways	0%	0%	67%	17%	17%
Paved county roads	0%	0%	67%	17%	17%
Unimproved gravel roads	0%	25%	50%	25%	0%
Waterways	0%	0%	100%	0%	0%

Table 20. Rating hindrances to efficient marketing by soybean processors

	Not at all		Somewhat		Definitely		N/A	No Response
	1	2	3	4	5	5		
Road weight restrictions	0%	30%	0%	10%	0%	0%	0%	60%
Bridge weight restrictions	0%	30%	0%	10%	0%	0%	0%	60%
Storage capacity	10%	0%	20%	20%	0%	0%	0%	50%
Unloading time	20%	10%	20%	0%	0%	0%	0%	50%
Trucking costs	0%	20%	10%	20%	0%	0%	0%	50%
Rail access	10%	20%	0%	0%	20%	0%	0%	50%
Rail service reliability	0%	20%	10%	0%	10%	10%	10%	50%
Rail service costs	0%	0%	20%	10%	10%	10%	10%	50%
Barge access	0%	20%	0%	0%	0%	0%	30%	50%
Barge service reliability	0%	20%	0%	0%	0%	0%	30%	50%
Barge service costs	0%	20%	0%	0%	0%	0%	30%	50%

Table 21. Rating hindrances by soybean processors (excluding not applicable and no responses)

	Not at all		Somewhat		Definitely	
	1	2	3	4	5	5
Road weight restrictions	0%	75%	0%	25%	0%	0%
Bridge weight restrictions	0%	75%	0%	25%	0%	0%
Storage capacity	20%	0%	40%	40%	0%	0%
Unloading time	40%	20%	40%	0%	0%	0%
Trucking costs	0%	40%	20%	40%	0%	0%
Rail access	20%	40%	0%	0%	40%	0%
Rail service reliability	0%	50%	25%	0%	25%	0%
Rail service costs	0%	0%	50%	25%	25%	0%
Barge access	0%	100%	0%	0%	0%	0%
Barge service reliability	0%	100%	0%	0%	0%	0%
Barge service costs	0%	100%	0%	0%	0%	0%

Table 22. Rating Iowa's freight infrastructure by biodiesel producers

	Poor		Average		Excellent		N/A	No Response
	1	2	3	4	5	5		
Rail lines	17%	0%	83%	0%	0%	0%	0%	0%
Interstates	0%	33%	33%	33%	0%	0%	0%	0%
Primary state highways	17%	0%	50%	33%	0%	0%	0%	0%
Paved county roads	17%	17%	33%	17%	0%	0%	0%	17%
Unimproved gravel roads	17%	33%	17%	17%	0%	0%	0%	17%
Waterways	17%	0%	17%	17%	0%	0%	33%	17%

Table 23. Rating infrastructure by biodiesel producers (excluding not applicable and no response)

	Poor		Average		Excellent
	1	2	3	4	5
Rail lines	17%	0%	83%	0%	0%
Interstates	0%	33%	33%	33%	0%
Primary state highways	17%	0%	50%	33%	0%
Paved county roads	20%	20%	40%	20%	0%
Unimproved gravel roads	20%	40%	20%	20%	0%
Waterways	33%	0%	33%	33%	0%

Table 24. Rating hindrances to efficient marketing by biodiesel producers

	Not at all		Somewhat		Definitely	N/A
	1	2	3	4	5	
Road weight restrictions	67%	17%	17%	0%	0%	0%
Bridge weight restrictions	83%	0%	17%	0%	0%	0%
Storage capacity	33%	0%	33%	0%	33%	0%
Unloading time	67%	17%	0%	17%	0%	0%
Trucking costs	17%	0%	17%	33%	33%	0%
Rail access	33%	17%	17%	33%	0%	0%
Rail service reliability	33%	0%	17%	33%	17%	0%
Rail service costs	0%	17%	17%	33%	33%	0%
Barge access	33%	0%	17%	17%	17%	17%
Barge service reliability	33%	17%	0%	0%	17%	33%
Barge service costs	33%	0%	0%	17%	17%	33%

Table 25. Rating hindrances by biodiesel producers (excluding not applicable)

	Not at all		Somewhat		Definitely
	1	2	3	4	5
Road weight restrictions	67%	17%	17%	0%	0%
Bridge weight restrictions	83%	0%	17%	0%	0%
Storage capacity	33%	0%	33%	0%	33%
Unloading time	67%	17%	0%	17%	0%
Trucking costs	17%	0%	17%	33%	33%
Rail access	33%	17%	17%	33%	0%
Rail service reliability	33%	0%	17%	33%	17%
Rail service costs	0%	17%	17%	33%	33%
Barge access	40%	0%	20%	20%	20%
Barge service reliability	50%	25%	0%	0%	25%
Barge service costs	50%	0%	0%	25%	25%

Table 26. CRD corn data

	Corn planted acres (million acres)	Corn production (million bushels)	Corn sold	Corn used on farm	Corn not sold or used
Northwest	2.111	333.7	91.7%	7.5%	0.8%
North Central	2.086	365.3	93.9%	4.3%	1.8%
Northeast	1.714	286.0	77.2%	22.6%	0.2%
West Central	2.084	341.0	88.8%	8.3%	3.0%
Central	2.076	368.9	95.0%	3.5%	1.5%
East Central	1.505	264.8	84.5%	14.4%	1.2%
Southwest	1.065	160.2	91.7%	1.7%	6.7%
South Central	0.580	88.0	91.8%	6.5%	1.7%
Southeast	0.979	169.0	91.0%	6.6%	2.4%

Table 27. Percentage of market for CRD corn producers

	Northwest	North Central	Northeast	West Central	Central	East Central	Southwest	South Central	Southeast
Cooperative elevators	68.4%	63.2%	39.6%	64.7%	43.2%	22.8%	17.8%	31.8%	13.4%
Private elevators	6.1%	9.2%	14.6%	6.7%	8.2%	12.8%	35.0%	26.2%	16.7%
Iowa ethanol plants	21.2%	21.3%	22.6%	20.2%	31.0%	2.3%	33.4%	11.3%	14.7%
Out-of-state ethanol plants	2.0%	0.7%	0.0%	2.2%	0.0%	0.0%	5.2%	0.0%	0.0%
Iowa processors	1.6%	4.8%	7.7%	1.7%	8.8%	37.7%	0.0%	30.6%	24.5%
Out-of-state processors	0.0%	0.3%	0.0%	3.9%	0.0%	0.0%	0.0%	0.0%	0.0%
Illinois River terminals	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Mississippi River terminals	0.0%	0.0%	9.2%	0.0%	0.0%	23.8%	0.0%	0.0%	22.1%
Missouri River terminals	0.0%	0.0%	0.0%	0.6%	0.0%	0.0%	8.6%	0.0%	0.0%
Iowa farm operation	0.4%	0.4%	2.0%	0.0%	8.8%	0.0%	0.0%	0.0%	5.2%
Out-of-state farm operation	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Destination unknown	0.0%	0.0%	4.3%	0.0%	0.0%	0.5%	0.0%	0.0%	3.5%

Table 28. Share of corn shipments from farms by vehicle size in CRD

	Wagon - less than 500 bu.	Wagon - 500 bu. or more	Single axle truck	Tandem axle truck	Semi
Northwest	7%	24%	0%	12%	58%
North Central	13%	23%	2%	7%	54%
Northeast	2%	15%	0%	5%	78%
West Central	8%	8%	4%	10%	70%
Central	9%	19%	2%	2%	69%
East Central	7%	9%	0%	2%	82%
Southwest	0%	4%	2%	4%	89%
South Central	4%	8%	2%	12%	75%
Southeast	5%	2%	2%	10%	81%

Table 29. CRD soybean data

	Soybean planted acres (million acres)	Soybean production (million bushels)	Soybeans sold	Soybeans used on farm	Soybeans not sold or used
Northwest	1.455	76.5	98.6%	0.0%	1.4%
North Central	1.110	57.9	97.7%	0.0%	2.3%
Northeast	0.685	35.2	99.8%	0.0%	0.2%
West Central	1.386	70.2	98.1%	0.0%	1.9%
Central	1.251	68.1	98.0%	0.0%	2.0%
East Central	0.774	40.3	98.4%	1.0%	0.6%
Southwest	0.900	45.9	89.4%	0.0%	10.6%
South Central	0.450	22.6	96.7%	0.0%	3.3%
Southeast	0.640	32.1	100.0%	0.0%	0.0%

Table 30. Percentage of market for CRD soybean producers

	Northwest	North Central	Northeast	West Central	Central	East Central	Southwest	South Central	Southeast
Cooperative elevators	73.6%	67.9%	56.1%	62.2%	64.9%	36.0%	19.8%	23.6%	14.1%
Private elevators	8.8%	11.0%	10.4%	5.5%	6.0%	14.7%	26.3%	32.5%	23.2%
Iowa crushers	10.2%	12.5%	10.0%	16.7%	18.1%	20.9%	26.7%	41.9%	9.7%
Out-of-state crushers	1.2%	1.3%	1.8%	0.0%	0.9%	0.0%	3.4%	0.0%	4.0%
Illinois River terminals	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Mississippi River terminals	0.0%	1.0%	9.6%	0.0%	0.0%	28.1%	0.0%	1.7%	38.7%
Missouri River terminals	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	11.8%	0.0%	0.0%
Unknown destination	6.2%	6.2%	12.1%	15.6%	10.1%	0.4%	12.0%	0.3%	10.2%

Table 31. Share of soybean shipments from farms by vehicle size in CRD

	Wagon - less than 500 bu.	Wagon - 500 bu. or more	Single axle truck	Tandem axle truck	Semi
Northwest	11%	28%	0%	10%	51%
North Central	21%	26%	2%	10%	42%
Northeast	6%	20%	2%	5%	68%
West Central	6%	9%	6%	13%	66%
Central	13%	27%	7%	5%	48%
East Central	11%	15%	2%	5%	68%
Southwest	0%	4%	7%	5%	83%
South Central	8%	11%	3%	5%	73%
Southeast	3%	0%	3%	7%	86%

Table 32. Average distance from farms to market by road in CRD

	Unimproved gravel road		Paved county road		State highway	
	Corn	Soybeans	Corn	Soybeans	Corn	Soybeans
Northwest	3	3	6	6	6	8
North Central	3	3	5	6	14	15
Northeast	3	4	7	6	15	23
West Central	4	3	6	6	13	13
Central	3	4	6	6	18	21
East Central	2	2	6	7	21	18
Southwest	4	4	5	5	20	35
South Central	4	4	11	8	27	30
Southeast	3	4	10	15	38	57

Table 33. Average distance for grain movement from farms by vehicle in CRD

		North			West		East		South	
		Northwest	Central	Northeast	Central	Central	Central	Southwest	Central	Southeast
Wagon - less than 500 bu.	Corn	5	5	4	4	4	3	4	3	3
	Soybeans	4	5	5	4	4	3	4	5	3
Wagon - 500 bu. or more	Corn	6	5	5	4	5	4	4	5	3
	Soybeans	6	4	5	4	6	4	4	N/A	4
Single axle truck	Corn	4	4	8	6	5	6	16	6	5
	Soybeans	4	4	8	6	5	6	16	6	7
Tandem axle truck	Corn	9	8	13	8	10	7	18	13	18
	Soybeans	5	8	12	9	5	9	16	38	18
Semi	Corn	13	18	24	26	22	21	43	26	35
	Soybeans	13	23	33	27	16	18	55	44	49

Table 34. Maximum distance for grain movement from farms by vehicle in CRD

		North			West		East		South	
		Northwest	Central	Northeast	Central	Central	Central	Southwest	Central	Southeast
Wagon - less than 500 bu.	Corn	7	7	7	6	5	5	8	5	4
	Soybeans	6	7	7	6	5	5	8	5	3
Wagon - 500 bu. or more	Corn	9	7	8	6	8	6	7	11	8
	Soybeans	8	7	8	7	8	7	7	N/A	9
Single axle truck	Corn	7	12	11	12	9	5	28	10	9
	Soybeans	8	12	11	12	10	5	28	10	9
Tandem axle truck	Corn	13	15	24	19	18	9	29	24	9
	Soybeans	9	13	23	22	8	11	30	75	9
Semi	Corn	18	47	60	39	44	50	67	38	51
	Soybeans	23	45	72	41	32	46	84	51	73

Table 35. Containerized shipments by grain producers in CRD

	2006/07		2007/08	
	Corn	Soybeans	Corn	Soybeans
	(million bushels)		(million bushels)	
Northwest	15.9	3.2	55.1	9.1
North Central	7.2	1.1	26.8	4.6
Northeast	11.7	1.6	14.0	4.1
West Central	2.5	0.0	34.4	8.6
Central	3.0	0.6	13.2	2.6
East Central	9.4	8.2	16.7	2.6
Southwest	8.2	2.4	16.6	6.0
South Central	0.5	0.0	5.2	1.5
Southeast	2.0	1.1	10.1	0.8

Table 36. Storage utilization in CRD

	Corn	Soybeans	Other Crop	Not Used
Northwest	72%	14%	0%	14%
North Central	75%	12%	0%	13%
Northeast	80%	15%	0%	5%
West Central	74%	18%	0%	8%
Central	80%	12%	1%	7%
East Central	77%	13%	0%	10%
Southwest	64%	23%	0%	13%
South Central	52%	25%	1%	22%
Southeast	84%	13%	0%	3%

Table 37. Natural disaster impact in CRD

	Yes	No	No Response	Marketings Impacted	
				Corn	Soybeans
Northwest	4%	84%	12%	0%	0%
North Central	15%	78%	7%	3%	2%
Northeast	17%	74%	9%	6%	4%
West Central	10%	88%	2%	1%	1%
Central	16%	75%	9%	2%	5%
East Central	35%	58%	7%	4%	2%
Southwest	36%	64%	0%	3%	1%
South Central	26%	65%	9%	8%	3%
Southeast	15%	55%	30%	3%	6%

Table 38. Rail line ratings by grain producers in CRD

	Poor		Average		Excellent
	1	2	3	4	5
Northwest	8%	6%	42%	28%	16%
North Central	8%	17%	40%	28%	8%
Northeast	8%	19%	58%	15%	0%
West Central	4%	9%	47%	33%	7%
Central	4%	17%	37%	33%	9%
East Central	14%	19%	39%	28%	0%
Southwest	0%	19%	63%	19%	0%
South Central	20%	13%	53%	13%	0%
Southeast	11%	17%	50%	11%	11%

Table 39. Interstate ratings by grain producers in CRD

	Poor		Average		Excellent
	1	2	3	4	5
Northwest	2%	5%	33%	45%	16%
North Central	1%	3%	29%	56%	11%
Northeast	0%	0%	47%	40%	13%
West Central	0%	6%	35%	48%	12%
Central	0%	4%	21%	56%	19%
East Central	0%	13%	37%	34%	16%
Southwest	0%	21%	32%	37%	11%
South Central	0%	10%	65%	15%	10%
Southeast	0%	4%	40%	44%	12%

Table 40. Primary state highway ratings by grain producers in CRD

	Poor		Average		Excellent
	1	2	3	4	5
Northwest	9%	16%	42%	19%	14%
North Central	5%	14%	46%	28%	8%
Northeast	0%	6%	58%	26%	10%
West Central	3%	10%	39%	44%	3%
Central	2%	11%	47%	30%	9%
East Central	3%	15%	38%	30%	15%
Southwest	0%	14%	45%	36%	5%
South Central	0%	14%	43%	33%	10%
Southeast	4%	16%	44%	32%	4%

Table 41. Paved county road ratings by grain producers in CRD

	Poor		Average		Excellent
	1	2	3	4	5
Northwest	7%	10%	41%	30%	13%
North Central	2%	18%	45%	29%	5%
Northeast	0%	18%	59%	21%	3%
West Central	3%	17%	47%	32%	2%
Central	4%	21%	42%	28%	6%
East Central	13%	13%	38%	30%	8%
Southwest	19%	24%	48%	10%	0%
South Central	14%	23%	41%	14%	9%
Southeast	4%	16%	40%	36%	4%

Table 42. Unimproved gravel road ratings by grain producers in CRD

	Poor		Average		Excellent
	1	2	3	4	5
Northwest	6%	24%	40%	20%	10%
North Central	6%	23%	45%	20%	6%
Northeast	12%	18%	53%	18%	0%
West Central	12%	32%	38%	13%	5%
Central	22%	31%	35%	10%	2%
East Central	31%	21%	28%	18%	3%
Southwest	27%	32%	36%	5%	0%
South Central	33%	29%	38%	0%	0%
Southeast	15%	35%	38%	8%	4%

Table 43. Waterway ratings by grain producers in CRD

	Poor		Average		Excellent
	1	2	3	4	5
Northwest	8%	18%	53%	20%	3%
North Central	7%	14%	67%	10%	2%
Northeast	7%	22%	41%	30%	0%
West Central	10%	31%	41%	17%	0%
Central	11%	39%	29%	18%	4%
East Central	3%	21%	52%	21%	3%
Southwest	14%	14%	57%	14%	0%
South Central	25%	38%	38%	0%	0%
Southeast	4%	22%	48%	22%	4%

Table 44. Grain hauling equipment size ratings by grain producers in CRD

	Not at all		Somewhat		Definitely
	1	2	3	4	5
Northwest	40%	15%	30%	9%	6%
North Central	47%	11%	24%	10%	8%
Northeast	41%	25%	25%	6%	3%
West Central	47%	19%	21%	7%	5%
Central	52%	10%	20%	8%	10%
East Central	49%	11%	30%	8%	3%
Southwest	42%	11%	32%	5%	11%
South Central	35%	15%	25%	20%	5%
Southeast	48%	22%	22%	9%	0%

Table 45. Road weight restriction ratings by grain producers in CRD

	Not at all		Somewhat		Definitely
	1	2	3	4	5
Northwest	42%	15%	28%	3%	12%
North Central	43%	16%	30%	4%	8%
Northeast	27%	27%	30%	7%	10%
West Central	26%	20%	31%	13%	9%
Central	37%	24%	16%	2%	20%
East Central	38%	15%	21%	8%	18%
Southwest	29%	6%	35%	12%	18%
South Central	35%	6%	29%	24%	6%
Southeast	16%	20%	28%	20%	16%

Table 46. Bridge weight restriction ratings by grain producers in CRD

	Not at all		Somewhat		Definitely
	1	2	3	4	5
Northwest	43%	12%	20%	12%	12%
North Central	42%	9%	28%	12%	9%
Northeast	32%	16%	19%	10%	23%
West Central	29%	21%	20%	11%	20%
Central	31%	16%	22%	8%	22%
East Central	46%	19%	14%	11%	11%
Southwest	26%	21%	16%	16%	21%
South Central	26%	11%	37%	16%	11%
Southeast	33%	4%	25%	21%	17%

Table 47. Availability of seasonal labor ratings by grain producers in CRD

	Not at all		Somewhat		Definitely
	1	2	3	4	5
Northwest	37%	11%	28%	14%	11%
North Central	41%	23%	18%	9%	9%
Northeast	45%	14%	17%	7%	17%
West Central	28%	11%	31%	15%	15%
Central	28%	11%	43%	4%	13%
East Central	36%	14%	28%	14%	8%
Southwest	28%	6%	39%	17%	11%
South Central	33%	33%	20%	0%	13%
Southeast	48%	26%	17%	4%	4%

Table 48. Lack of on-farm storage ratings by grain producers in CRD

	Not at all		Somewhat		Definitely
	1	2	3	4	5
Northwest	37%	19%	19%	18%	7%
North Central	49%	14%	20%	16%	1%
Northeast	32%	19%	32%	6%	10%
West Central	41%	14%	27%	13%	5%
Central	31%	20%	24%	16%	10%
East Central	27%	22%	27%	11%	14%
Southwest	40%	25%	30%	0%	5%
South Central	33%	17%	0%	22%	28%
Southeast	35%	8%	35%	15%	8%

Table 49. Elevator storage capacity ratings by grain producers in CRD

	Not at all		Somewhat		Definitely
	1	2	3	4	5
Northwest	37%	24%	21%	13%	4%
North Central	32%	33%	21%	12%	2%
Northeast	57%	23%	3%	10%	7%
West Central	30%	34%	20%	11%	5%
Central	46%	29%	15%	6%	4%
East Central	34%	13%	34%	16%	3%
Southwest	25%	35%	30%	5%	5%
South Central	41%	24%	6%	29%	0%
Southeast	32%	36%	12%	12%	8%

Table 50. Elevator unloading time ratings by grain producers in CRD

	Not at all		Somewhat		Definitely
	1	2	3	4	5
Northwest	32%	20%	17%	19%	12%
North Central	28%	26%	21%	21%	5%
Northeast	48%	21%	14%	7%	10%
West Central	24%	26%	21%	10%	19%
Central	33%	15%	29%	15%	8%
East Central	23%	14%	29%	9%	26%
Southwest	15%	15%	35%	25%	10%
South Central	26%	21%	21%	21%	11%
Southeast	31%	23%	19%	15%	12%

Table 51. Distance to preferred market ratings by grain producers in CRD

	Not at all		Somewhat		Definitely
	1	2	3	4	5
Northwest	32%	25%	26%	12%	4%
North Central	35%	30%	22%	6%	6%
Northeast	37%	27%	17%	17%	3%
West Central	27%	31%	15%	25%	2%
Central	33%	24%	22%	16%	6%
East Central	32%	37%	16%	11%	5%
Southwest	40%	25%	25%	5%	5%
South Central	32%	11%	26%	21%	11%
Southeast	32%	24%	32%	8%	4%

Table 52. Trucking cost ratings by grain producers in CRD

	Not at all		Somewhat		Definitely
	1	2	3	4	5
Northwest	18%	20%	25%	17%	20%
North Central	22%	12%	29%	23%	14%
Northeast	26%	16%	23%	16%	19%
West Central	14%	14%	21%	21%	30%
Central	11%	17%	28%	17%	28%
East Central	13%	18%	26%	15%	28%
Southwest	10%	20%	35%	15%	20%
South Central	10%	15%	25%	15%	35%
Southeast	19%	4%	46%	8%	23%

Table 53. Rail service access ratings by grain producers in CRD

	Not at all		Somewhat		Definitely
	1	2	3	4	5
Northwest	37%	16%	21%	11%	16%
North Central	29%	23%	19%	14%	15%
Northeast	21%	18%	29%	18%	14%
West Central	20%	30%	22%	15%	13%
Central	29%	24%	20%	7%	20%
East Central	35%	10%	23%	10%	23%
Southwest	29%	35%	6%	6%	24%
South Central	18%	6%	41%	18%	18%
Southeast	36%	21%	21%	0%	21%

Table 54. Rail service reliability ratings by grain producers in CRD

	Not at all		Somewhat		Definitely
	1	2	3	4	5
Northwest	29%	14%	26%	14%	17%
North Central	24%	17%	23%	19%	17%
Northeast	23%	23%	19%	23%	12%
West Central	18%	25%	32%	16%	9%
Central	18%	28%	10%	21%	23%
East Central	36%	11%	36%	14%	4%
Southwest	19%	25%	19%	13%	25%
South Central	33%	0%	47%	13%	7%
Southeast	36%	21%	29%	0%	14%

Table 55. Rail service cost ratings by grain producers in CRD

	Not at all		Somewhat		Definitely
	1	2	3	4	5
Northwest	24%	9%	24%	20%	22%
North Central	23%	14%	20%	23%	21%
Northeast	24%	16%	16%	32%	12%
West Central	15%	15%	29%	17%	24%
Central	24%	16%	11%	19%	30%
East Central	37%	15%	33%	11%	4%
Southwest	21%	7%	21%	7%	43%
South Central	29%	0%	50%	21%	0%
Southeast	36%	21%	29%	7%	7%

Table 56. Percentage of corn market for CRD elevators

	Northwest	North Central	Northeast	West Central	Central	East Central	Southwest	South Central	Southeast
Iowa feeders	56.5%	18.0%	26.1%	55.7%	24.4%	10.3%	6.3%	NA	22.7%
Out-of-state feeders	2.2%	0.2%	0.0%	19.7%	23.5%	0.6%	42.4%	NA	6.2%
Iowa ethanol plants	33.4%	55.9%	46.2%	15.2%	31.3%	14.5%	2.9%	NA	7.3%
Out-of-state ethanol plants	1.3%	0.0%	0.0%	0.0%	0.0%	0.0%	1.7%	NA	0.3%
Iowa processors	3.0%	16.2%	21.6%	0.0%	14.4%	61.6%	19.1%	NA	35.3%
Out-of-state processors	0.0%	4.6%	0.0%	0.0%	5.6%	0.0%	21.3%	NA	0.0%
Illinois River terminals	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	2.8%	NA	0.0%
Mississippi River terminals	0.0%	1.5%	5.9%	0.8%	0.0%	7.8%	0.0%	NA	10.2%
Missouri River terminals	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	NA	0.0%
Gulf Coast	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.5%	NA	18.0%
West Coast	0.0%	0.4%	0.0%	8.6%	0.0%	0.0%	0.0%	NA	0.0%
Mexico	3.5%	3.2%	0.0%	0.0%	0.0%	0.0%	0.0%	NA	0.0%
Other exports	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	NA	0.0%
Other	0.0%	0.0%	0.0%	0.0%	0.7%	5.2%	0.0%	NA	0.0%

Table 57. Share of corn shipments from CRD elevators by transportation mode

	Trucks	Rail	Barges
Northwest	94%	6%	0%
North Central	74%	26%	0%
Northeast	87%	13%	0%
West Central	72%	28%	0%
Central	71%	29%	0%
East Central	93%	7%	0%
Southwest	20%	80%	0%
South Central	NA	NA	NA
Southeast	76%	0%	24%

Table 58. Percentage of soybean market for CRD elevators

	Northwest	North Central	Northeast	West Central	Central	East Central	Southwest	South Central	Southeast
Iowa processors	83.3%	75.7%	78.0%	100.0%	99.2%	38.8%	73.5%	62.1%	4.3%
Out-of-state processors	9.5%	12.4%	5.5%	0.0%	0.0%	26.9%	0.1%	37.9%	28.1%
Illinois River terminals	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Mississippi River terminals	0.0%	5.9%	13.5%	0.0%	0.8%	34.3%	0.0%	0.0%	27.7%
Missouri River terminals	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other rivers	3.2%	5.9%	3.0%	0.0%	0.0%	0.0%	7.8%	0.0%	39.9%
Gulf Coast	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.7%	0.0%	0.0%
West Coast	4.0%	0.0%	0.0%	0.0%	0.0%	0.0%	14.9%	0.0%	0.0%
Mexico	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other exports	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Table 59. Share of soybean shipments from CRD elevators by transportation mode

	Trucks	Rail	Barges
Northwest	65%	35%	0%
North Central	56%	44%	0%
Northeast	81%	19%	0%
West Central	70%	30%	0%
Central	66%	34%	0%
East Central	67%	33%	0%
Southwest	40%	60%	0%
South Central	NA	NA	NA
Southeast	45%	14%	42%

Table 60. Estimated volume of ethanol co-products handled by CRD country elevators and distance from country elevators to the source of co-products

	Ethanol co-products (tons)	Average distance (miles)	Maximum distance (miles)
Northwest	3,314,973	33.82	69.76
North Central	315,465	19.83	32.33
Northeast	274,877	50.33	106.38
West Central	628,027	35.83	76.00
Central	NA	NA	NA
East Central	NA	NA	NA
Southwest	NA	NA	NA
South Central	NA	NA	NA
Southeast	164,805	63.57	80.00

Table 61. Percentage of feed delivery trucks by size and by CRD

	2006/07				2007/08			
	6-ton	12-ton	18-ton	24-ton	6-ton	12-ton	18-ton	24-ton
Northwest	17%	30%	24%	29%	18%	27%	23%	32%
North Central	18%	8%	21%	53%	16%	13%	20%	51%
Northeast	26%	28%	25%	21%	32%	21%	18%	29%
West Central	34%	19%	20%	27%	NA	NA	NA	NA
Central	12%	18%	31%	39%	NA	NA	NA	NA
East Central	8%	9%	24%	59%	NA	NA	NA	NA
Southwest	59%	0%	25%	16%	NA	NA	NA	NA
South Central	32%	28%	18%	22%	NA	NA	NA	NA
Southeast	37%	18%	14%	31%	NA	NA	NA	NA

Table 62. Estimated travel distance of feed delivery trucks by size and by CRD

	Truck Weight							
	6-ton		12-ton		18-ton		24-ton	
	Avg.	Max.	Avg.	Max.	Avg.	Max.	Avg.	Max.
Northwest	18.0	17.9	21.3	38.3	35.7	43.8	45.2	77.8
North Central	10.4	17.2	25.4	25.8	31.7	41.8	50.6	68.1
Northeast	10.2	15.0	17.9	20.1	25.8	37.8	50.0	59.1
West Central	14.0	14.1	23.9	34.5	41.3	40.0	67.5	63.5
Central	19.5	19.3	44.0	60.4	37.5	44.6	86.7	140.7
East Central	15.0	16.0	15.1	30.1	29.7	49.2	39.6	95.5
Southwest	19.0	20.0	15.0	50.0	37.5	60.0	65.0	350.0
South Central	NA	NA	NA	NA	NA	NA	NA	NA
Southeast	10.0	14.3	25.0	19.3	34.4	45.0	64.3	54.0

Table 63. Rail line ratings by country elevators in CRD

	Poor		Average		Excellent
	1	2	3	4	5
Northwest	9%	18%	73%	0%	0%
North Central	0%	33%	58%	8%	0%
Northeast	0%	9%	36%	45%	9%
West Central	17%	0%	17%	67%	0%
Central	0%	0%	70%	30%	0%
East Central	20%	20%	60%	0%	0%
Southwest	0%	0%	50%	50%	0%
South Central	NA	NA	NA	NA	NA
Southeast	0%	0%	100%	0%	0%

Table 64. Interstate ratings by country elevators in CRD

	Poor		Average		Excellent
	1	2	3	4	5
Northwest	6%	6%	44%	33%	11%
North Central	0%	7%	60%	20%	13%
Northeast	6%	0%	28%	61%	6%
West Central	0%	0%	45%	45%	9%
Central	0%	6%	56%	33%	6%
East Central	0%	7%	64%	29%	0%
Southwest	0%	0%	43%	57%	0%
South Central	NA	NA	NA	NA	NA
Southeast	0%	0%	33%	56%	11%

Table 65. Primary state highway ratings by country elevators in CRD

	Poor		Average		Excellent
	1	2	3	4	5
Northwest	5%	18%	36%	41%	0%
North Central	7%	27%	53%	13%	0%
Northeast	5%	24%	38%	33%	0%
West Central	0%	9%	36%	45%	9%
Central	5%	26%	47%	21%	0%
East Central	7%	21%	43%	29%	0%
Southwest	0%	0%	75%	25%	0%
South Central	NA	NA	NA	NA	NA
Southeast	0%	0%	62%	38%	0%

Table 66. Paved county road ratings by country elevators in CRD

	Poor		Average		Excellent
	1	2	3	4	5
Northwest	5%	18%	50%	23%	5%
North Central	7%	27%	53%	13%	0%
Northeast	19%	43%	19%	19%	0%
West Central	0%	18%	27%	55%	0%
Central	11%	26%	63%	0%	0%
East Central	0%	20%	73%	7%	0%
Southwest	0%	13%	75%	13%	0%
South Central	NA	NA	NA	NA	NA
Southeast	0%	15%	62%	23%	0%

Table 67. Unimproved gravel road ratings by country elevators in CRD

	Poor		Average		Excellent
	1	2	3	4	5
Northwest	5%	19%	48%	24%	5%
North Central	13%	33%	33%	20%	0%
Northeast	29%	29%	38%	5%	0%
West Central	0%	27%	27%	45%	0%
Central	6%	39%	44%	11%	0%
East Central	20%	40%	40%	0%	0%
Southwest	0%	38%	25%	38%	0%
South Central	NA	NA	NA	NA	NA
Southeast	15%	38%	38%	8%	0%

Table 68. Waterway ratings by country elevators in CRD

	Poor		Average		Excellent
	1	2	3	4	5
Northwest	0%	0%	88%	13%	0%
North Central	17%	0%	67%	17%	0%
Northeast	0%	20%	60%	20%	0%
West Central	0%	0%	33%	67%	0%
Central	0%	50%	0%	50%	0%
East Central	0%	0%	83%	17%	0%
Southwest	0%	0%	67%	33%	0%
South Central	NA	NA	NA	NA	NA
Southeast	0%	20%	40%	40%	0%

Table 69. Road weight restriction ratings by country elevators in CRD

	Not at all		Somewhat		Definitely
	1	2	3	4	5
Northwest	37%	21%	26%	11%	5%
North Central	20%	27%	33%	13%	7%
Northeast	25%	30%	20%	5%	20%
West Central	27%	45%	18%	9%	0%
Central	32%	21%	32%	5%	11%
East Central	33%	7%	33%	13%	13%
Southwest	14%	43%	14%	14%	14%
South Central	NA	NA	NA	NA	NA
Southeast	33%	25%	42%	0%	0%

Table 70. Bridge weight restriction ratings by country elevators in CRD

	Not at all		Somewhat		Definitely
	1	2	3	4	5
Northwest	33%	17%	22%	22%	6%
North Central	33%	7%	27%	20%	13%
Northeast	25%	5%	15%	20%	35%
West Central	18%	45%	18%	18%	0%
Central	32%	26%	26%	0%	16%
East Central	33%	33%	20%	7%	7%
Southwest	14%	29%	29%	14%	14%
South Central	NA	NA	NA	NA	NA
Southeast	33%	8%	33%	0%	25%

Table 71. Availability of seasonal labor ratings by country elevators in CRD

	Not at all		Somewhat		Definitely
	1	2	3	4	5
Northwest	5%	20%	25%	15%	35%
North Central	13%	20%	13%	20%	33%
Northeast	11%	26%	21%	21%	21%
West Central	18%	9%	27%	18%	27%
Central	11%	17%	39%	22%	11%
East Central	14%	21%	29%	21%	14%
Southwest	14%	0%	14%	29%	43%
South Central	NA	NA	NA	NA	NA
Southeast	27%	27%	36%	9%	0%

Table 72. Facility storage capacity ratings by country elevators in CRD

	Not at all		Somewhat		Definitely
	1	2	3	4	5
Northwest	5%	14%	43%	24%	14%
North Central	36%	7%	7%	36%	14%
Northeast	26%	26%	16%	11%	21%
West Central	9%	9%	36%	36%	9%
Central	18%	29%	29%	12%	12%
East Central	0%	38%	23%	23%	15%
Southwest	13%	13%	25%	25%	25%
South Central	NA	NA	NA	NA	NA
Southeast	15%	23%	38%	15%	8%

Table 73. Facility unloading time ratings by country elevators in CRD

	Not at all		Somewhat		Definitely
	1	2	3	4	5
Northwest	19%	14%	29%	24%	14%
North Central	33%	13%	7%	20%	27%
Northeast	26%	26%	21%	16%	11%
West Central	9%	18%	45%	9%	18%
Central	41%	12%	29%	12%	6%
East Central	29%	21%	36%	7%	7%
Southwest	13%	13%	63%	13%	0%
South Central	NA	NA	NA	NA	NA
Southeast	43%	21%	14%	7%	14%

Table 74. Trucking cost ratings by country elevators in CRD

	Not at all		Somewhat		Definitely
	1	2	3	4	5
Northwest	5%	10%	38%	24%	24%
North Central	0%	0%	14%	50%	36%
Northeast	5%	5%	14%	24%	52%
West Central	0%	9%	55%	9%	27%
Central	0%	0%	11%	39%	50%
East Central	0%	0%	13%	40%	47%
Southwest	13%	0%	25%	13%	50%
South Central	NA	NA	NA	NA	NA
Southeast	0%	14%	43%	14%	29%

Table 75. Rail service access ratings by country elevators in CRD

	Not at all		Somewhat		Definitely
	1	2	3	4	5
Northwest	21%	14%	21%	21%	21%
North Central	25%	25%	0%	25%	25%
Northeast	17%	17%	17%	25%	25%
West Central	67%	33%	0%	0%	0%
Central	58%	17%	8%	0%	17%
East Central	0%	67%	0%	0%	33%
Southwest	29%	14%	14%	14%	29%
South Central	NA	NA	NA	NA	NA
Southeast	71%	0%	0%	14%	14%

Table 76. Rail service reliability ratings by country elevators in CRD

	Not at all		Somewhat		Definitely
	1	2	3	4	5
Northwest	20%	20%	10%	30%	20%
North Central	10%	10%	30%	30%	20%
Northeast	25%	13%	25%	13%	25%
West Central	17%	50%	17%	17%	0%
Central	40%	10%	20%	10%	20%
East Central	33%	33%	0%	33%	0%
Southwest	17%	17%	17%	17%	33%
South Central	NA	NA	NA	NA	NA
Southeast	100%	0%	0%	0%	0%

Table 77. Rail service cost ratings by country elevators in CRD

	Not at all		Somewhat		Definitely
	1	2	3	4	5
Northwest	20%	10%	10%	20%	40%
North Central	11%	0%	33%	22%	33%
Northeast	13%	13%	25%	38%	13%
West Central	0%	17%	17%	50%	17%
Central	40%	0%	30%	10%	20%
East Central	33%	33%	0%	0%	33%
Southwest	17%	17%	0%	33%	33%
South Central	NA	NA	NA	NA	NA
Southeast	100%	0%	0%	0%	0%

Table 78. Barge service access ratings by country elevators in CRD

	Not at all		Somewhat		Definitely
	1	2	3	4	5
Northwest	75%	0%	0%	0%	25%
North Central	40%	40%	0%	20%	0%
Northeast	27%	33%	13%	20%	7%
West Central	100%	0%	0%	0%	0%
Central	80%	20%	0%	0%	0%
East Central	50%	0%	25%	25%	0%
Southwest	50%	50%	0%	0%	0%
South Central	NA	NA	NA	NA	NA
Southeast	86%	0%	0%	14%	0%

Table 79. Barge service reliability ratings by country elevators in CRD

	Not at all		Somewhat		Definitely
	1	2	3	4	5
Northwest	75%	0%	0%	0%	25%
North Central	40%	40%	0%	0%	20%
Northeast	8%	38%	15%	31%	8%
West Central	100%	0%	0%	0%	0%
Central	80%	20%	0%	0%	0%
East Central	25%	50%	25%	0%	0%
Southwest	100%	0%	0%	0%	0%
South Central	NA	NA	NA	NA	NA
Southeast	43%	29%	14%	14%	0%

Table 80. Barge service cost ratings by country elevators in CRD

	Not at all		Somewhat		Definitely
	1	2	3	4	5
Northwest	75%	0%	0%	0%	25%
North Central	40%	40%	0%	0%	20%
Northeast	0%	9%	36%	36%	18%
West Central	100%	0%	0%	0%	0%
Central	80%	20%	0%	0%	0%
East Central	25%	25%	0%	25%	25%
Southwest	100%	0%	0%	0%	0%
South Central	NA	NA	NA	NA	NA
Southeast	43%	0%	29%	29%	0%

Figures

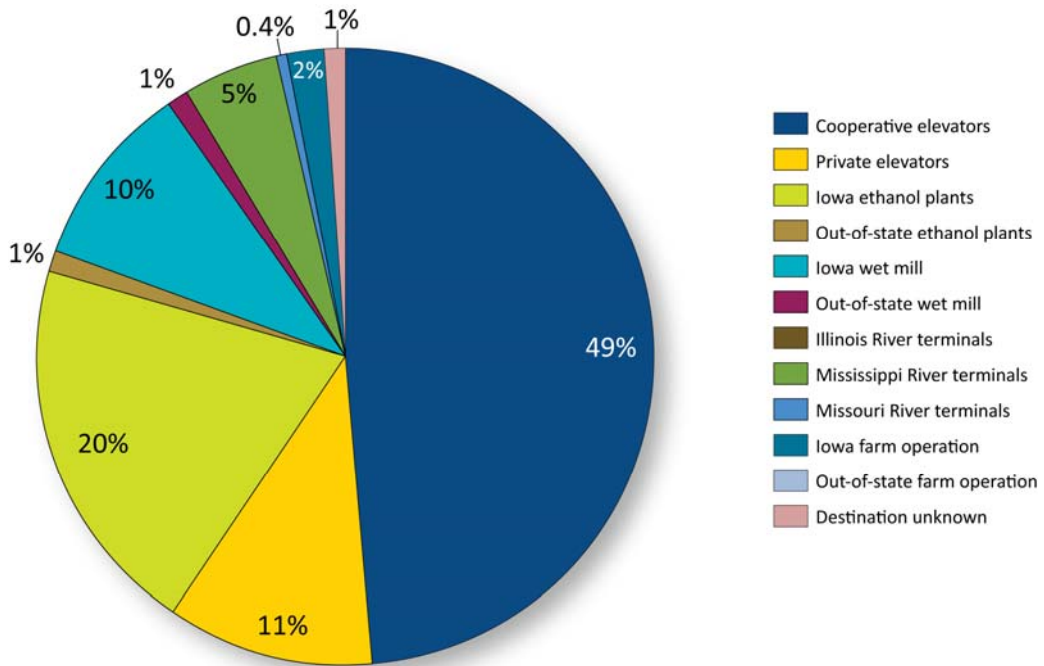


Figure 1. Markets for Iowa corn producers

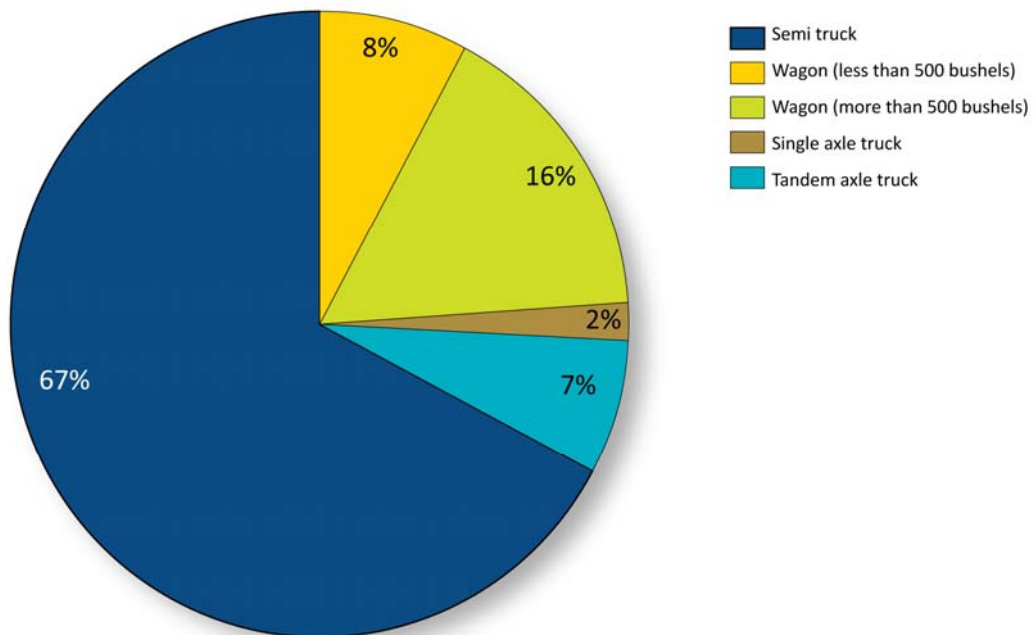


Figure 2. Modes of transportation for Iowa corn utilized by producers

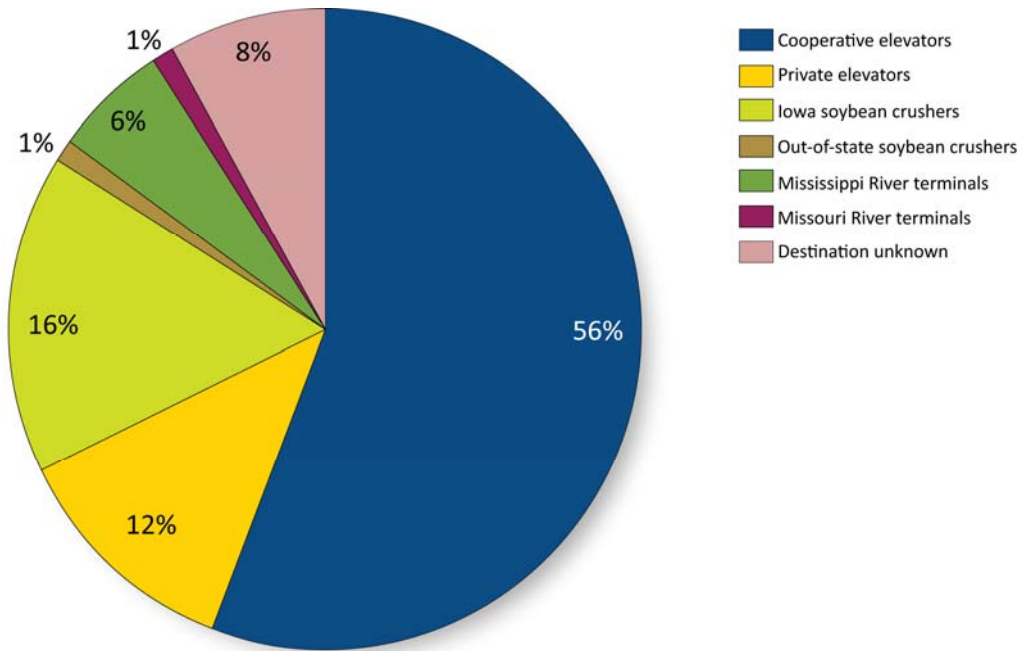


Figure 3. Markets for Iowa soybean producers

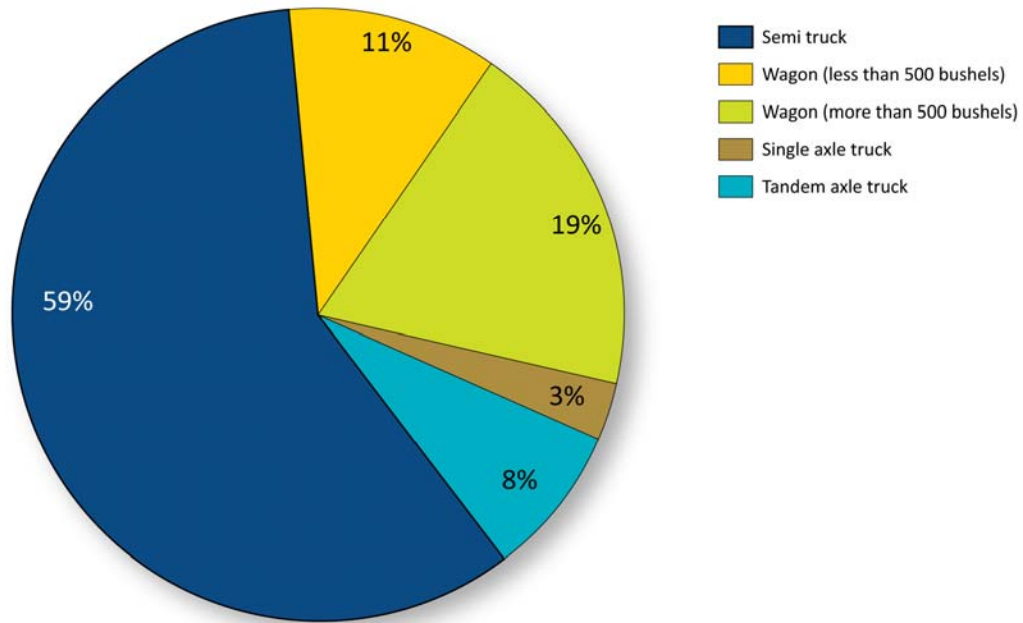


Figure 4. Modes of transportation for Iowa soybeans utilized by producers

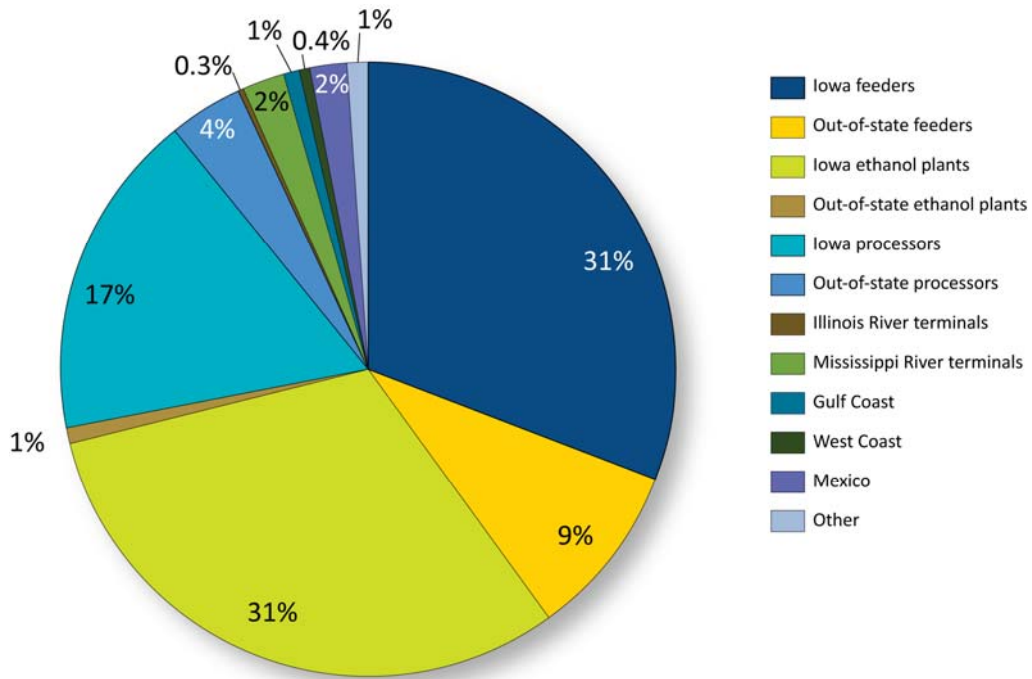


Figure 5. Markets for Iowa corn from country elevators

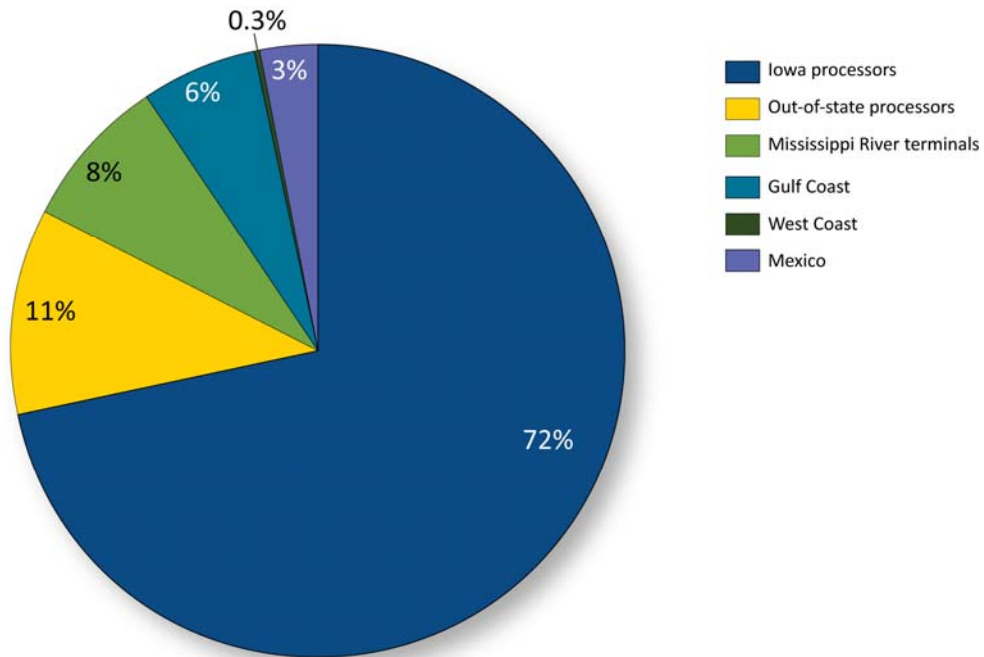


Figure 6. Markets for Iowa soybeans from country elevators

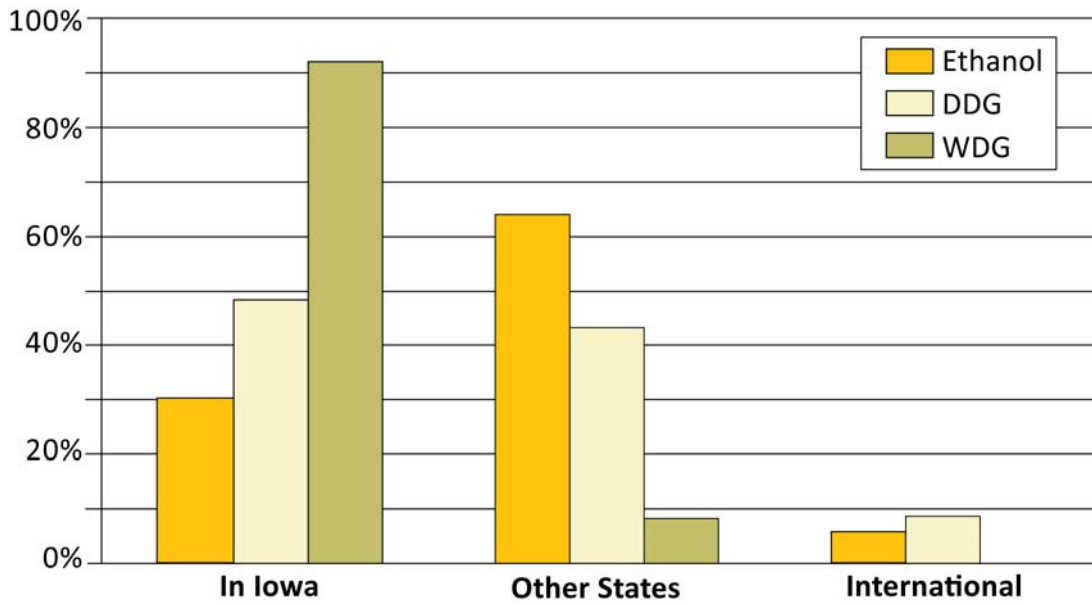
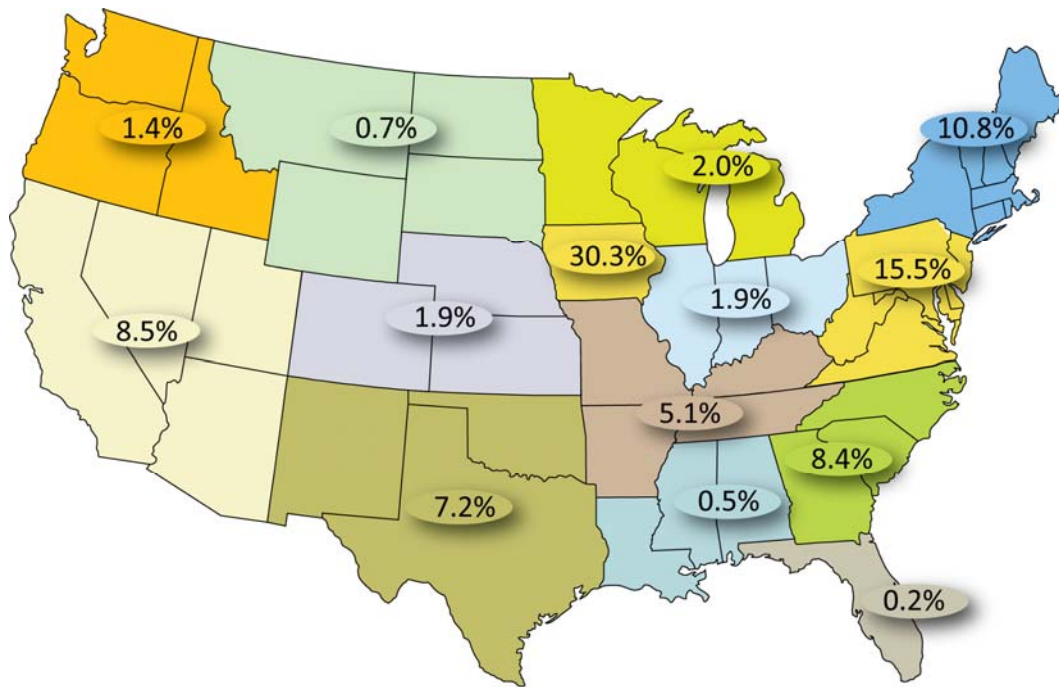
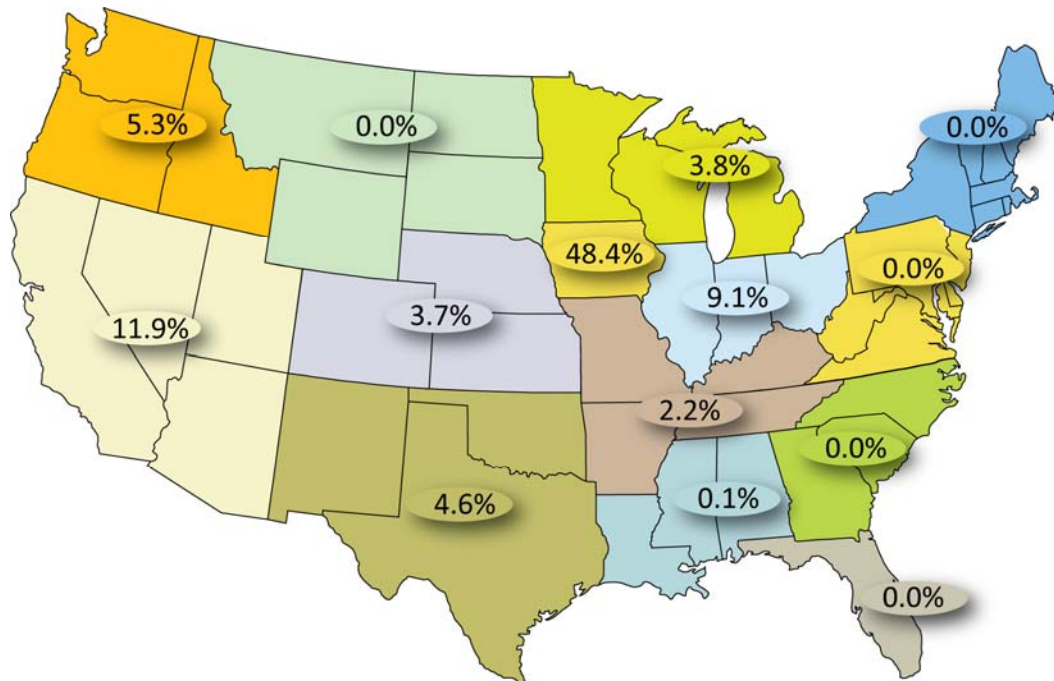


Figure 7. Markets for Iowa ethanol, DDG, and WDG from corn processors



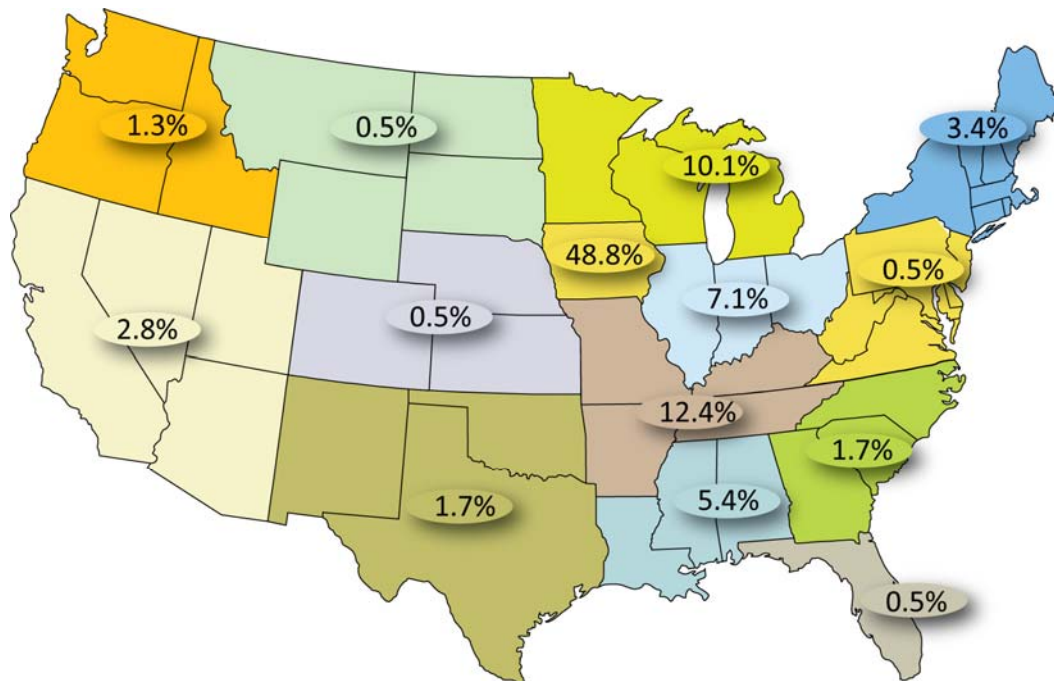
Note: Percentage sold to other countries or not identified = 5.6%

Figure 8. Percentage of Iowa ethanol sold



Note: Percentage sold to other countries or not identified = 10.8%

Figure 9. Percentage of Iowa dried distillers grain sold



Note: Percentage sold to other countries or not identified = 3.3%

Figure 10. Percentage of Iowa soybean meal destination market

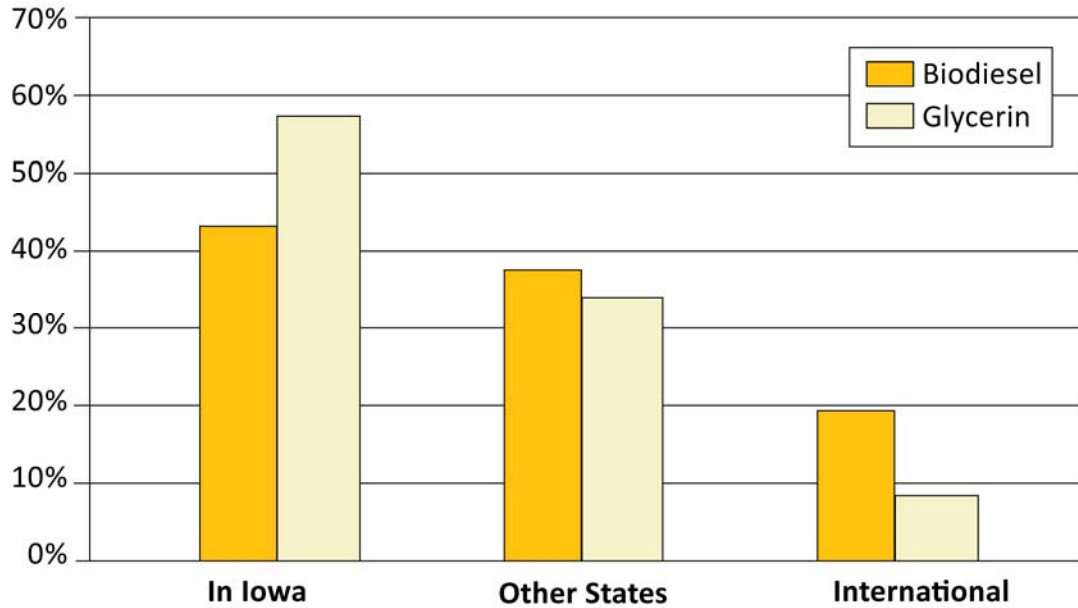
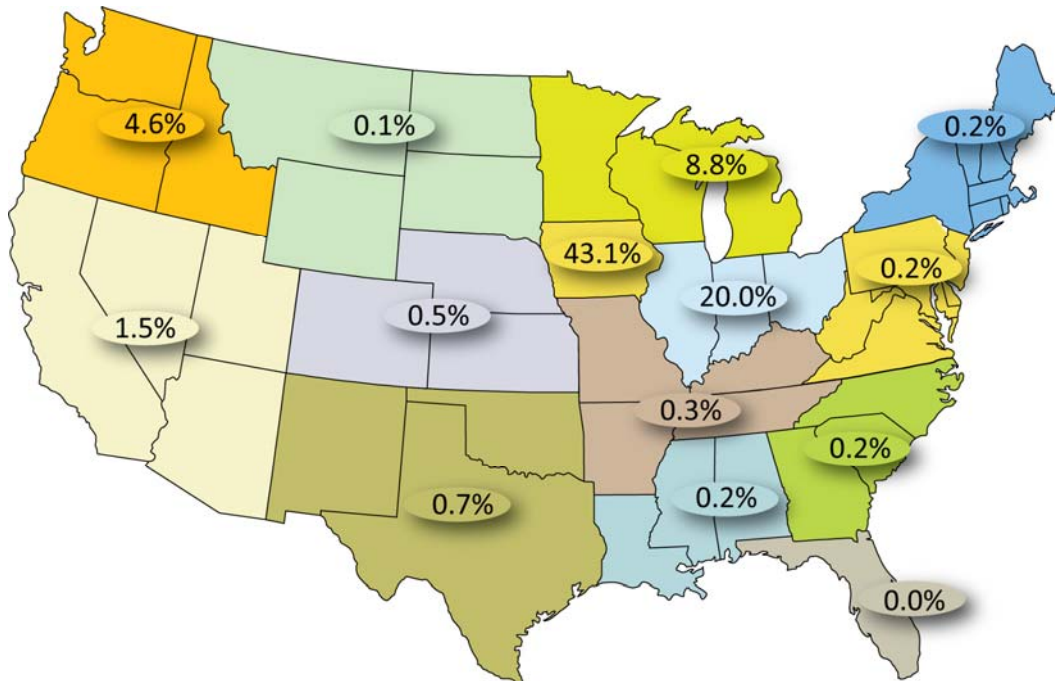
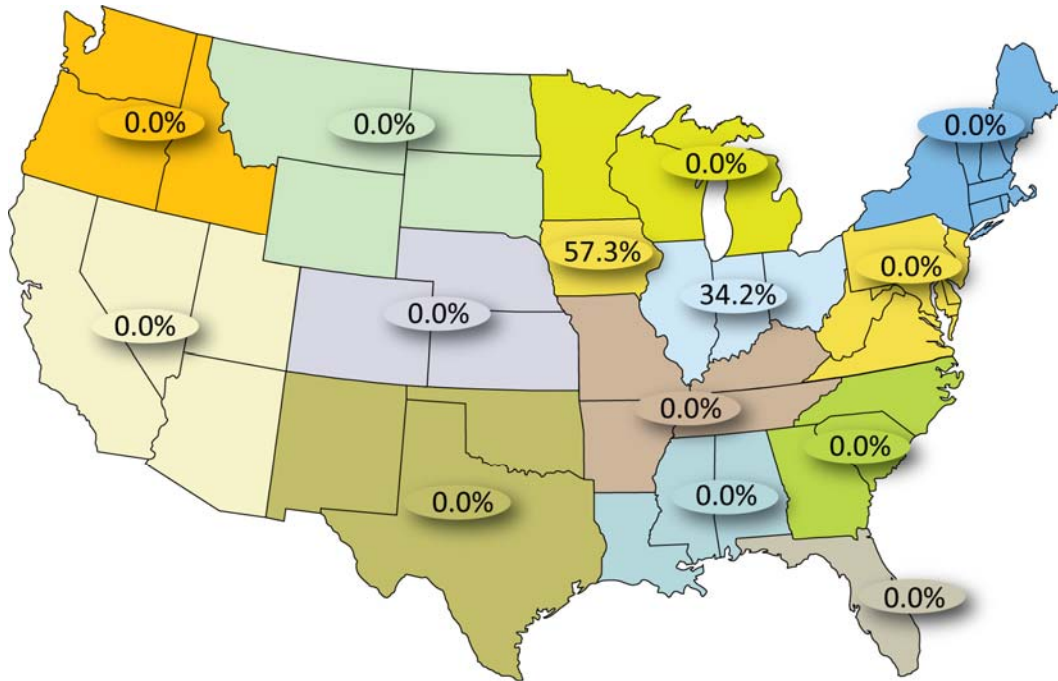


Figure 11. Markets for Iowa biodiesel and glycerin



Note: Percentage sold to other countries or not identified = 19.4%

Figure 12. Percentage of Iowa biodiesel sales at destination market



Note: Percentage sold to other countries or not identified = 8.5%

Figure 13. Percentage of Iowa glycerin sales at destination market

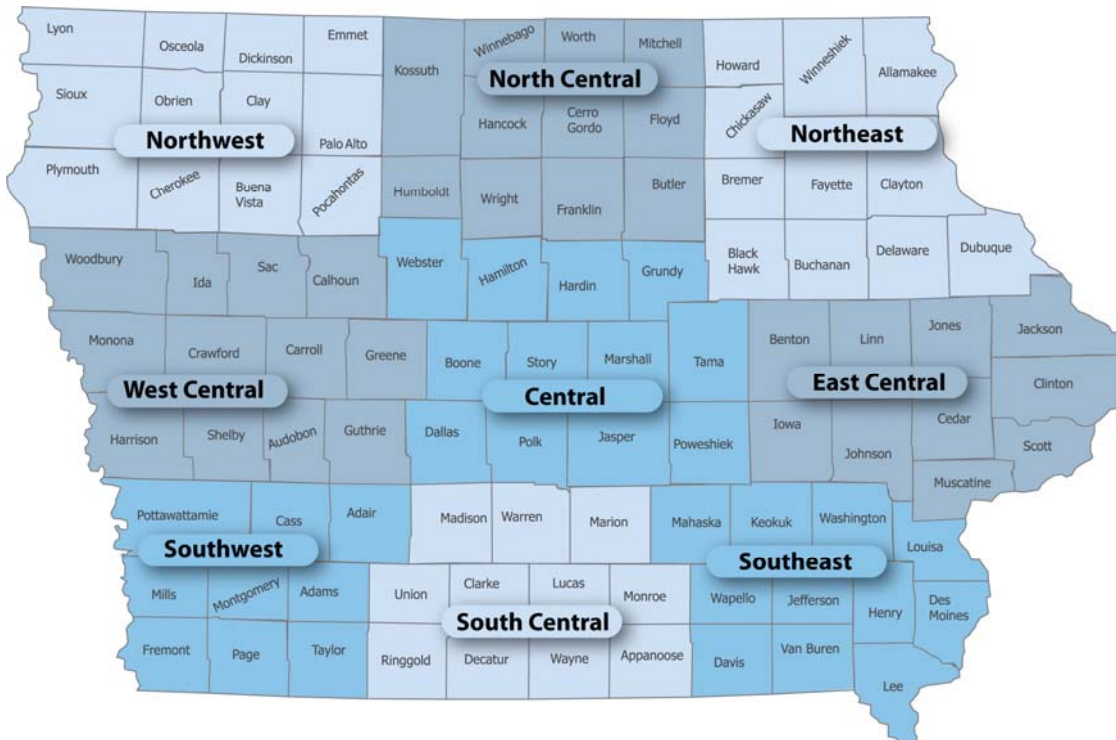


Figure 14. Iowa's crop reporting districts

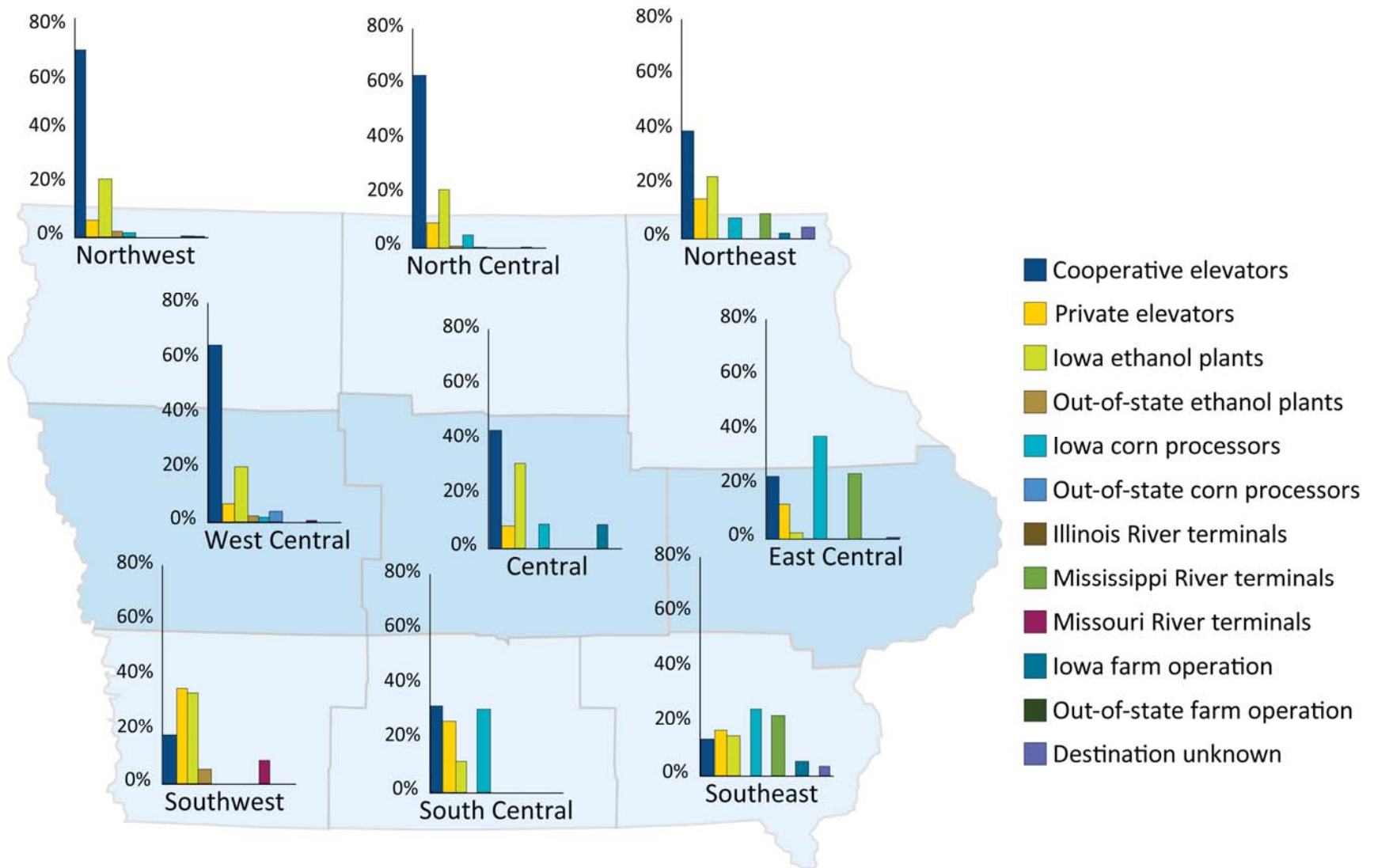


Figure 15. Percentage of market for CRD corn producers

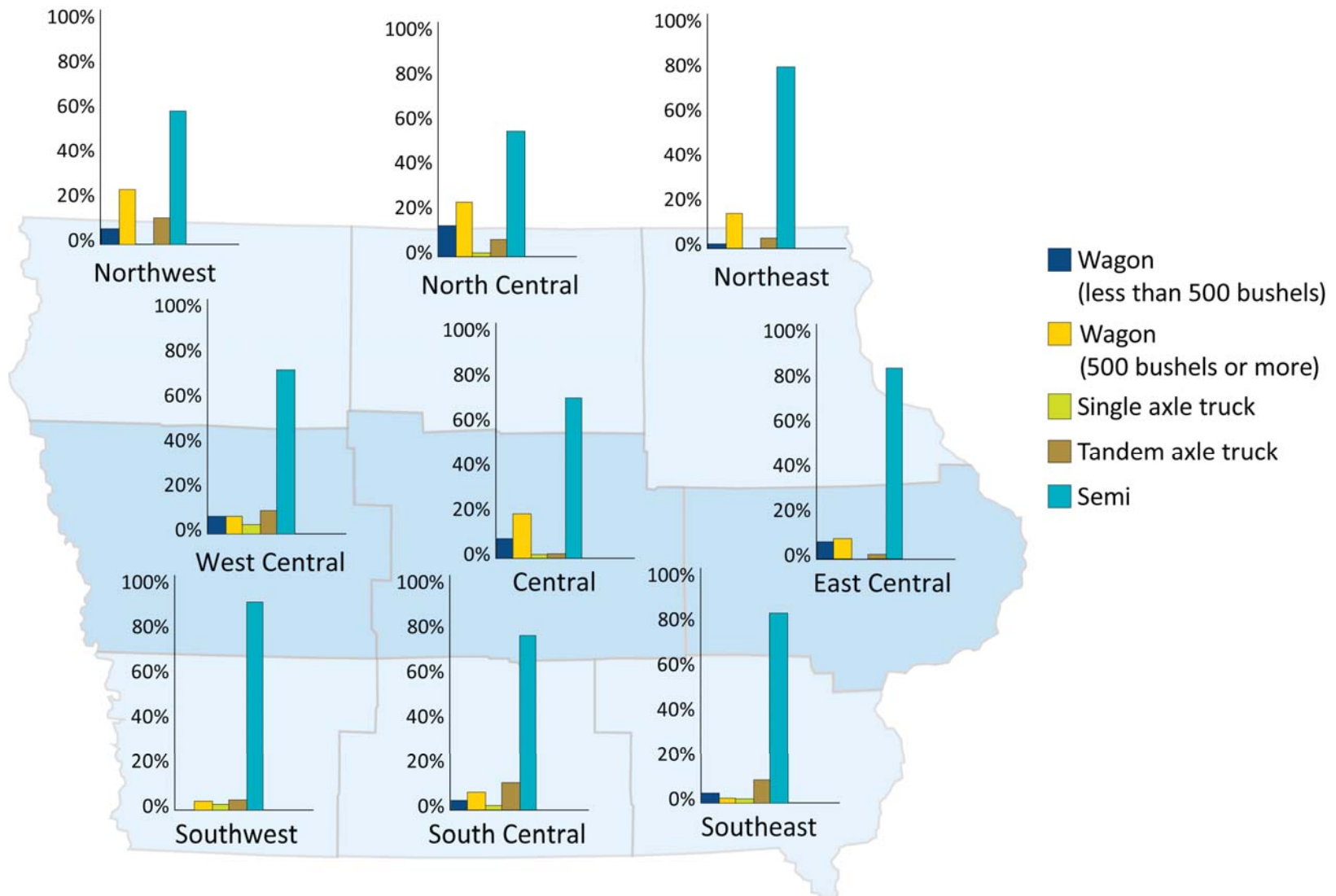


Figure 16. Corn shipments from CRD farms to markets by type of vehicle

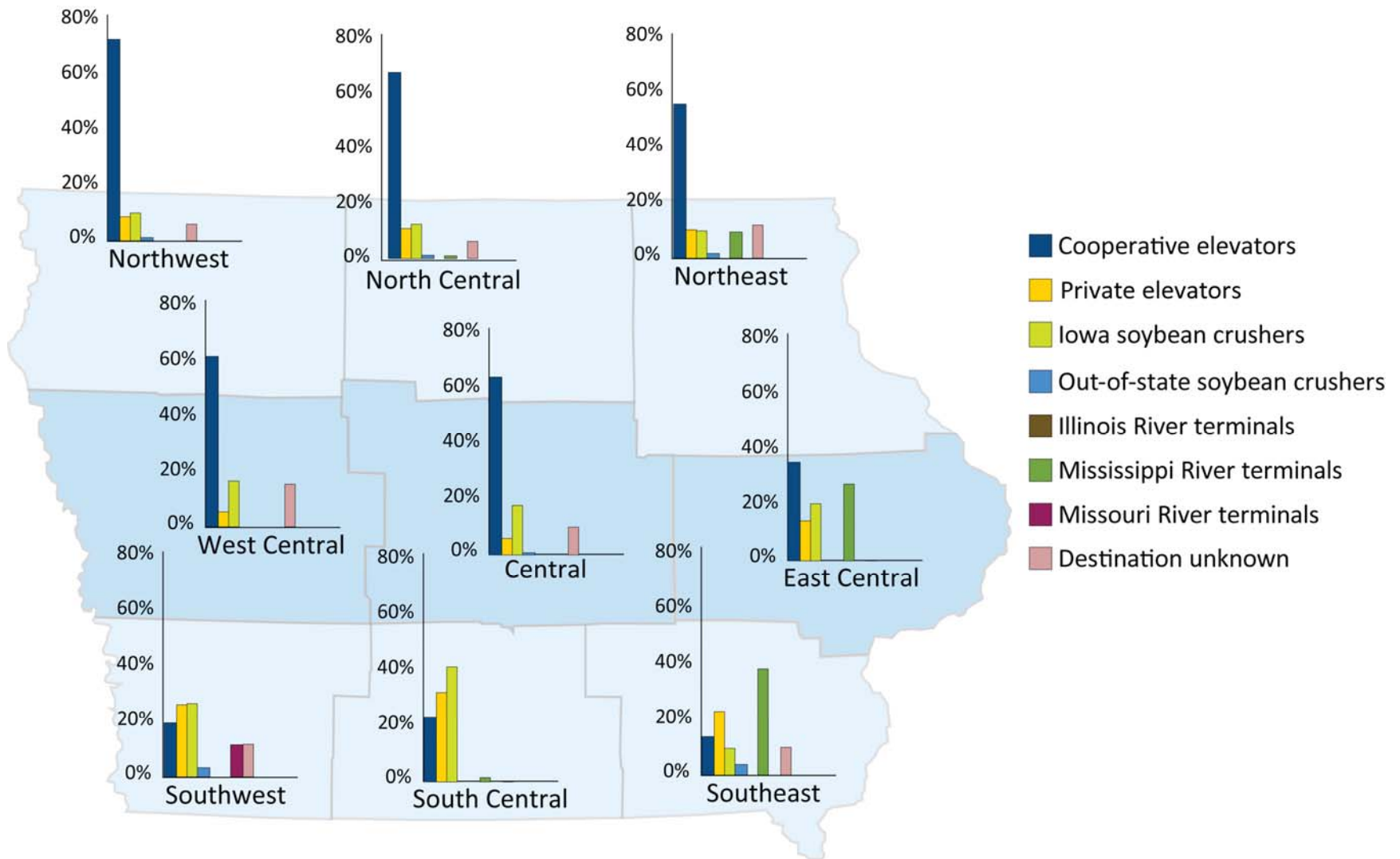


Figure 17. Percentage of market for CRD soybean producers

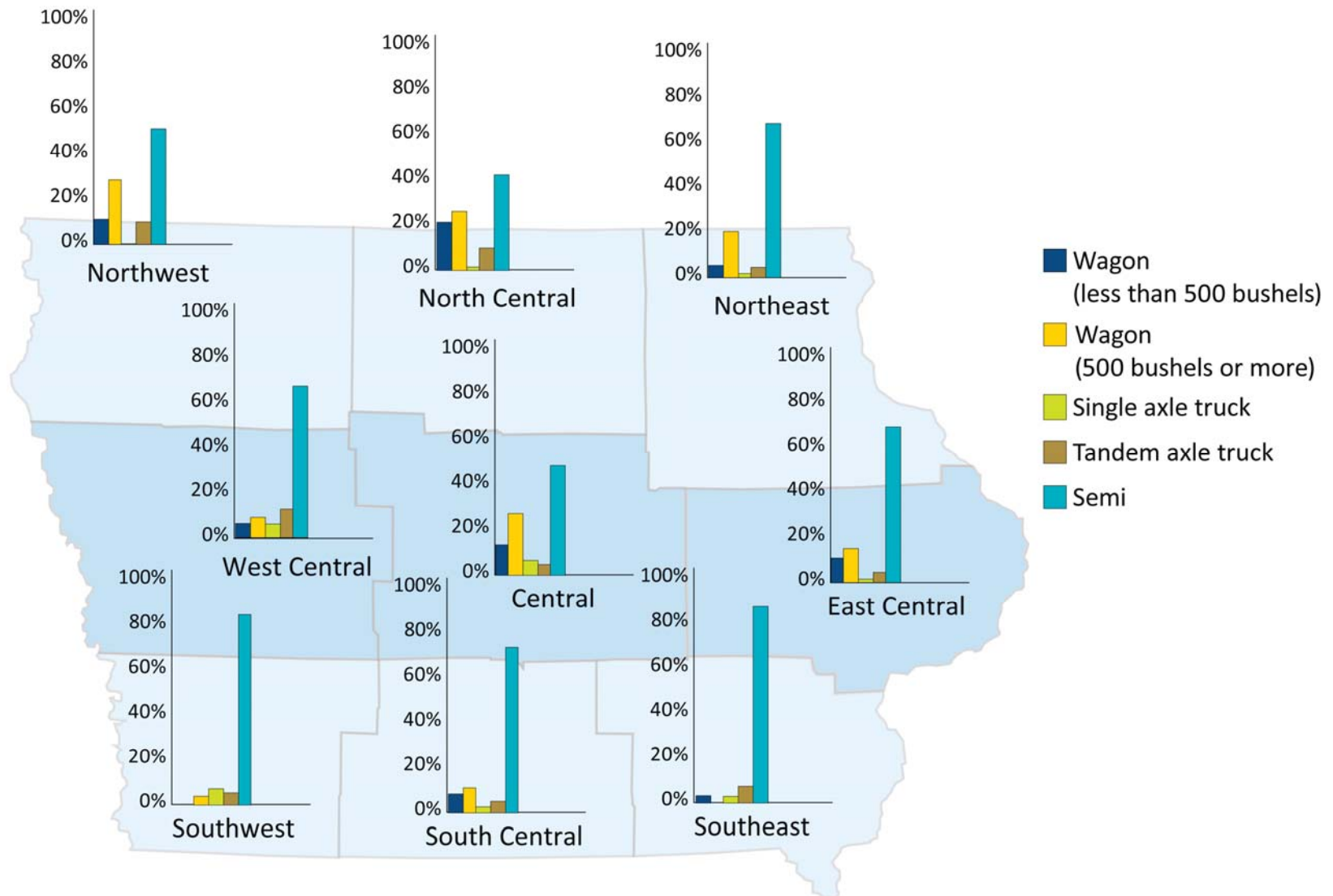


Figure 18. Soybean shipments from CRD farms to markets by type of vehicle

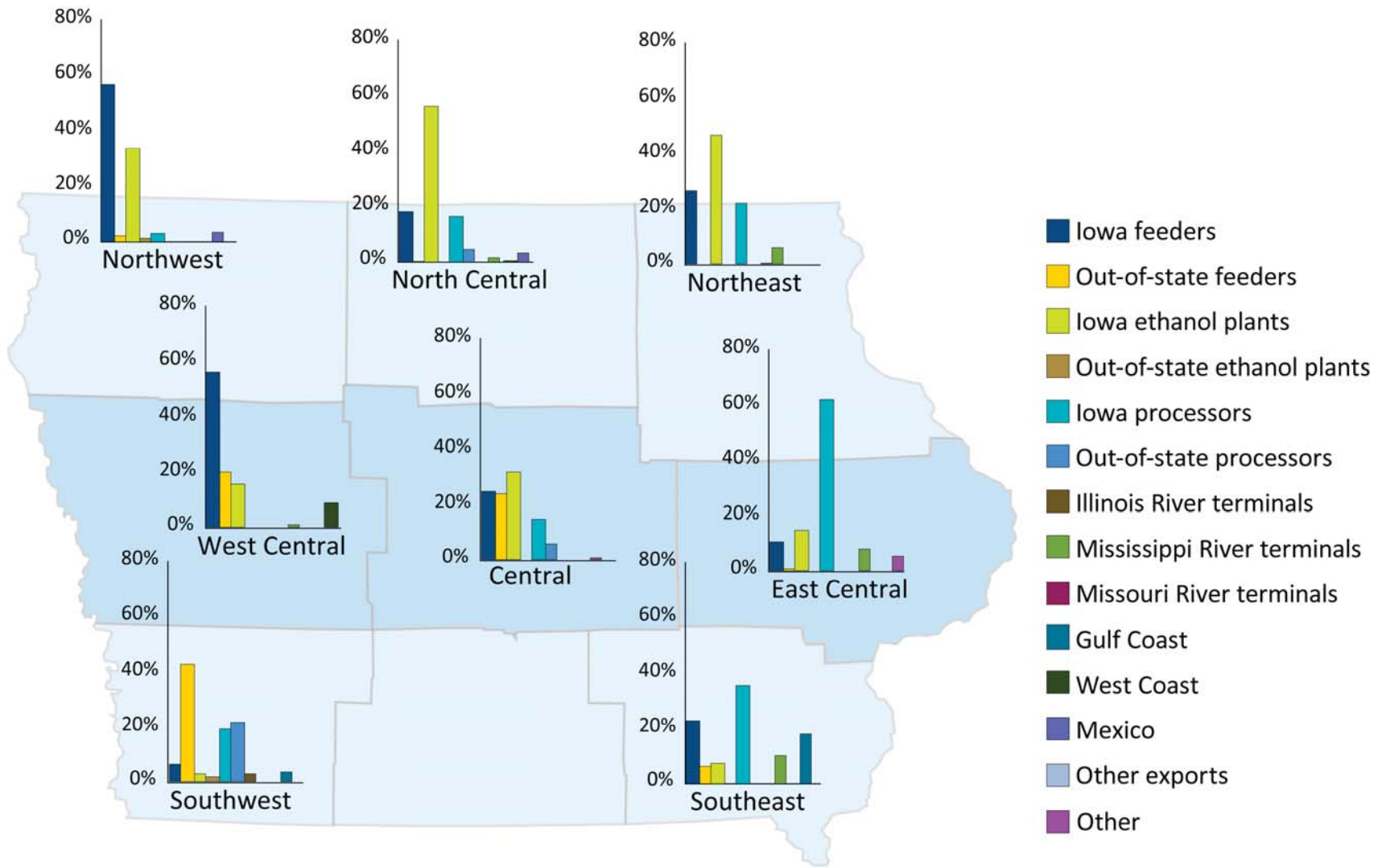


Figure 19. Percentage of corn market for CRD elevators

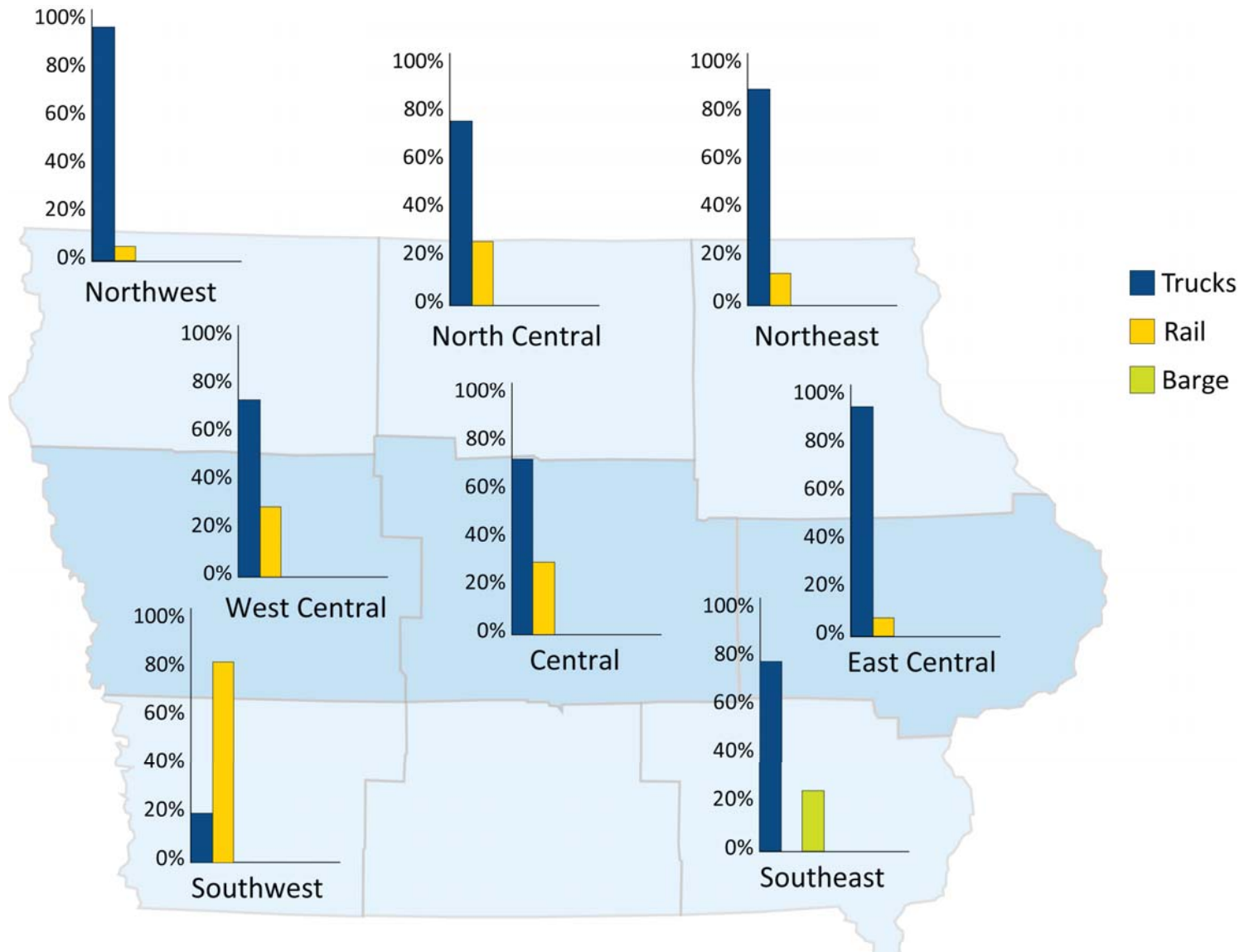


Figure 20. Share of corn shipments from CRD elevators by transportation mode

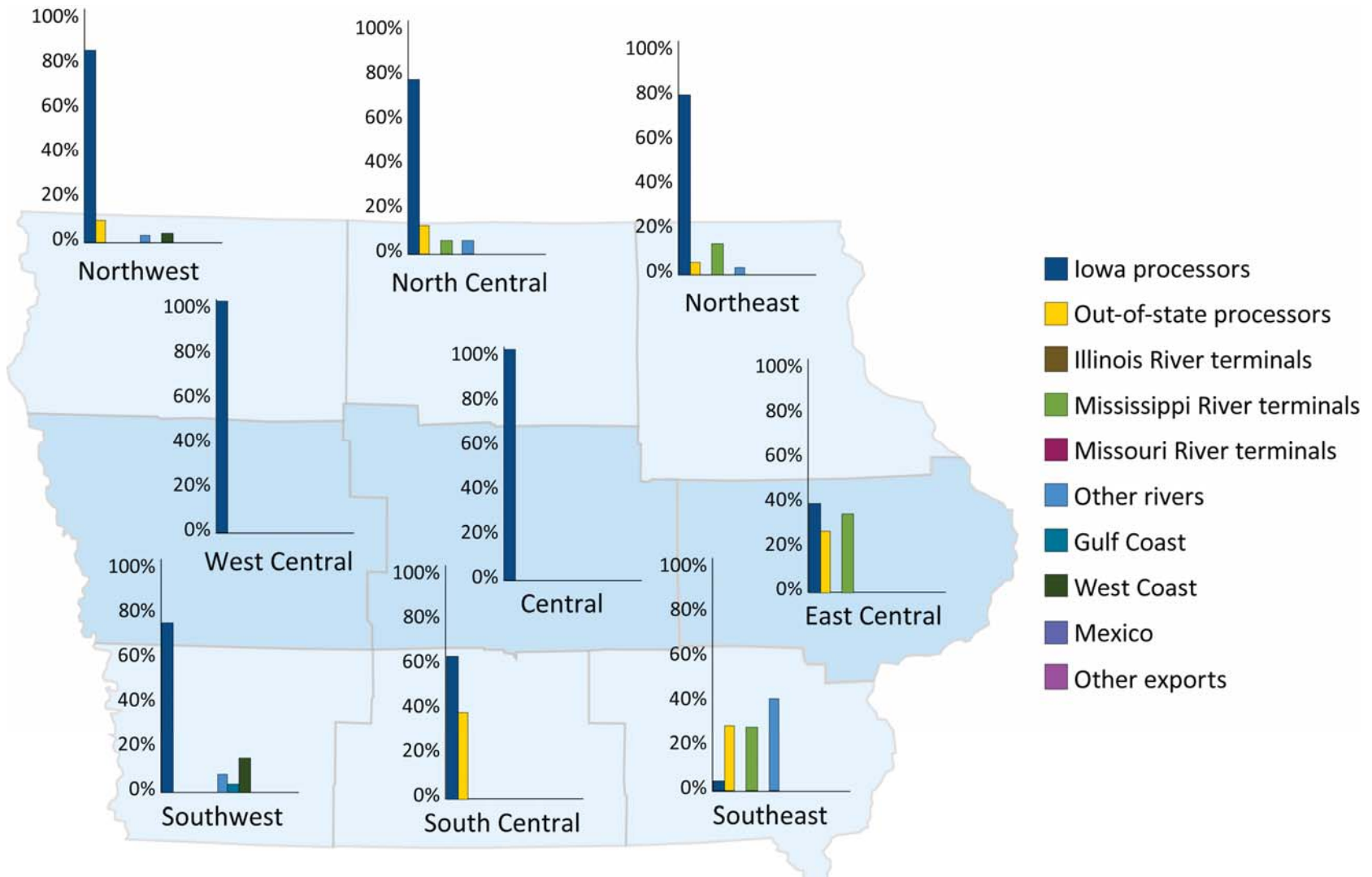


Figure 21. Percentage of soybean market for CRD elevators

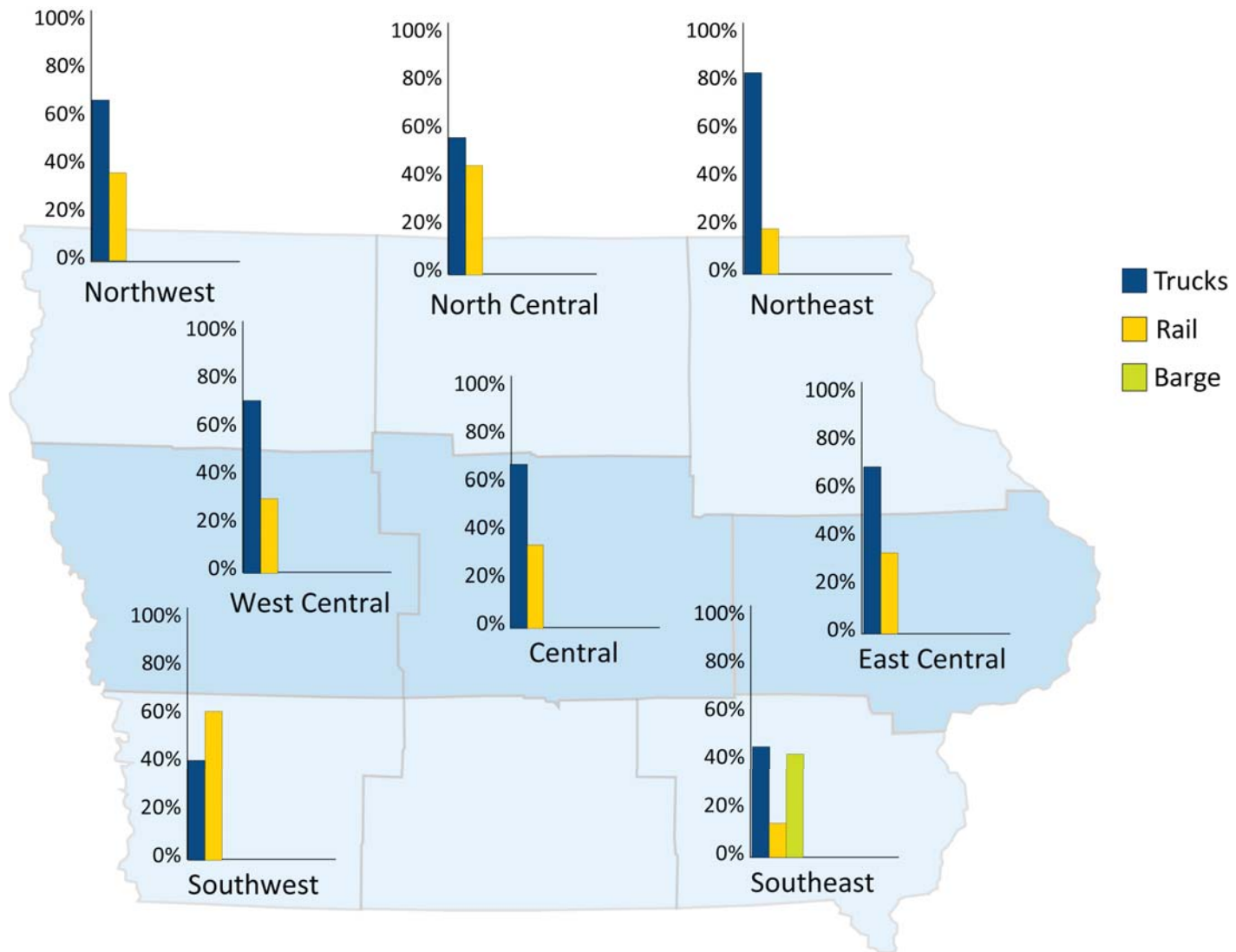


Figure 22. Share of soybean shipments from CRD elevators by transportation mode

Appendix A. Iowa Grain Marketers Survey

Iowa Grain Marketing Survey

1. How many bushels of corn were produced on this farm in **2007**

Bu.

If you had no corn produced, please skip to question 5.

2. How many acres of corn were planted on this farm in **2007**

ac.

3. How much of the **2007** corn crop was:

a) sold

bu.

b) used or to be used on this farm

bu.

c) not sold, but is expected to be sold

bu.

Total (*should equal answer in question 1*) =

bu.

4. Of the **2007** corn crop sold (question 3a), what was the destination from your farm and mode of transportation?

	<i>Wagon-Less than 500 Bu.</i>	<i>Wagon- 500 Bu. or more</i>	<i>Single axle truck</i>	<i>Tandem axle truck</i>	<i>Semi</i>
----- (Report in Bushels) -----					
a) Country elevator					
1) Cooperative elevators					
2) Private elevators					
b) Dedicated ethanol facility					
1) In Iowa.....					
2) Out of state					
c) Corn millers/processors					
1) In Iowa.....					
2) Out of state					
d) River terminals					
1) Illinois River					
2) Mississippi River					
3) Missouri River					
e) Another farm/feeding operation					
1) In Iowa.....					
2) Out of state					
f) Picked up from this farm, destination unknown					
g) Other (specify)					

5. How many bushels of soybeans were produced on this farm in **2007**?..... bu.
If you had no soybeans produced, please skip to question 9.

6. How many acres of soybeans were planted on this farm in **2007**? ac.

7. How much of the **2007** soybean crop was:

a) sold.....	bu.
b) used or to be used on this farm.....	bu.
c) not sold, but is expected to be sold.....	bu.
Total (should equal answer in question 5)..... =	bu.

8. Of the **2007** soybeans sold, what was the destination from your farm and mode of transportation?

	<i>Wagon-Less than 500 bu.</i>	<i>Wagon- 500 bu. or more</i>	<i>Single axle truck</i>	<i>Tandem axle truck</i>	<i>Semi</i>
----- (Report in Bushels)-----					
a) Country elevator					
1) Cooperative elevators					
2) Private elevators					
b) Soybean crusher					
1) In Iowa.....					
2) Out of state					
c) River terminals					
1) Illinois River					
2) Mississippi River					
3) Missouri River					
d) Picked up from this farm, destination unknown.....					
e) Other (specify)					

9. What type and how many grain hauling vehicles do you currently own and expect to own by the year 2012?

	<i>Current number</i>	<i>Projected for 2012</i>
a) Gravity flow wagons, less than 500 bushel capacity		
b) Gravity flow wagons, 500 or more bushel capacity		
c) Single axle truck		
d) Tandem axle truck		
d) Semi.....		
e) Other		

10. What is the average and the maximum distance you will move grain, for any reason, with the grain hauling equipment you have on your operation?

		<i>Corn</i>	<i>Soybean</i>
a) Gravity flow wagon, less than 500 bu.	<i>Average one-way miles</i>		
	<i>Maximum one-way miles</i>		
b) Gravity flow wagon, 500 bu or more.	<i>Average one-way miles</i>		
	<i>Maximum one-way miles</i>		
c) Single axle truck.....	<i>Average one-way miles</i>		
	<i>Maximum one-way miles</i>		
d) Tandem axle truck.....	<i>Average one-way miles</i>		
	<i>Maximum one-way miles</i>		
e) Semi	<i>Average one-way miles</i>		
	<i>Maximum one-way miles</i>		
f) Other	<i>Average one-way miles</i>		
	<i>Maximum one-way miles</i>		

11. How many miles must you travel on unimproved, county, and state roads to deliver grain from your farm to your most frequently used market?

	<i>Unimproved gravel road Miles one-way</i>	<i>Paved county road Miles one-way</i>	<i>State highway Miles one-way</i>
a) Corn.....			
b) Soybean.....			

12. How many bushels of corn or soybeans from your 2007 crop were containerized by you before being shipped from your farm?

a) Corn.....	bu.
b) Soybeans	bu.

13. How much storage capacity do you have on-farm and how much did you use for your 2007 crop?

a) Storage capacity			bu.
b) 1) Corn	%	2) Soybeans	%
3) Other crops	%	4) Not used	%

14. Did natural disasters affect your crop marketing and transport to markets? yes no
If your marketing was not affected by natural disasters, please skip to question 16.

15. How much of your 2007 crop was affected and what was the average additional distance you had to move grain because of the natural disasters?

	<i>Corn</i>	<i>Soybean</i>
a) How many bushels?.....	bu.	bu.
b) What was the average additional distance?	mi.	mi.

16. How would you rate Iowa's freight infrastructure? *Circle one answer in each row.*

	<i>Poor</i>	<i>Average</i>	<i>Excellent</i>	<i>Not Applicable</i>		
a. Rail lines	1	2	3	4	5	N/A
b. Roadways						
1. Interstates	1	2	3	4	5	N/A
2. Primary state highways	1	2	3	4	5	N/A
3. Paved country roads	1	2	3	4	5	N/A
4. Unimproved gravel roads	1	2	3	4	5	N/A
c. Waterways	1	2	3	4	5	N/A

17. Do you consider the following items to be a hindrance to more efficient marketing? *Circle one answer in each row.*

	<i>Not at all</i>	<i>Some what</i>	<i>Definitely</i>	<i>Not Applicable</i>		
a. Size of my grain hauling equipment.....	1	2	3	4	5	N/A
b. Road weight restrictions en route to point(s) of sale	1	2	3	4	5	N/A
c. Bridge weight restrictions en route to point(s) of sale	1	2	3	4	5	N/A
d. Availability of seasonal labor (drivers, etc.)	1	2	3	4	5	N/A
e. Lack of on-farm storage	1	2	3	4	5	N/A
f. Storage capacity at my local elevator	1	2	3	4	5	N/A
g. Unloading times at my local elevator.....	1	2	3	4	5	N/A
h. Distance to my preferred market(s)	1	2	3	4	5	N/A
i. Trucking costs.....	1	2	3	4	5	N/A
j. Access to rail service	1	2	3	4	5	N/A
k. Rail service reliability	1	2	3	4	5	N/A
l. Rail service costs	1	2	3	4	5	N/A
o. Other (please specify) _____	1	2	3	4	5	N/A

18. Comments

Respondent _____

Phone _____ Date _____

Email (*please print*) _____

Thank you for your time and cooperation.

Appendix B. Iowa Grain Handlers Survey

Iowa Grain Handlers Marketing Survey

1. Please classify your operation in one of the following categories. (*check one*)

- Country elevator
 Barge terminal
 Terminal elevator
 Grain dealer with no licensed warehouse storage capacity
 Other (*specify*) _____

2. What was the volume of grain movement to and from your facility for the **2007** marketing year of September 1, 2007 through August 31, 2008?

	Bushels received/purchased		Bushels shipped/processed	
	Corn	Soybeans	Corn	Soybeans
Total 2007 Marketing Year				

3. What was the volume of ethanol co-products (such as dried or wet distillers grains, corn gluten feed or meal, brewers grains, condensed distillers solubles, etc.) handled, brokered, mixed, or processed from September 1, 2007 through August 31, 2008?

Volume of co-products handled (tons)	Average one-way miles from source of co-products	Maximum one-way miles from source of co-products

If your firm does not operate feed delivery trucks, skip to question 7.

4. How many feed delivery trucks does your firm operate in each of the following load sizes?

	3 to 9 Tons	10 to 15 Tons	16-20 Tons	More than 20 Tons
a. Number of feed delivery trucks at this time				
b. Number of feed delivery trucks you anticipate having by 2012.....				

5. What is the range in distance that you send the different load sizes of feed delivery trucks?

3 to 9 Tons		10 to 15 Tons		16 to 20 Tons		More than 20 Tons	
Average one-way miles	Maximum one-way miles	Average one-way miles	Maximum one-way miles	Average one-way miles	Maximum one-way miles	Average one-way miles	Maximum one-way miles

6. Of your firm's rail shipments, what is the typical number of rail cars per shipment? *Please check one category in each row.*

	Number of rail cars				
	1 – 24	25 – 49	50 – 74	75 – 99	100+
Corn.....					
Soybeans					

If you had no corn sales, skip to question 8.

7. What were your **corn** markets (where ownership changes), your modes of transport to each market, and the average distance hauled to each market? Report each market as a percentage of total marketings and transportation as a percentage of each market.

CORN SALES from September 1, 2007 through August 31, 2008

Market	Percent of volume	Percent shipped by				Average distance by		
		Truck	Rail	Barge	Total	Truck	Rail	Barge

---- one-way miles ----

a. As livestock feed

1. In Iowa	%	%	%	%	100%			
2. Out of state	%	%	%	%	100%			

b. Dedicated ethanol plants

1. In Iowa	%	%	%	%	100%			
2. Out of state	%	%	%	%	100%			

c. Millers/processors

1. In Iowa	%	%	%	%	100%			
2. Out of state	%	%	%	%	100%			

d. River terminals

1. Illinois River	%	%	%	%	100%			
2. Mississippi River	%	%	%	%	100%			
3. Missouri River	%	%	%	%	100%			

e. Direct to export markets

1. Gulf Coast	%	%	%	%	100%			
2. West Coast	%	%	%	%	100%			
3. Mexico	%	%	%	%	100%			
4. Other	%	%	%	%	100%			

f. Other	%	%	%	%	100%			
Total (a+b+c+d+e+f)	100%							

If you had no soybean sales, skip to question 9.

8. What were your **soybean** markets (where ownership changes), your modes of transport to each market, and the average distance hauled to each market? Report each market as a percentage of total marketings and transportation as a percentage of each market.

SOYBEAN SALES from September 1, 2007 through August 31, 2008

Market	Percent of volume	Percent shipped by				Average distance by		
		Truck	Rail	Barge	Total	Truck	Rail	Barge

---- one-way miles ----

a. Processors/crushers

1. In Iowa	%	%	%	%	100%			
2. Out of state	%	%	%	%	100%			

b. River terminals

1. Illinois River	%	%	%	%	100%			
2. Mississippi River	%	%	%	%	100%			
3. Missouri River	%	%	%	%	100%			

c. Direct to export market

1. Gulf Coast	%	%	%	%	100%			
2. West Coast	%	%	%	%	100%			
3. Mexico	%	%	%	%	100%			
4. Other	%	%	%	%	100%			

d. Other

	%	%	%	%	100%			
Total (a+b+c+d)	100%							

9. How many bushels of corn and soybeans were containerized by your firm during the **2007** marketing year?

Corn bu. Soybeans bu.

10. What is the storage capacity of your facility?.....

bu.

11. How much storage capacity did your facility lose during the **2007** market year (September 2007 to August 2008) due to natural disasters?.....

bu.

12. How much of the lost storage capacity will your facility replace or plan to replace?.....

bu.

13. How many bushels of corn and soybeans did your facility lose during the **2007** marketing year due to natural disasters?

Corn bu. Soybeans bu.

14. How would you rate Iowa's freight infrastructure? *Circle one answer in each row.*

	Poor		Average		Excellent	Not Applicable
a. Rail lines	1	2	3	4	5	N/A
b. Roadways						
1. Interstates.....	1	2	3	4	5	N/A
2. Primary state highways.....	1	2	3	4	5	N/A
3. Paved county roads.....	1	2	3	4	5	N/A
4. Unimproved gravel roads	1	2	3	4	5	N/A
c. Waterways	1	2	3	4	5	N/A

15. Do you consider the following items to be a hindrance to more efficient marketing? *Circle one answer in each row.*

	Not at all		Some what		Definitely	Not Applicable
a. Road weight restrictions en route to your facility	1	2	3	4	5	N/A
b. Bridge weight restrictions en route to your facility ..	1	2	3	4	5	N/A
c. Availability of seasonal labor	1	2	3	4	5	N/A
d. Storage capacity at your facility	1	2	3	4	5	N/A
e. Unloading times at your facility	1	2	3	4	5	N/A
f. Trucking costs	1	2	3	4	5	N/A
g. Access to rail service	1	2	3	4	5	N/A
h. Rail service reliability.....	1	2	3	4	5	N/A
i. Rail service costs	1	2	3	4	5	N/A
j. Access to barge service.....	1	2	3	4	5	N/A
k. Barge service reliability.....	1	2	3	4	5	N/A
l. Barge service costs	1	2	3	4	5	N/A
m. Other (please specify)_____	1	2	3	4	5	N/A

16. Comments

Respondent _____

Title _____ Phone _____ Date _____

Email (please print) _____

Thank you for your time and cooperation.

Appendix C. Iowa Corn Processors Survey

Iowa Corn Processors Marketing Survey

- 1a. How does your facility process corn?..... wet mill dry mill
- 1b. Does your facility produce ethanol? yes no

If no, skip to question 5.

2. Please specify the nameplate capacity for ethanol production in your facility.

a) Currently	gallons per year
b) By 2012.....	gallons per year

3. Please indicate the volume of ethanol produced by your facility from September 1, 2007 through August 31, 2008. gal.

4. Please indicate the volume of ethanol co-products your facility produced in the **2007** marketing year from September 1, 2007 through August 31, 2008?

<i>Dry mill production</i>		<i>Wet mill production</i>	
<i>Distiller's grains</i>		<i>Corn gluten meal</i>	<i>Corn gluten feed</i>
<i>Dry</i>	<i>Wet</i>		
tons	tons	tons	tons

5. Please indicate the amount of corn processed by your facility from September 1, 2007 through August 31, 2008. bu.

6. Does your facility plan to expand by 2012? yes no don't know
If no or don't know, please skip to question 8.

7. How many bushels of corn will the facility process annually by 2012? bu.

8. What percentage of total dollar sales for your facility does each of the following products represent for the **2007** marketing year?

a. Ethanol	%
b. Wet distiller's grains	%
c. Dry distiller's grains.....	%
d. Corn gluten meal.....	%
e. Corn gluten feed.....	%
f. Other products	%
Total	100%

9. What were your markets (where ownership changes), your modes of transport to each market, and the average distance hauled to each market? Report each market as a percentage of total marketings and transportation as a percentage of each market.

CORN PURCHASES AND PRODUCT SALES from September 1, 2007 through August 31, 2008

Market	Percent by volume	Percent shipped by				Average distance by		
		Truck	Rail	Barge	Total	Truck	Rail	Barge

--- one-way miles ---

a. Corn purchases

1. In Iowa	%	%	%	%	100%			
2. Out of state	%	%	%	%	100%			
Total	100%							

b. Ethanol sales

1. In Iowa	%	%	%	%	100%			
2. Other states	%	%	%	%	100%			
3. International	%	%	%	%	100%			
Total	100%							

c. Dry distiller's grains sales

1. In Iowa	%	%	%	%	100%			
2. Other states	%	%	%	%	100%			
3. International	%	%	%	%	100%			
Total	100%							

d. Wet distiller's grains sales

1. In Iowa	%	%	%	%	100%			
2. Out of state	%	%	%	%	100%			
Total	100%							

e. Corn gluten meal sales

1. In Iowa	%	%	%	%	100%			
2. Other states	%	%	%	%	100%			
3. International	%	%	%	%	100%			
Total	100%							

f. Corn gluten feed sales

1. In Iowa	%	%	%	%	100%			
2. Other states	%	%	%	%	100%			
3. International	%	%	%	%	100%			
Total	100%							

g. Other products

		%	%	%	100%			
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10. Does your facility currently have a specialty grain program to purchase grain with specific traits? yes no don't know

11. Does your facility plan to have a specialty grain program by 2012?..... yes no don't know

12. What percentage (by volume) of your facility's products are sold to the following states or regions?

States or Regions	Ethanol	Dry distiller's grains	Wet distiller's grains	Corn gluten meal	Corn gluten feed
WA, OR, ID	%	%	%	%	%
CA, AZ, NV, UT	%	%	%	%	%
ND, SD, MT, WY	%	%	%	%	%
CO, NE, KS	%	%	%	%	%
TX, OK, NM	%	%	%	%	%
MN, WI, MI	%	%	%	%	%
IL, IN, OH	%	%	%	%	%
IA	%	%	%	%	%
MO, AR, KY, TN	%	%	%	%	%
AL, MS, LA	%	%	%	%	%
NY, ME, NH, MA, RI, VT, CT	%	%	%	%	%
PA, NJ, MD, DE, VA, WV	%	%	%	%	%
NC, SC, GA	%	%	%	%	%
FL	%	%	%	%	%
International	%	%	%	%	%
Total	100%	100%	100%	100%	100%

13. Does your facility currently use a fractionation process prior to fermentation? yes no don't know
14. Does your facility plan to use a fractionation process prior to fermentation by 2012? yes no don't know
15. Does your facility currently extract corn oil? yes no don't know
16. Does your facility plan to extract corn oil by 2012? yes no don't know
17. Does your facility plan to add cellulosic ethanol capabilities (deriving ethanol from corn stover, switchgrass, etc.) by 2012? yes no don't know

18. How would you rate Iowa's freight infrastructure? *Circle one answer in each row.*

	Poor		Average		Excellent	Not Applicable
a. Rail lines.....	1	2	3	4	5	N/A
b. Roadways						
1. Interstates.....	1	2	3	4	5	N/A
2. Primary state highways.....	1	2	3	4	5	N/A
3. Paved county roads.....	1	2	3	4	5	N/A
4. Unimproved gravel roads.....	1	2	3	4	5	N/A
c. Waterways.....	1	2	3	4	5	N/A

19. Do you consider the following items to be a hindrance to more efficient marketing? *Circle one answer in each row.*

	Not at all		Some what		Definitely	Not Applicable
a. Road weight restrictions en route to your facility....	1	2	3	4	5	N/A
b. Bridge weight restrictions en route to your facility	1	2	3	4	5	N/A
c. Storage capacity at your facility.....	1	2	3	4	5	N/A
d. Unloading times at your facility.....	1	2	3	4	5	N/A
e. Trucking costs.....	1	2	3	4	5	N/A
f. Access to rail service.....	1	2	3	4	5	N/A
g. Rail service reliability.....	1	2	3	4	5	N/A
h. Rail service costs.....	1	2	3	4	5	N/A
i. Access to barge service.....	1	2	3	4	5	N/A
j. Barge service reliability.....	1	2	3	4	5	N/A
k. Barge service costs.....	1	2	3	4	5	N/A
l. Other (please specify).....	1	2	3	4	5	N/A

20. Comments

Respondent _____

Title _____ Phone _____ Date _____

Email (please print) _____

Thank you for your time and cooperation.

Appendix D. Iowa Soybean Processors Survey

Iowa Soybean Processors Marketing Survey

1. How many bushels of soybeans can be crushed on site annually?_____ bu.

2. Are there plans to add to soybean crushing capacity on site? yes no don't know
If no or don't know, skip to question 4.

3. How many bushels of soybeans are expected to be crushed on site annually by 2012?_____ bu.

4. Please indicate the volume of soybeans purchased and soybean products sold by your facility in the **2007** marketing year from September 1, 2007 through August 31, 2008?

	<i>Soybeans purchased</i>	<i>Soybean oil sold</i>		<i>Soybean meal sold</i>
		<i>Industrial use</i>	<i>Food use</i>	
Total 2007 Marketing Year	bu.	lbs.	lbs.	tons

5. What percentage of total dollar sales for your facility does each of the following products represent for the **2007** marketing year?

a. Soybean meal.....	%
b. Soybean oil.....	%
c. Other products.....	%
Total.....	100 %

6. What were your markets (where ownership changes), your modes of transport to each market, and the average distance hauled to each market? Report each market as a percentage of total marketings and transportation as a percentage of each market.

SOYBEAN PURCHASES AND PRODUCT SALES from September 1, 2007 through August 31, 2008

Market	Percent by volume	Percent shipped by				Average distance by		
		Truck	Rail	Barge	Total	Truck	Rail	Barge

---- one-way miles ----

a. Soybean purchases

1. In Iowa	%	%	%	%	100%			
2. Out of state	%	%	%	%	100%			
Total	100%							

b. Soybean meal sales

1. In Iowa	%	%	%	%	100%			
2. Other states	%	%	%	%	100%			
3. International	%	%	%	%	100%			
Total	100%							

c. Soybean oil sales for industry use

1. In Iowa	%	%	%	%	100%			
2. Other states	%	%	%	%	100%			
3. International	%	%	%	%	100%			
Total	100%							

d. Soybean oil sales for food use

1. In Iowa	%	%	%	%	100%			
2. Other states	%	%	%	%	100%			
3. International	%	%	%	%	100%			
Total	100%							

e. Other products

		%	%	%	100%			
--	--	---	---	---	------	--	--	--

7. What percentage (by volume) of your facility's products are sold to the following states or regions?

States or Regions	Soybean meal	Soybean oil for industrial use	Soybean oil for food use	Other product
WA, OR, ID	%	%	%	%
CA, AZ, NV, UT	%	%	%	%
ND, SD, MT, WY	%	%	%	%
CO, NE, KS	%	%	%	%
TX, OK, NM	%	%	%	%
MN, WI, MI	%	%	%	%
IL, IN, OH	%	%	%	%
IA	%	%	%	%
MO, AR, KY, TN	%	%	%	%
AL, MS, LA	%	%	%	%
NY, ME, NH, MA, RI, VT, CT	%	%	%	%
PA, NJ, MD, DE, VA, WV	%	%	%	%
NC, SC, GA	%	%	%	%
FL	%	%	%	%
International	%	%	%	%
Total	100%	100%	100%	100%

8. Does your facility currently process low linolenic soybeans? (If no, skip to question 10.)... yes no

9. What percentage of your current total soybean processing is low linolenic soybeans? %

10. Does your facility plan to process low linolenic soybeans in 2012? yes no

11. How would you rate Iowa's freight infrastructure? Circle one answer in each row.

	Poor	Average	Excellent	Not Applicable		
a. Rail lines	1	2	3	4	5	N/A
b. Roadways						
1. Interstates.....	1	2	3	4	5	N/A
2. Primary state highways.....	1	2	3	4	5	N/A
3. Paved county roads.....	1	2	3	4	5	N/A
4. Unimproved gravel roads	1	2	3	4	5	N/A
c. Waterways	1	2	3	4	5	N/A

12. Do you consider the following items to be a hindrance to more efficient marketing? *Circle one answer in each row.*

	Not at all		Some what		Definitely	Not Applicable
a. Road weight restrictions en route to your facility	1	2	3	4	5	N/A
b. Bridge weight restrictions en route to your facility ..	1	2	3	4	5	N/A
c. Storage capacity at your facility.....	1	2	3	4	5	N/A
d. Unloading times at your facility	1	2	3	4	5	N/A
e. Trucking costs.....	1	2	3	4	5	N/A
f. Access to rail service.....	1	2	3	4	5	N/A
g. Rail service reliability.....	1	2	3	4	5	N/A
h. Rail service costs	1	2	3	4	5	N/A
i. Access to barge service.....	1	2	3	4	5	N/A
j. Barge service reliability.....	1	2	3	4	5	N/A
k. Barge service costs	1	2	3	4	5	N/A
l. Other (please specify)_____	1	2	3	4	5	N/A

13. Comments

Respondent _____

Title _____ Phone _____ Date _____

Email (*please print*) _____

Thank you for your time and cooperation.

Appendix E. Iowa Biodiesel Producers Survey

Iowa Biodiesel Producers Marketing Survey

1. Please specify the nameplate capacity for biodiesel production in your facility.

a. Currently	gallons per year
b. By 2012	gallons per year

2. Please indicate the volume of biodiesel and co-products your facility produced from September 1, 2007 through August 31, 2008?

	<i>Biodiesel</i>	<i>Glycerin</i>
Total produced	gal.	tons

3. Are there plans to add soybean crushing capacity on site?

yes no don't know

4. Does your facility currently use the following feedstocks?

a. Soybean oil.....	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know
b. Animal fats.....	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know
c. Corn oil.....	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know
d. Other vegetable oils.....	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know

5. Does your facility plan to use the following feedstocks by 2012?

a. Soybean oil.....	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know
b. Animal fats.....	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know
c. Corn oil.....	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know
d. Other vegetable oils.....	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know

6. Please indicate the feedstocks and amounts processed by your facility during September 1, 2007 through August 31, 2008 and the feedstocks and amounts expected to be processed during September 1, 2012 through August 31, 2013.

<i>Feedstock</i>	<i>2007</i>	<i>2012</i>
a. Soybean oil	pounds	pounds
b. Animal fats	pounds	pounds
c. Other	pounds	pounds

7. What were your feedstock markets (where ownership changes), your modes of transport to each market, and the average distance hauled to each market? Report each market as a percentage of total marketings and transportation as a percentage of each market.

FEEDSTOCK PURCHASES from September 1, 2007 through August 31, 2008

<i>Market</i>	<i>Percent by volume</i>	<i>Percent shipped by</i>				<i>Average distance by</i>		
		<i>Truck</i>	<i>Rail</i>	<i>Barge</i>	<i>Total</i>	<i>Truck</i>	<i>Rail</i>	<i>Barge</i>

- - - one-way miles - - -

a. Soybean oil

1. In Iowa	%	%	%	%	100%			
2. Out of state	%	%	%	%	100%			
Total	100%							

b. Animal fats

1. In Iowa	%	%	%	%	100%			
2. Out of state	%	%	%	%	100%			
Total	100%							

c. Other feedstocks

1. In Iowa	%	%	%	%	100%			
2. Out of state	%	%	%	%	100%			
Total	100%							

8. What percentage of total biodiesel-related dollar sales for your facility does each of the following products represent for September 1, 2007 through August 31, 2008?

a. Biodiesel	%
b. Glycerin	%
c. Other products	%
d. Total	100 %

9. What were your biodiesel-related markets (where ownership changes), your modes of transport to each market, and the average distance hauled to each market? Report each market as a percentage of total marketings and transportation as a percentage of each market.

PRODUCT SALES from September 1, 2007 through August 31, 2008

Market	Percent by volume	Percent shipped by				Average distance by		
		Truck	Rail	Barge	Total	Truck	Rail	Barge

---- one-way miles ----

a. Biodiesel

1. In Iowa	%	%	%	%	100%			
2. Other states	%	%	%	%	100%			
3. International	%	%	%	%	100%			
Total	100%							

b. Glycerin

1. In Iowa	%	%	%	%	100%			
2. Other states	%	%	%	%	100%			
3. International	%	%	%	%	100%			
Total	100%							

c. Other products

		%	%	%	100%			
--	--	---	---	---	------	--	--	--

10. What percentage (by volume) of your facility's products are sold to the following states or regions?

States or Regions	Biodiesel	Glycerin	Other products
WA, OR, ID	%	%	%
CA, AZ, NV, UT	%	%	%
ND, SD, MT, WY	%	%	%
CO, NE, KS	%	%	%
TX, OK, NM	%	%	%
MN, WI, MI	%	%	%
IL, IN, OH	%	%	%
IA	%	%	%
MO, AR, KY, TN	%	%	%
AL, MS, LA	%	%	%
NY, ME, NH, MA, RI, VT, CT	%	%	%
PA, NJ, MD, DE, VA, WV	%	%	%
NC, SC, GA	%	%	%
FL	%	%	%
International	%	%	%
Total	100%	100%	100%

11. How would you rate Iowa's freight infrastructure? *Circle one answer in each row.*

	<i>Poor</i>		<i>Average</i>		<i>Excellent</i>	<i>Not Applicable</i>
a. Rail lines	1	2	3	4	5	N/A
b. Roadways						
1. Interstates.....	1	2	3	4	5	N/A
2. Primary state highways.....	1	2	3	4	5	N/A
3. Paved county roads.....	1	2	3	4	5	N/A
4. Unimproved gravel roads	1	2	3	4	5	N/A
c. Waterways	1	2	3	4	5	N/A

12. Do you consider the following items to be a hindrance to more efficient marketing? *Circle one answer in each row.*

	<i>Not at all</i>		<i>Some what</i>		<i>Definitely</i>	<i>Not Applicable</i>
a. Road weight restrictions en route to your facility	1	2	3	4	5	N/A
b. Bridge weight restrictions en route to your facility ..	1	2	3	4	5	N/A
c. Storage capacity at your facility.....	1	2	3	4	5	N/A
d. Unloading times at your facility	1	2	3	4	5	N/A
e. Trucking costs.....	1	2	3	4	5	N/A
f. Access to rail service.....	1	2	3	4	5	N/A
g. Rail service reliability.....	1	2	3	4	5	N/A
h. Rail service costs	1	2	3	4	5	N/A
i. Access to barge service.....	1	2	3	4	5	N/A
j. Barge service reliability.....	1	2	3	4	5	N/A
k. Barge service costs	1	2	3	4	5	N/A
l. Other (please specify)_____	1	2	3	4	5	N/A

13. Comments

Respondent _____

Title _____ Phone _____ Date _____

Email (*please print*) _____

Thank you for your time and cooperation.