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**U.S. Containerized Grain & Oilseed
Exporters – Industry Profile and Survey – Phase II**

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U.S. CONTAINERIZED GRAIN & OILSEED EXPORTS INDUSTRY SURVEY



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EXECUTIVE SUMMARY

Containerization has evolved from an industry serving niche markets to an industry creating niche market opportunities. While grain and oilseed industry is dominated by bulky, homogenized product marketing that is heavily reliant on economies of scale in delivering competitively priced commodities, technological advances, foreign market privatization, and declining global market transaction costs have supported diversification of this industry in niche markets such as small-volume containerized products. The findings of this research suggest an established and growing U.S. shipper population is active in marketing containerized grains and oilseed products.

A survey of shippers suggests that premiums for containerized grain and oilseed products are \$5 per hundredweight, compared to the local bulk counterpart market. The net return to shippers is opaque as business practices and market fundamental influence the costs associated with delivering the product to a customer overseas versus a local grain terminal or processor. Assuming market activity is positively correlated to profitability, the grain and oilseed container shippers would seem to be achieving acceptable levels of profit. Shippers report that container exports increased annually between 2000 and 2002, and are projecting it will increase another 20 percent by 2005. Although many factors affect industry ability to realize this growth, shippers deem ocean freight rates as most crucial. Ocean liner routes/services, distance to container terminal, and foreign buyer information are also rated with above average importance.

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1. INTRODUCTION

Intermodal freight transport has been transformed by the technological and marketing innovations of recent decades. The early (pre-1960) container ocean market offered retrofitted dry cargo and oil tanker vessels with capacities under 1,000 twenty-foot equivalent units (TEUs). Today’s new-build container ships offer capacities and associated economies of scale for hauling over 6,000 TEUs with service options such as refrigeration. High-value cargos have long utilized the container as a cost-effective means for relocating products to serve foreign customers. More recently, operational efficiencies, increased vessel capacity, and decreasing container construction costs have created opportunities for lower-value cargos to also utilize this flexible and cost-effective ocean freight transport option. As industries have integrated the container option into their logistics operations, the scope of container markets, equipment, and products has grown substantially. One segment in the lower-value container cargo has developed in the agricultural industry. It is the containerized grain and oilseed products – traditionally handled in large, bulk movements – investigated in this research.

The overall trend toward containerization in agricultural shipping is evident in temporal statistics. By *weight*, 15 percent of all agricultural product exports are shipped by container, up from 9 percent in 1992. By *value*, over 52 percent of all U.S. agricultural trade is now shipped via container. This trend is evident in traditionally bulk-shipped commodities as well. Table 1.1 shows the percent of containerized shipments for soybeans, animal feed, and pulses (commodities typically shipped bulk) in 1992 and 2002 (Port Import Export Reporting Services).

	<u>1992</u>	<u>2002</u>
Soybeans	0.4%	1.8%
Animal Feed	2.6%	6.7%
Pulses	66.0%	70.0%
Source: PIERS		

It is estimated that over 600 U.S. companies are currently involved in shipping containerized grain and grain products to over 130 countries (Port Import Export Reporting Services). The prevalence of container shipments has trended upward over the past decade, as illustrated by annual export volumes for animal feed and soybean markets. Container export TEU volumes have increased by 500 and 200 percent for soybean and animal feed industries, respectively, over the past decade.¹ The animal feed and soybean markets are selected for this illustration (Figure 1.1) as they have been identified as larger and more consistent container markets among the bulk grain and oilseed products in historical data (Port Import Export Reporting Service).

¹ This estimate includes barley, cottonseed, corn, flaxseed, oats, rye, sorghum, soybeans, sunflowers, and wheat.

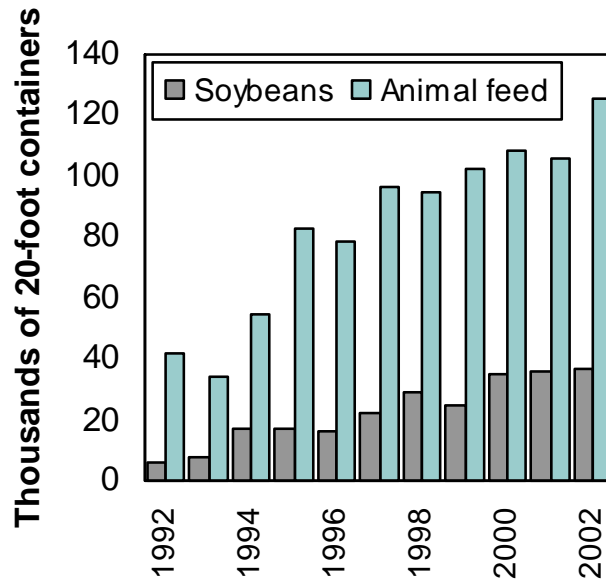


Figure 1.1 U.S. Containerized Soybean and Animal Feed Exports

Although data sources do offer evidence that this container segment of the U.S. grain and oilseed industry exists, the activities and expectations are largely characterized by anecdotal information. Export data does suggest that this industry is experiencing growth as containerized grain and oilseed exports, considering soybean, corn, wheat, barley, sorghum, and oats, totaled nearly 25,700 TEUs in 2002. This volume represents a 49 percent increase in volume compared to 2000 container exports of these commodities. Pulse crops, which were also considered in this study, totaled 6,500 TEUs in 2002 compared to 16,600 TEUs in 2000. Pulse crop exports may vary significantly year-to-year as this market is tied rather closely to U.S. food aid programs. As U.S. agricultural producers seek to serve existing markets with new products and identify opportunities to serve new markets, containerization offers a broad scope in its flexibility and globalization.

Containerization allows the producer to extend control of the product from field to customer rather than field to local terminal, introducing new sources for opportunity, risk, and profit. Thus, it is important to understand current practices and expectations of shippers so that proactive and prudent decisions support continued diversification into this sector of the global agricultural market. The purpose of this research is to develop a profile of the containerized grain and oilseed market with primary data. This research augments the broad industry profile developed with secondary data sources in the first phase of this project (Vachal and Reichert, 2002). The next section in this research includes an overview of the survey methodology and administration. The findings, including a profile industry structure, commodity characteristics, marketing practices, and expectations, are presented in section three. The final component is a summary of the research process and its conclusions.

2. CONSTRUCTING AND ADMINISTERING THE SURVEY

Investigating this niche grain market is a challenge considering the focus market and participant base is loosely defined as U.S. shippers exporting containerized unprocessed grain and oilseeds. Therefore, a committee of non-governmental and private industry experts was consulted in developing the survey instrument and identifying the survey population. The cooperative survey development process was beneficial in defining the scope and content of the survey, and in supplementing the initial mailing list. It was determined that a concise mail survey, directed at ascertaining baseline information about shippers and activities, would likely elicit the best response from shippers. The resulting survey product was designed to cover four aspects of the grain container market including shipper characteristics, marketing practices, commodity activity, and industry growth factors.

The multi-phase survey process included in this project was a learning experience onto itself. An initial mail survey was sent to 570 potential shipper respondents. It was supplemented by a phone survey of a random sample of these shippers and a phone survey of 40 additional potential containerized grain and oilseed shippers. In total, a response rate of 37 percent was generated from the response of 228 businesses to the survey. Twenty percent of these businesses reported they were active in marketing containerized grain and oilseeds to foreign customers.

A test of the survey was conducted by eliciting the cooperation of several shippers, known to be active in the industry, to complete the survey prior to the initial mailing. Minor modifications were made to survey content based on the suggestions of these shippers. The initial survey was administered via mail. Approximately 570 surveys were mailed to shippers located throughout the United States, with the survey population residing in 38 of the 48 contiguous states. The largest population segment – 133 of the potential shipper respondents or 23 percent – resided in California. These shippers were selected as they had been identified as grain and oilseed container exporters via the Journal of Commerce Port Import Export Reporting Services (PIERS). The list also included several shippers who had been identified by the industry advisory group as missing on the original mailing list. The mail survey elicited 14 responses from grain container exporters. Due to the poor response rate to the initial survey a second mailing of the survey to non-respondents was not conducted.

At this point, it was determined that a follow-up version of the survey would be a phone survey of a random sample of shippers who had received the initial mail survey. Approximately one-third of the initial survey population was contacted via phone. As with the mail survey, the phone survey included a qualifier question asking the business if they shipped field crops by container. The phone survey quickly revealed factors that had resulted in the low response to the mail survey. The primary reasons for non-response were that the shipper was not active in shipping containerized grain and oilseed products or that the business was strictly a third-party participant in the transaction who was providing logistics services. Both sources of non-response were expected as we selected a broad scope for identifying the shipper population based on standard industrial classification (SIC) product codes and commodity descriptions used in shipment documentation, but the prevalence of these businesses in the potential shipper population had been grossly underestimated. Only one shipper who was contacted and confirmed participation in shipping containerized grain products declined to participate in the survey. The phone follow-up resulted in the addition of 188 responses. Of these responses, 31 confirmed they were active grain and oilseed shippers and completed the remainder of the survey.

A supplement to the initial shipper population was made as grain container export workshop attendees – these workshop events were conducted by the Transportation and Marketing Programs of the United

States Department of Agriculture between 2000 and 2002 – were contacted via phone to complete the survey. While 40 potential shippers were contacted via phone to complete the survey, only three shippers were actively exporting grain or oilseed via container. Many participants contacted offered that they had not yet begun to actively employ the workshop knowledge gained regarding the export of grain and oilseed products. In addition, a segment of the workshop attendees were non-government entities seeking to gather information for their constituents but not actually planning to engage in market transactions. The addition of the three responses from the USDA workshop population increased survey response to 228, and number of surveys completed by active grain and oilseed shippers to 48.

The public-private cooperation approach to survey development was a success in terms of collecting useful industry data and gaining an understanding of shippers in the industry. The resulting instrument includes a concise set of questions that is directed ascertaining baseline information about shippers involved in the export of containerized grain and oilseeds. The survey response rate of 37 percent is low, but putting it in the context of the wide rather than narrow scope used to identify over 600 potential respondents and the very competitive nature of a global grain business, these responses are assumed to be reflective of the industry.

The infrequency of shippers in the business population group suggests that third party facilitators are common in managing the marketing and logistics of container shipments. In addition, it is somewhat difficult to distinguish a subset of the container shipping population given the somewhat broad product categories that can be applied in the shipment bill of lading. The profile information presented in subsequent sections is based on 47 of 48 shipper responses, as one survey was discarded because the single product marketed via container was hay. Responses received for the survey are used to develop the profile of the containerized grain and oilseed industry that is presented in the following sections. While the profile may not offer holistic insight into this growing market segment, it provides valuable insight for an area that is largely void of public-source information needed to fulfill basic investment, planning, and policy activities.

3. INDUSTRY PROFILE

A mail and phone survey of 610 container businesses elicited 228 responses for a 37 percent response rate. Twenty percent of these shippers confirmed that they are active in marketing grains and oilseeds via container. The infrequency of shippers in the business population group suggests third party facilitators are common in managing the marketing and logistics of container shipments. In addition, the initial survey population was somewhat difficult to distinguish as a subset of the container shipping population given the somewhat broad product categories that can be applied in the shipment bill of lading. Responses from 47 shippers who are active in exporting grain and/or oilseeds via container are used to develop a profile of the containerized grain and oilseed industry.

The profile is developed in the next four sections describing shipper characteristics, marketing practices, business activity, contract negotiation, and industry growth factors. The profile includes responses from 19 states covering 13 commodities. The limited sample size requires that information be reported for the national aggregate. In addition, individual commodity information is limited to only a few crops that are most commonly reported in the surveys. The geographic and product scope of responses does offer insight into the coverage these responses allow for viewing this specialized segment of the grain and oilseed market.

3.1 Shipper Characteristics

The business size, in terms of annual volumes, averaged 187 TEUs per year between 2000 and 2002. Average annual business volumes trended upward over the three year period, from 169 to 182 to 212, in 2000, 2001, and 2002, respectively. In addition to the upward trend in volumes, the number of shippers increased over the three-year period. As more shippers entered the market in recent years, the number of respondents reporting containerized export grain and oilseed volumes increased by 38 percent from 29 in 2000 to 46 in 2002. Total grain and oilseed TEUs reported by shippers increased from 7,459 to 9,766 TEUs between 2000 and 2002. Shipper volumes for 2002 are equal to 38 percent of the total volume of U.S. containerized grain and oilseed exports. Shipper respondents appear optimistic about future opportunities for containerized export of grain and oilseed products as shipments are projected to continue increasing to 10,680 TEUs in 2004 and 11,695 TEUs in 2005. If the expected 2005 volumes are realized, respondent containerized grain and oilseed export volumes will grow by 57 percent over the five-year period.

The containerized grain and oilseed shipper respondents are generally experienced as they have been in business for an average of 23 years, with 80 percent of the respondents in business for 10 years or more. Years of diversification into containerized shipping ranges from 2 to 42 years, with over half the respondents active in containerized marketing of grain for under 10 years. The business structure is predominately corporation, with over two-thirds of the respondents operating under this arrangement. Independent and partnership organizations each accounted for 10 percent of the shipper respondent business structures, with limited liability corporations and subsidiaries reported as other business structures.

Primary business location for shipper respondents included 19 states, as illustrated in Figure 3.1. Primary intermodal terminals identified by shippers included 23 facilities from Seattle, Washington; Portland, Oregon; and Los Angeles, California on the west coast to Columbus, Ohio and Texas sites in Amarillo, Dallas, and Houston on the east and south boundaries of facility locations. Washington hosts the greatest number of terminals identified by shippers, in addition to Seattle the ports of Spokane, Pasco,

and Tacoma are each identified as primary intermodal terminals in survey responses. Three Illinois locations accessed by shippers include Assumption, Beardstown, and Chicago. Other locations included Denver, Colorado; Lewiston and Twin Falls, Idaho; Detroit, Michigan; Dilworth and Minneapolis, Minnesota; Kansas City, Missouri; Omaha, Nebraska; and Memphis, Tennessee.

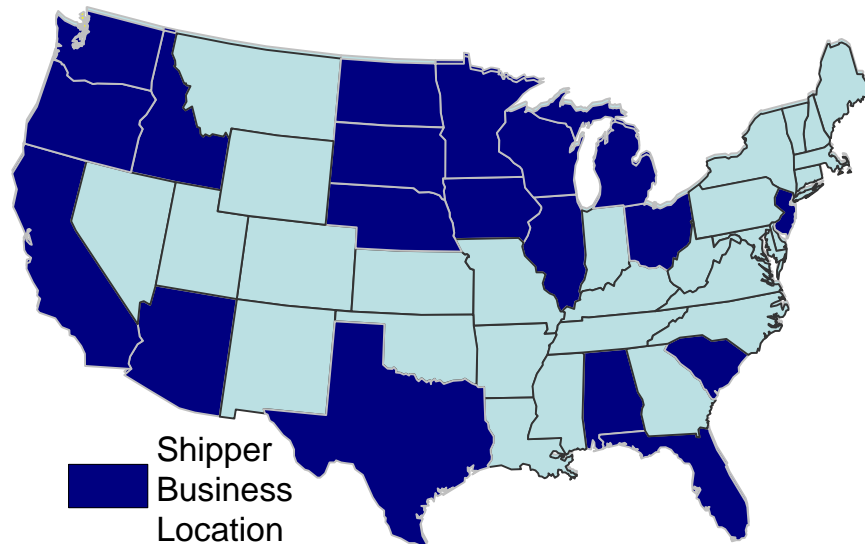


Figure 3.1 State Locations of Grain and Oilseed Shippers

Distance from business location to primary intermodal terminal ranged from 0 to over 2,000 miles, averaging 366 for all shippers. Approximately 40 percent of the shippers are within 100 miles of their primary intermodal terminal. Considering the proximity of product to terminal, in terms of volume marketed by individual shippers, 30 percent of the volume requires drayage under 100 miles and 76 percent is moved under 350 miles to reach the primary container terminal. Thus, the vast majority of grain and oilseed volume is originated from shippers within 350 miles of an intermodal terminal.

3.2 Market Practices

Gaining insight into market practices is important in understanding fundamentals of the containerized grain and oilseed export market segment. This insight is useful in discussing the potential impacts of policy, research, and investment. Market practices consider the scope and operation of the activities such as contracts, market development, business management, and logistics.

Contract negotiation is a critical factor in the success of container market strategies. In the contract, the ocean carrier generally guarantees shipper terms, such as time, rate, and fees, in exchange for the shipper's guarantee of container volume over the life of the contract. Terms are specific to routes and more than one route may be included in a single contract. Contract negotiation is complex, therefore shippers opt to involve a third party in the negotiation of a contract with the ocean carriers or completely

contract out to third party to handle logistics for market transactions. In addition to complexities, volumes are usually inversely related to rates so shippers may see an opportunity to access lower rates in accessing the third party negotiated rates.

A majority of the shippers, 51 percent, responding to the survey handle negotiations with ocean carriers on rates and terms themselves. Freight forwarders or brokers are second among possible alternatives for contract negotiation. The customer was identified as the party responsible for the container rates and service terms for 8 percent of the respondents. The Ocean Shipping Reform Act enacted in 1999 was seen as a possible catalyst for increased development of marketing consortiums, but this activity seems to have been limited as only 2 percent of shippers indicate contract negotiation through a marketing consortium.

Shippers report they negotiate annual contracts with an average of 83 foreign buyers. The number of buyers served by an individual shipper ranges from one to 600. Over half the respondents report they contract with 12 or fewer foreign buyers. Over half the shippers report the typical duration of their contracts is 12 months. The average duration of contracts is reported to be nine months, with a range from two to 17 months.

Two final inquiries into shipper contracts indicate that lead time is often limited for these sales and that the delivery point is usually specified in the sale contract. The lead time, or duration between contract signage and container shipment, averaged four months. Although the lead time ranged between one and 12 months, one month is the most commonly reported duration. Approximately one-third of survey respondents reported that shipment typically occurs within a month of contract signage. If average lead time is extended to two months, over 60 percent of respondents indicate shipment typically will have occurred. Over three-quarters of the shippers indicate the delivery point is specified at the time of sale so the shipper has prior knowledge for routing. The lead time and delivery point may be an important factor in the ability of shipper to cost effectively access available container capacity and integrate the shipment into the global market channels.

One component of the container market movement that may or may not be included in the contract negotiation is drayage, or movement from shipper facility to container terminal. Utilization of freight forwarders dominates the options available to the shipper in repositioning the loaded container at the terminal. Approximately 48 percent of shippers indicate a freight forwarder is hired to manage drayage activity. Alternatives, including handling the drayage internally and contracting out to a trucking company, are each used by 27 percent of the respondents. Only 13 percent of the respondents indicate the ocean carrier handles drayage for their containerized grain and oilseed exports. Note that the percentages given above, for both the contract negotiation party and drayage party total, may sum to a number greater than 100 as more than one alternate may be used by an individual shipper depending on factors such as shipment route, contract terms, and cost effectiveness.

Regarding the geographic scope of markets, shippers were asked to specify which regions they have served with containerized field products. Global regions rather than countries are used to ensure confidentiality for individual business activities. The largest single region, in terms of number of shippers reporting container shipments, is Asia. Approximately 91 percent of the shippers responding to the survey reported business activity within the Asian region. Europe is second among regions identified as markets for U.S. exports of containerized grain and oilseed products with 54 percent of shippers reporting activity in Europe. The Middle East is identified as a market by 22 percent of the respondents, making it third among regions shippers access in marketing containers. North America is fourth among regions as 17 percent of shippers indicate they market via container within this market region. Other regional markets with fewer than 10 percent of shipper respondents indicating activity include Africa, Australia, Caribbean/South America, CIS, and India. The geographic scope in markets identified by shippers indicates a diverse customer base for this specialized segment of the grain and oilseed industry.

To gain insight into the potential for market development and current market activities, shippers were asked to indicate their reason for shipping via container. Given an array of customers served by the containerized export market several factors are indicated in shipper responses. The most common reasons for containerization are buyer request, food grade product, and non-genetically modified products with 54, 30, and 28 percent of respondents offering these reasons, respectively. Slightly more than 20 percent of shippers suggest that deficiencies in foreign infrastructure and small quantity sales made containerization the most effective method for product delivery. Shipment of organic products is indicated as a reason for containerized shipping by 17 percent of the respondents. Factors offered as less common reasons for containerized shipping were just-in-time delivery, USDA program sale, and lower cost than air freight alternative.

Shippers were also asked to indicate which resources they use to monitor the market and manage their businesses. This information may be useful in disseminating new information, garnering industry data, and understanding the current knowledge network. Over half the respondents indicate they utilize the internet for market and business information. Over 40 percent indicate they utilize consultants/brokers and printed media to monitor the market and manage their business. Public agencies, both state and federal, are identified as information sources for approximately one-third of the respondents. Less common sources of market intelligence identified by respondents include shipper organizations, international agencies, customers, other businesses, and trade organizations.

3.3 Container Export Activity

The previous section provided general information regarding grain and oilseed container exports including geographic scope, average shipper activity, and market volume trends. In addition, shippers were asked to provide more commodity specific information with regard to these shipments such as composition, packaging, premiums, and export region. Due to the limited number of responses, commodity level information should be used with caution. The data does, however, offer a rare opportunity to gain greater understanding of this segment of the grain and oilseed industry.

Soybean exports dominate volumes among the containerized grain and oilseed export activity reported by shippers. The reported soybean exports account for 73 percent of total respondent grain and oilseed volume. Pulse crop exports are 18 percent of the volumes reported by survey respondents. Wheat volumes account for 5 percent of the total. The remaining 7 percent of the export volume is comprised of commodities including buckwheat, corn, popcorn, and sunflowers. Considering the information summaries generated from PIERS for 2002, soybeans may be overrepresented and corn underrepresented in the survey commodity composition but the scope of commodities and dominance of soybeans is reasonable. Soybeans, pulses, corn, and wheat account for 47, 18, 9, and 1 percent of the 2002 grain and oilseed exports, respectively, in a summary of PIERS information.

Shippers were asked about the marketing channels used for distribution of their containerized product. Based on previous data analysis the port regions in the Pacific Northwest, along the Atlantic and in the California coastal region were identified as prominent gateways for grain and oilseed exports (Vachal and Reichert, 2000). Among U.S. port regions, the Pacific Northwest dominates grain and oilseed export as shippers attribute 66 percent of their annual shipments to this region. The prevalence of this region in the marketing of containerized grain and oilseed products is consistent with previous estimates based on PIERS data summaries. The Atlantic region is second in volume, based on survey responses, accounting for 18 percent of the total container movement. The California region including the ports of Long Beach and Los Angeles is attributed with 13 percent of the volume. Shippers also reportedly move containers through terminals through ports in New York, Florida, and Texas.

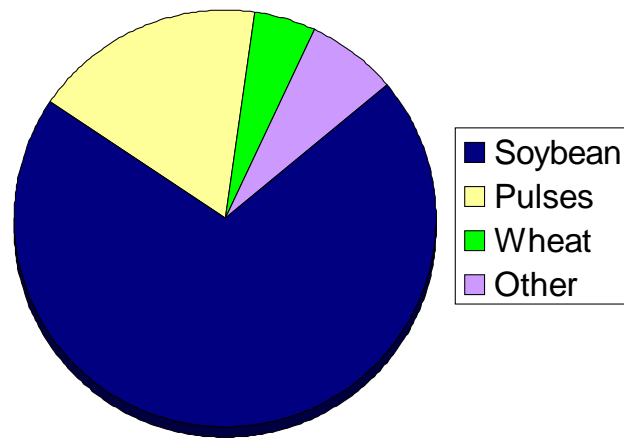


Figure 3.2 Containerized Grain and Oilseed

In addition to the export marketing of grain and oilseeds in containers, shippers were asked if they marketed via container within U.S. borders. Responses indicate this is more common with commodities included in the other category as 22 percent of these shippers indicated they did market via container to U.S. destinations. In the case of soybean shippers, 18 percent indicated they had shipped to U.S. customers via container. None of the pulse crop shippers indicated they delivered to customers in the United States via container.

A number of alternatives exist for packaging products for the containerized move through port and on to the customer. Three common methods of packaging are bag, tote, and bulk. The bag product is typically packaged in 50 pound bag that can be easily moved by hand. The tote or mini-tote is a large bag, often moved on a pallet, usually weighing 1,000 pounds or more. Bulk packaging may also be achieved by transloading the bulk product directly into the container, which may or may not be lined with plastic.

Bags are the most prevalent form of packaging for containerized grain and oilseed shipments, as shippers indicate this is the most common form of packaging across the soybean, pulse, wheat, and other export products. Bag and bulk are the most common forms of packaging for containerized soybean export, as 99 and 90 percent of shippers report utilizing these packaging options, respectively. Approximately 60 percent of the soybean shippers employ tote packaging alternatives. Shippers of pulse crops are more likely to use bags for shipping their product, as 75 percent of the respondents indicate they use this method. The bulk and tote alternatives are used exclusively, or in addition to the bag method, by 50 and 12 percent of the shippers, respectively. The bag option is used by all the wheat respondents, in addition to some use of bulk and little utilization of the tote. The pattern is similar for other commodities as 81 percent of shippers report they use the bag method, and 48 and 26 percent use the bulk and tote packaging options, respectively. The prevalence of bags in the container grain and oilseed shipments is expected as the ease of handle without mechanical assistance is often a necessary characteristic for products marketed via container. For example, these shipments may be food aid or shipped to a customer as a small-scale specialty commodity.

Shippers reportedly receive an average \$5 premium per hundredweight for containerized grain and oilseed exports, compared to the local bulk market price. Soybean premiums ranged from \$1 to \$16.50 per hundredweight. The average soybean premium is \$4.60 per hundredweight or \$2.75 per bushel. The premium represents an increase in producer revenue of 51 percent considering the average price received by farmers in 2002 of \$5.40 (National Agricultural Marketing Service). The net effects to producer return are estimated to be increased by 28 percent considering the shipper reported \$2.75 premium, less the additional marketing costs that are estimated to be \$1.22 per bushel. The projected net return is based on an economic engineering estimate of the additional marketing costs that likely underestimates the additional marketing costs (Vachal and Reichert, 2000). In addition to dynamic market variables that impact these marketing costs, the model does not consider any additional opportunity cost, production or handling cost, or risk premium.

Shippers report average premiums for pulse crops range from 50 cents to \$3 per hundredweight. The average premium for this commodity class is \$1.10 per hundredweight. Due to limited responses for premiums received for other commodities, the remaining premium data is grouped into the “Other Commodity” category. The average premium for commodities, including crops such as wheat, corn, popcorn, and sunflowers, is reported to be \$9.30 per hundredweight with a wide range of premiums from \$1 to \$20 per hundredweight.

3.4 Market Growth Factors

Statistics indicate that containerized marketing of grain and oilseeds has been an established specialty segment of the U.S. agricultural industry. The shipper volume and industry trend information presented in previous sections suggests this segment may be poised for additional growth. Therefore, it is important to ascertain the relevance of an array of market factors that may lend to or diminish potential for this market growth. Shipper opinions regarding the relevance of factors provide important insight that may be used in assessing issues related to this industry. To attain these opinions, shippers were asked to rank the relevance of 14 factors to the future growth of the containerized agricultural product export trade on a scale of 1 to 5, with 1 indicating the factor is not important and 5 indicating the factor is very important (Table 3.1).

Among the market factors, ocean shipping rates are identified as the most important factor for the success of containerized trade with a rating of 4.6. Shipper ratings of 4.2 and 4.0, respectively, indicate additional critical factors are the availability of containers and rail shipping rates for containers. Ocean liner routes and services, distance to container terminal, and foreign buyer information are also rated with above average importance, ranging from 3.6 to 3.9 on the scale.

Table 3.1 Market Growth Factors

<u>Factor</u>	<u>Shipper Rating</u>
Distance to Container Terminal	3.7
Foreign Buyer Information	3.6
State Truck Weight Limits	3.4
Availability of Containers	4.2
Farm Program	2.3
Inspection/Phytosanitary Requirements	3.4
Access to Market Information	3.4
Ocean Liner Routes and Services	3.9
Ocean Shipping Rates for Containers	4.6
Rail Shipping Rates for Containers	4.1
Barge Container Service Rates	2.7
Container Logistics Information	3.3
Financing	3.2

4. CONCLUSION

Since its globalization in the 1960s, containerization has moved from specialization to generalization in terms of product transport. Technology advancements and market innovations have significantly reduced cost and service barriers once prohibitive for lower-value commodity movements. The U.S. agricultural industry is a heavy user of containers, especially for transporting higher-value products such as fruits, vegetables, and processed foods. More recently, U.S. grain and oilseed shippers also have begun to utilize the flexibility of containerization to ship to customers worldwide. Traditionally, these lower-value bulk products move in train- and vessel-size shipments.

The objective of this research was to create a profile of the U.S. grain and oilseed industry. The profile is based on survey responses from 47 shippers located across 19 states. The profile considers shipper characteristics, market practices, container export activity, and market growth factors.

Containerized grain and oilseed shippers are generally experienced, having been in business an average of 23 years and 80 percent in business for 10 years or more. The containerized marketing activity, however, is a newer addition to the business mix as over half have marketed via container for less than 10 years. Annual individual business TEU volumes increased from an average 169 in 2000 to 212 in 2002. Respondents reportedly marketed a total of 9,766 TEUs of grain and oilseeds via container in 2002. Shippers expect these volumes to increase 20 percent over the next two years. Soybeans dominate the commodity mix, accounting for 73 percent of the volume reported by shippers. A majority of the containerized grain and oilseed export volume, 76 percent, is originated by shippers located within 350 miles of their primary container terminal. The Pacific Northwest dominates U.S. seaports considering shipper utilization of gateways in moving these products from the inland production points to ocean vessel for shipment to overseas customers.

Dynamic market fundamentals influence the profitability of containerized grain and oilseed shipments as global container trade dictates rate levels and equipment. Shippers indicate an average premium of \$5 per hundredweight for container shipments, relative to the local bulk market price. Business marketing practices and exogenous market factors affect the difference in net return to shippers or the bulk versus containerized grain sale. Ocean service contract negotiation is a critical factor in this profitability. Over half the respondent shippers negotiate contract terms with their ocean carriers. The drayage for shipments made under some contracts is handled by the ocean carrier for 13 percent of shippers. Most often, freight forwarders are hired to manage the drayage for container shipments.

Shippers indicate ocean shipping rates are the most critical factor in the potential growth of their businesses. Other important factors include availability of containers and rail rates for shipping containers. Shipper responses also suggest that ocean liner routes and services, distance to container terminal, and foreign buyer information have greater than average significance in terms of factors important to the success of the containerized grain and oilseed market sector. These shipper insights into growth factor and the industry shipper profile presented in this research offer a unique opportunity to gain insight into a growing segment of the grain and oilseed industry. The information may be an asset in future planning, policy, research, and investment discussions.

5. REFERENCES

National Agricultural Statistics Service, United States Department of Agriculture, *Agricultural Statistics 2003*, Located at www.usda.gov/nass/pubs/agr03/acro03.htm. Accessed April 12, 2003.

National Unaffiliated Shippers Association, *Ocean Shipping Reform Act*, Located at <http://www.nusa.net/nusafmc.htm>. Accessed May 2, 2003.

Port Import Export Reporting Service (PIERS), Data Subscription Services, Journal of Commerce, New York, New York, 1999-2002.

TEU (20-foot equivalent unit)--Commonly describes a 20-foot container.

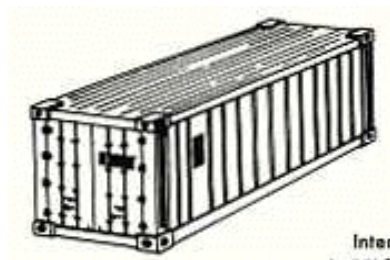
This estimate includes barley, cottonseed, corn, flaxseed, oats, rye, sorghum, soybeans, sunflowers and wheat.

Vachal, Kimberly and Heidi Reichert. 2000. *Identity Preserved Grain: Logistical Overview*, UGPTI Staff Paper No. 143, North Dakota State University, Fargo.

Vachal, Kimberly and Heidi Reichert. 2002. *U.S. Containerized Grain and Oilseed Exports: Industry Profile Phase I*, MPC Report No. 02-132.

APPENDIX A

CONTAINERIZED EXPORTS OF FIELD CROPS Survey of Shippers



Please Respond by

December 20, 2002

This survey is being conducted to better understand the information and marketing needs of U.S. field crop container exporters. Please enlist resources we currently have available for container shippers at www.ams.usda.gov/tmd/tmdsea.htm.

Return the enclosed Industry Alert card to receive notification about survey results.

We appreciate your cooperation in our effort and look forward to working with you in the future.

**INDIVIDUAL RESPONSES ARE
CONFIDENTIAL!**

**Data will be
Aggregated by Region for
Survey Results**

Q6. Composition and Characteristics of Field Crop Container **Exports**

	COMMODITY			
	Soybean	Pulses	Other (Please Specify) _____	Other (Please Specify) _____
6-1. Composition	%	%	%	%
6-2. Packaging (Please Circle all that Apply)	Bag / Tote / Bulk	Bag / Tote / Bulk	Bag / Tote / Bulk	Bag / Tote / Bulk
6-3. Shipment is Part of USDA Program Sale	%	%	%	%
6-4. Average Premium for Container Shipment Compared to Bulk Local Market Price	\$ per Cwt	\$ per Cwt	\$ per Cwt	\$ per Cwt
6-5. Do you Market Any of this Crop <u>within</u> the U.S. by Container?	No / Yes	No / Yes	No / Yes	No / Yes

Q7. Which Ocean Port Region do you Use for your Field Crop Container Exports?

	Pacific Northwest Region	Long Beach/LA Region	Atlantic Port Region	Other (Please Specify) _____
Share of Volume	%	%	%	%

Q8. Why are you shipping via container (Please Circle all the Apply)?

- Organic Product Food Grade Product JIT Delivery USDA Program
- Buyer Request Foreign Infrastructure Non-GMO Product Small Quantity Sales
- Other _____

Q9. Which resources do you use to monitor market information and manage your business (Please Circle all the Apply)?

- Internet Magazines/Newspapers Shipper Organizations
- State Agencies International Agencies Consultant/Broker
- Federal Agencies Other (Please Specify) _____

Q10. Contracts

- 10.1 Typical Duration for Contract with Foreign Buyer: _____ months
- 10.2 On average, how many buyers do you contract with annually? _____ buyers
- 10.3 Time between signing of sale contract and actual shipment? _____
- 10.4 Is delivery point typically specified in sale contract? Yes / No

Q11. What factors are of greatest importance in the **future growth** of your field crop container business?

		not important				very important
11-1.	Distance to Container Terminal	1	2	3	4	5
11-2.	Foreign Buyer Information	1	2	3	4	5
11-3.	State Truck Weight Limits	1	2	3	4	5
11-4.	Availability of Containers	1	2	3	4	5
11-5.	Farm Program	1	2	3	4	5
11-6.	Inspection/Phytosanitary Requirements	1	2	3	4	5
11-7.	Access to Market Information	1	2	3	4	5
11-8.	Ocean Liner Routes and Services	1	2	3	4	5
11-9.	Ocean Shipping Rates for Containers	1	2	3	4	5
11-10.	Rail Shipping Rates for Containers	1	2	3	4	5
11-11.	Barge Container Service Rates	1	2	3	4	5
11-12.	Container Logistics Information	1	2	3	4	5
11-13.	Financing	1	2	3	4	5
11-14.	Other (please specify)	1	2	3	4	5

We welcome any additional comments regarding field crop container marketing:

THANK YOU!

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