Cargill's Acquisition of Continental Grain's Grain Merchandising Business

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Abstract

What are the advantages of concerns raised regarding the Cargill acquisition of Continental Grain company's grain merchandising business? The largest grain exporter acquiring the second largest exporter has raised some concerns regarding potential loss of competition, but also may make these firms with excess capacity more efficient and effective in competing for a larger U.S. share of the world market. This white paper pulls together the relevant data which was quickly available and provides some analysis which may prove useful in the dialog as the pros and cons of this acquisition are debated.

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The proposed Cargill purchase of Continental Grain's grain merchandising business would join the world's two largest grain and oilseed exporters. Many farm organizations, other participants in the industry, regulators, and policy makers have expressed concerns about the proposed acquisition. We will describe the businesses and market volumes involved, the locations where potential losses of competition from their combination may be important or insignificant, and discuss potential increases in efficiency or effectiveness which might be expected from such a business combination. Ultimately, the questions regarding the acquisition are likely to boil down to comparing the potential benefits and costs, overall, and we will briefly consider both.

In a relatively brief one-month study, a team of economists from several universities[i] interviewed a number of knowledgeable members of the grain merchandising and exporting industry in the United States. Questions were posed regarding possible areas of concern, and opinions regarding potential effects on competition in the grain merchandising industry. Industry participants were asked for estimated storage and loading capacities for their firms and leading competitors, and their estimates of merchandising volume or market shares owned or controlled by leading competitors. Several strategic locations important in the grain merchandising business were selected for more in-depth analysis due to their influence in the export or river terminal marketing systems, and the futures markets which play a very important role in price discovery and risk management in the grain merchandising industry.

Thus, we emphasize interior barge loading locations on the Illinois (the delivery location for the Chicago Board of Trade (CBOT) corn and soybean futures markets beginning in 2000), Mississippi and Ohio rivers, futures market delivery locations currently at Chicago, Toledo, and Kansas City, and the high volume export locations on the East and West coasts. The information collected comes from a number of government, trade publication and industry sources. The data and analysis below has been reviewed by several economists and industry members. While we attempted to eliminate mistakes and omissions, there may be some remaining which were unable to be corrected in the short time frame available for the study.

Viewpoints regarding concerns and potential implications were solicited from Cargill, Continental Grain, and other industry and government sources. Sources of data are camouflaged where necessary to preserve confidentiality. Throughout, we offer the pros and cons to consider on the issues raised by farmers, industry members, and government policy makers and regulators, hopefully in a non-judgmental way, to stimulate an informed dialog.

Antitrust review procedures

A major combination of two leading competitors in the U.S. and world grain merchandising industry certainly will prompt market power concerns by policy makers, the Secretary of Agriculture, etc., which will involve data submission to the relevant antitrust agencies. The review (and subsequent challenge or approval) will be done by the U.S. Department of Justice and similar agencies in other parts of the world where both companies extensively do business.

U.S. antitrust law bars transactions that are likely to have substantial anticompetitive effects (Azcuenaga). The unifying theme of the Department of Justice (DOJ) and Federal Trade Commission (FTC) merger guidelines is that mergers should not be permitted to create or enhance market power or to facilitate its exercise. *[the full text of FTC/DOJ merger guidelines is available at http://www.ftc.gov/bc/docs/horizmer.htm]* Market power to a seller is the ability to maintain prices above competitive levels for a significant period of time. The relevant agency (the food industry usually is the Department of Justice jurisdiction) assesses whether the merger would significantly increase concentration and result in a concentrated market, properly defined and measured. Second, the agency assesses whether the merger, in light of market concentration and other factors that characterize the market, raises concern about potential adverse competitive effects. Third, it analyzes whether entry by new competitors will be timely, likely, and sufficient either to deter or to counteract the likely short-term anti-competitive effects. Fourth, it assesses any efficiency gains that cannot reasonably be achieved by the parties through other means.

Typically, the focus of agency review in the U.S. will be determining: (1) the relevant market for analysis; (2) the share of the market controlled by the companies involved; (3) the measures of market concentration before and after the acquisition (small changes are usually considered more important in more highly concentrated markets; large changes are relatively less important in unconcentrated markets), and (4) the ease and speed of entry by potential competitors. In some cases, control of key technologies (e.g. Monsanto's genetic engineering patents in their recent DEKALB Genetics acquisition) or raw materials, or possible competitive bottlenecks or foreclosure of access to markets at important stages in a distribution chain may suggest potential market power. Such conditions may warrant further analysis.

At the same time, tradeoffs to possible reductions in market competition are also considered. The Agency considers whether efficiencies likely would be sufficient to reverse the merger's potential to harm consumers or suppliers in the relevant market, e.g., by preventing price increases to customers or price reductions to suppliers in that market. The Merger Guidelines indicate that merging firms must substantiate efficiency claims so that the Agency can verify by reasonable means: (1) the likelihood and magnitude of each asserted efficiency; (2) how and when each would be achieved (and any costs of doing so); (3) how each would enhance the merged firm's ability and incentive to compete; and

(4) why each would be merger-specific. Efficiency claims will not be considered if they are vague or speculative or otherwise cannot be verified by reasonable means.

Two key points are raised in the Guidelines regarding efficiencies as an offset to concerns regarding loss of competition--(a) efficiencies are most likely to make a difference in merger analysis when the likely adverse competitive effects, absent the efficiencies, are not great; and (b) efficiencies almost never justify a merger to form a monopoly or near-monopoly.

The industry and market setting

To put the proposed acquisition in perspective, we first review the changing structure of the world and U.S. markets in which these grain merchandisers operate.[ii]

The food and agricultural sector has been undergoing rapid consolidation in the last two decades, as this sector joined with many others in the U.S. economy in the merger and acquisition wave. The farm production transition toward fewer, larger, more sophisticated operations was joined by similar consolidation of volumes in the hands of fewer, larger firms in the farm input, food processing, food wholesaling, food service and food retailing industries. The international scope of the market for food and agricultural products expanded dramatically, and the demands of the domestic and international customers changed the nature of competition and the strategies necessary to succeed in these inter-related industries. Developments in information technology and, more recently, biotechnology have begun to play major roles in the organization of the food sector.

U.S. grain exports have been cyclical, and often volatile from year to year (See Figure 1). In the late 1960s and 70s, the world grain market grew rapidly as incomes improved globally, and markets which previously had been closed (especially the former Soviet Union) became major customers for grain. This often involved single government buyers of basic commodities in very large bulk transactions. U.S. grain production and exports grew rapidly, as did the corresponding infrastructure to provide the necessary storage, rail, barge, and ocean freight distribution system. (See Figure 1). In the 1980s and 1990s, the export market tumbled as the economies of, first, the former Soviet Union, and later the increasingly important Asian customers (Japan, Thailand, Korea, etc.) had significant problems which led to a sharp reduction in overall grain and oilseed exports. Argentina and Brazil became major competitors in corn and soybean export markets, and Western Europe became a net exporter in the late 1980s, reducing the U.S. share of world exports. At the same time, the growth of the U.S. poultry and livestock feeding sector and the domestic grain and oilseed processing industries (corn sweeteners, ethanol, soy crushing) led to greater domestic use of grain and soybeans, and a reduced role for exports in the U.S. marketing system. Expanded pork and beef exports displaced grain exports. Grain and oilseed export-related facilities for storage, handling, transporting, and ship-loading were built as a result of government program incentives or contemplation of continued export growth, resulting in substantial excess capacity (grain storage capacity peaked in the late 1980s). While excess capacity is difficult to measure with precision, comparing peak export volumes in recent years, months or quarters with recent export volumes (see Table 1) shows a few measures of surplus capacity in the U.S. grain export system, and why recent profitability suffered for the major grain merchandisers most dependent on exports. Note that the export areas in Table 1 may not be defined the same as the tables which follow (e.g. Pacific includes California as well as Pacific Northwest ports; Interior are basically Mexican and Canadian border terminal sources, primarily rail). Note also that with the extreme volatility of U.S. grain exports in relatively short periods of time, that substantial excess capacity is needed to accommodate unanticipated surges in demand. In two out of the last seven years, these export surges caused volume changes of 55% from the high to the low export volumes. Moreover, grain export demand is seasonal so that annual export volumes may under-state peak capacity needs during the fall harvest season.

Trying to describe effectively the many stages of the grain and oilseed marketing system is very difficult. Grain sold by a farmer to a local elevator and ultimately destined for export may have several changes of ownership, with prices established several times at different locations, at rail terminals, river terminals, and export terminals, (See Figure 2). Grain may be diverted from that distribution stream by competitive bidding from livestock producers, feed companies, corn or soybean processors along the way. A fairly large number of competing merchandisers may own relatively few facilities like country grain elevators, barge or ship loading facilities, but still be active competitors (paper traders) buying and selling grain at each stage of the merchandising system, and using facilities owned by others (acquired on a competitive bid basis) for storing, blending, loading and unloading. With excess capacity in the storage and distribution system in recent years, their operating costs are often quite low, and "paper traders" have been effective competitors. Their effectiveness, however, is heavily dependent on excess capacity in the marketing system, and with concentrated ownership of facilities, they would be much less effective if exports were to increase sharply and strain the capacity of the system at a future time.

The players in the grain merchandising system have changed greatly over the last 20 years. Table 2 below summarizes estimated storage capacity by Milling and Baking News in 1981 and 1998. Milling and processing storage capacities are included, so these are not purely grain merchandising facilities. The Cargill figures do not include "The Andersons" storage capacity; they have recently begun a marketing venture with "The Andersons" at Toledo and Maumee, Ohio, but do not own the facilities[iii]. Cargill reports that their grain merchandising storage capacity (excluding processing, The Andersons, etc.) is 345 million bushels, and their other processing, subsidiary and joint venture storage capacity (excluding The Andersons) brings their total storage capacity to 463 million bushels.

Table 2. Storage capacity of 10 Largest U.S. Grain Elevator, Milling and Processing Companies, 1981, 1999

Company	Total Capacity, 1981(mil. bu.)	Company	Total capacity, 1999 (mil. bu.)
Cargill	148	ADM	611
Far-Mar-Co	122	Cargill	463[1]
Continental Grain	110	ConAgra/Peavey	198
Union Equity Co-op	67	Farmland Grain Div.	178
Pillsbury	54	Bunge	170
Central Soya	51	Continental Grain	169
Bunge	47	Cenex Harvest States Coop.	146
The Andersons	43	Riceland Foods	102
Lincoln Grain	39	The Andersons	80
Indian Grain	39	General Mills	72

Sources: Structural Change and Performance of the U.S. Grain Marketing Industry; Milling and Baking News Grain and Milling Annual, 1999, pp. 21-22; [1]Cargill (M&BN has 515).

Only three of the largest grain companies in 1981 show up on the 1998 list. Three farmer cooperatives are now part of the top 10, versus two in 1981. Some regional cooperatives have grain merchandising joint ventures with other corporations -- e.g. Cargill, ADM.

Price discovery takes place at each stage of the system where ownership changes hands, with the interaction of supply and demand forces in each local or regional area, in turn influenced by supply and demand conditions at locations closer to the ultimate customer for the basic commodities-- the domestic or export customer. Price reporting by government agencies plus the interactions of buyers and sellers provide a good deal of transparency in the price discovery process among the merchandisers, and--through government price reporting and bids to local elevators--ultimately to farmers.

The Chicago and Kansas City Boards of Trade and the Minneapolis Grain Exchange play a significant role in providing corn, wheat and soybean futures contracts which are used to manage price risks for farmers and grain merchandisers at all stages of the system. All three futures markets have delivery points for each contract which involve some Cargill and Continental elevators. The futures markets are a major source of market information as well as global price-discovery mechanisms, and exert significant influence on the price and margin structure in the grain industry.

Cargill and Continental Grain

Cargill, Inc. is the largest private company in the Forbes magazine 1998 listing of private companies in the U.S., and Continental Grain Company was no. 5 on the list (Table 3).

Table 3. Cargill and Continental Grain Statistics, 1998

	Cargill	Continental
Revenue (billion $)	51.4	15
Net profits (million $)	468	100 (est.)
Employees (thousands)	80.6	17.5

Source: Forbes magazine

These data are for the entire companies, which include very large livestock production, feed company and financial operations for Continental Grain, and extensive livestock production and meat processing, feed, poultry, steel, shipping and other business enterprises for Cargill. Cargill has grain merchandising offices and facilities in 43 countries. In the U.S., Cargill has 243 grain facilities; the industry leader, ADM, through ownership or joint ventures has 669 facilities, according to Milling and Baking News. Note that estimated average profit per dollar of sales was less than one percent for Cargill's combined businesses, and even less for Continental Grain, though these are only for one year, and may not be representative. For its 1995-96 and 1996-97 fiscal years, Cargill reported gross revenues of $56 million (Billion?) each year and profits of $804 and $902 million, respectively. Its profits in these two years were less than two percent of sales.

Only the Continental grain storage, transportation, export and trading operations, with offices and facilities in 30 countries (in North and South America, Europe, the Middle east, Africa and Asia) are involved in the acquisition, with customers in over 100 countries. If approved by the DOJ, the assets and selected employees will be transferred in first quarter, 1999. In the U.S., Cargill indicates that these assets include 83 grain handling facilities, which will add 73 new locations to their current 243, and 10 facilities where Continental and Cargill elevators currently coexist close to each other.

Cargill and Continental are important in other parts of the world grain economy as well. For example, a Cargill Argentina press release indicates the combined operations would account for about 25 percent of Argentine corn wheat and soybean exports. They are significant competitors in most areas of grain production, along with such trading companies and merchandisers such as Peavey, ADM, Bunge, Zen Noh, Cenex Harvest States, Tradigrain, Farmland, AGP, Nidera, Mitsui, Marubeni, Mitsubishi, Kanematsu, Glencore, Oriac, Itochu, CAM, A.C. Toepfer, and Seaboard.

Reasons for the acquisition

Why did Continental Grain sell?

Industry speculation is that Continental excelled in very large volume bulk export trading, and had not diversified enough into the value added processing to compete effectively in a market environment where export volumes have been sharply reduced in recent years. To compete effectively by restructuring their operations at this late date would require too much capital and too much risk. Continental's storage capacity declined significantly over the last 10 years, while Cargill, ADM and Peavey expanded (Top Producer, Jan., 1999). Their capital could be more productively employed in their other agricultural and financial businesses.

Why did Cargill buy Continental?

Cargill expects this acquisition to contribute to its ability to compete effectively in a rapidly changing market environment. The acquisition will contribute to more effective knowledge acquisition and transfer from an expanded global presence and a broader base of grain origination facilities in the countries where grain is produced. The grain merchandising system is a high fixed cost system. Cargill hopes to compete more effectively and keep a large share of the Continental volume, capturing economies of scale by running more volume through without equivalent changes in the costs of managing their system. Further, Cargill expects that it will be more able to take costs out of the system, not just through fewer people, but by dedicating some facilities to specialized products and getting more efficiencies in operations (shorter barge turnaround times, longer runs in elevator handling, etc.). Their new joint venture with Monsanto to arrange production and to market value-added specialty grains and oilseeds for the feed and processing industries will require greater capacity to handle segregated grain flows throughout the domestic and export marketing system. Continental has had a significant presence in the identity preserved grain market, with half its international feed customers converted to high oil corn. Cargill expects to better serve the producer by enhancing productivity and passing some of those cost savings on in the form of better prices to their suppliers and customers. They also plan offer many more price risk management alternatives and advice, financing, etc., to farmers.

The efficiencies which Cargill plans to achieve from the acquisition will have to be estimated in tangible terms for consideration by the Department of Justice. In addition, some of the less tangible benefits identified by Cargill could influence the firm's effectiveness in competing in the domestic and world market arenas. A broader coverage of the major world suppliers and customers in the world grain and oilseed trade may offer improved market intelligence, a key to effective trading in a very risky environment, as well as more effective and timely sourcing to serve a broader array of discriminating customers.

Concerns regarding the acquisition

The basic concern expressed by some farmers, politicians, and industry participants is that Cargill bought Continental to remove a significant competitor, particularly in the export market, and expand merchandising margins. The ability to "control" more facilities and larger volumes of grain and soybeans might adversely influence competition and the transparency and effectiveness of the price discovery process in the grain marketing system.

Other issues which might arise are similar to those being raised in the current Microsoft case, such as: Will the merger result other merchandisers and processors having to conform to Cargill standards in grain merchandising?; Will the merger result in exclusivity in marketing arrangements with Cargill such that firms that do business with Cargill are excluded from or penalized for doing business with other merchandisers? Will Cargill bundle products or terms into their merchandising arrangements, like requiring its buyers and suppliers to use Cargill transportation or Cargill risk management tools? Will Cargill control so much grain at various stages of the system that fewer negotiated prices and price reports are available to keep the price discovery system transparent?

This paper will deal with only a few of the most important issues, but hopefully will lay the groundwork for subsequent study of other issues.

Some relevant facts

How much will the acquisition change the number and size of competitors in the U.S. grain marketing system? We examine the Cargill and Continental grain elevator storage capacity, barge and ship loading capability, and volumes handled at each stage of the system by Cargill, Continental, and their major competitors. Further, we consider other factors influencing whether the acquisition of Continental might change the competitive landscape significantly. The overall influence of Cargill and Continental and their overlaps in the U.S. can be seen in the U.S. map (Figure 2) summarizing all country, river and ship loading elevator locations in the U.S. developed from the April, 1998 USDA Farm Services Agency data base on off- farm grain storage capacity. The second map (Figure 3) shows the locations of the key barge and ship loading areas which we subjected to further study, due to their potential to be a competitive bottleneck if there **were** very high levels of concentration at these locations.

Cargill indicates that the combined grain merchandising businesses accounted for 3 percent of the 10,500 U.S. commercial grain storage facilities (6-7 percent of commercial storage space), 20 percent of river terminal elevator capacity, 35 percent of U.S. grain and oilseed exports, and 10-13 percent of grain coming off farms (8-10 percent--Cargill, 1-2 percent--Continental Grain).

The relevant market

The U.S. grain markets are generally perceived as a fairly well integrated national market. Farmer cooperatives originate a large share of grain from farmers. Both cooperatives (Such as Farmland, Harvest States, Land O' Lakes), public and private grain trading or processing companies (like Cargill, Continental, ADM, Farmland, ConAgra, General Mills, Louis Dreyfus, Zen Noh, etc.) play roles in direct purchases from farmers and subsequent trading of commodities at many stages of the distribution process, arbitraging any small differences in prices in acquiring and shipping grain to make small percentage trading profits.

In an old (1979) study of the U.S. corn market, Thompson and Dahl found that the very high correlation of corn price changes in five locations around the country (correlation with what?, prices in each market moving simultaneously in direction and size of changes?) suggested that the pricing behavior was like that found in perfectly competitive markets. A more recent (1997) study by Good, et al., shows high soybean price correlations between the Gulf and most midwest locations (over .85 for daily price changes), and correlations for corn for similar locations between .5 and .85. This is one indication that various areas within the U.S. are all part of a national market (but does not necessarily indicate perfect competitiveness. One would expect that same high correlation, even if Cargill were a monopolist at the Gulf.)

The export locations

Cargill estimates that Cargill and Continental Grain accounted for 35 percent of U.S. grain and oilseed exports last year. Industry sources using Department of Commerce (Pier Import Export Reporting Service) data for a shorter time period, May, 1997 - October, 1998, calculate that Cargill and Continental Grain accounted for 14.5 and 13.1 percent, respectively, of export shipments of wheat, corn, soybeans, sorghum, barley and oats, based on bills of lading filed with U.S. Customs.[iv] Secretary of Agriculture Dan Glickman, in a letter to the Department of Justice, estimated that the combined Cargill-Continental Grain operations accounted for 42 percent of corn export volume, 31 percent of soybeans, and 19 percent of wheat exports in fiscal 1998, based on grain inspected by USDA for export from their facilities last year.

GIPSA-USDA provided data on the shares of export volume in fiscal 1998 by the leading firms, and the share accounted for by the leading four firms in each location (summarized in Table 4). This data treats Cargill and Continental Grain as separate firms, so their combination would increase these shares by the top four firms. There is a very large share of the volume accounted for by a few firms in a large number of locations. Nationally, 81 percent of corn exports were accounted for from the facilities of the top four firms, which include Cargill, Continental, ADM and Zen Noh. Note that this does not necessarily mean that the grain was owned by those firms; they may have just provided the ship loading facilities for a fee for another competitor in the market. In a time of major excess industry capacity such as at present, even with concentrated ownership of facilities, such fees could be less than full costs of providing the service. In times of a shortage of capacity, the fees could exceed full costs of providing the service. The same top four firms accounted for 65 percent of soybean exports, while a substantially different set of largest firms provided a much lower share (47 percent) of wheat exports.

The most concentrated export locations include the small-volume Atlantic Coast port locations, the moderate volume Pacific Northwest port locations, and the very large volume Gulf port locations. Examining the firms involved at each location, and the changes in storage, loading capacity and market shares from the acquisition may provide some useful insights into possible competitive implications.

Tables 5- 13 summarize the GIPSA-USDA ship loading facility data for fiscal 1998. Note that a firm's share of storage capacity or loading capacity is likely to be highly correlated with share of volume handled, but either clearly is not a perfect index of volume market shares.

An examination of the USDA ship loading capacity and storage in the leading port areas discloses that the Cargill acquisition will have little or no impact in Duluth and Toledo on the Great Lakes, but will remove the only grain elevator competitor remaining in Chicago (which has been declining in importance in the grain industry for a long time; Cargill closed a facility there a few years ago). While Chicago might be viewed as a dying market, with Chicago and Toledo dominated by either Cargill facilities or facilities operated under a joint venture including Cargill, this still may raise questions regarding the CBOT futures contracts where these are the only effective delivery points for 1999 (St. Louis seldom offers warehouse receipts for CBOT deliveries).[v]

On the low-volume East Coast, Cargill is the primary exporter in the Virginia ports, unchanged due to the acquisition. In the Pacific Northwest, Cargill's share of capacity will be near 50 percent, up slightly with the addition of one Continental elevator, with several other competitors.

In the Louisiana and Texas Gulf, Continental only had a small share of capacity (9 and 12 percent, respectively) in each location. Combined with Cargill's 22 percent share in the Texas Gulf and near 30 percent in the larger-volume Louisiana Gulf ports, this may not be viewed as a significant change from the acquisition, since there are several competitive private and public (e.g. Port of Houston, Port of Corpus Christi) ship loading terminals. In the combined Louisiana and Texas Gulf port area, Cargill accounts for 36 percent of ship loading storage capacity after the acquisition, versus 26 percent before. While the advantages of low cost barge transportation may make the Louisiana Gulf ports more attractive destinations for export grain from many parts of the upper Midwest than the Texas gulf, the Gulf ports also are competitive with each other and probably with East Coast and Great Lakes ports for export business in many countries. The Gulf ports often will also be competing directly or indirectly for some parts of the west central U.S. grain with exporters using the PNW ports to serve Asian markets as well. Thus, the shares by leading firms in a local or regional area may not be a good indicator of their potential impact on competition and prices in those areas.

Since the export market concentration is substantially higher than at other stages in the grain marketing system, this is one of the relevant market issues which will have to be carefully examined by the antitrust authorities. Are any or all of these ports really separate and distinct markets? If so, is the change in export market concentration (shares of market volume, not capacity) attributable to the acquisition likely to significantly reduce competition?

River barge terminal locations

We have examined USDA data on storage capacity and barge loading capability for facilities located on the Illinois (both the upper part North of Pekin and entire river), Ohio, Upper Mississippi, and Missouri (near Kansas City) Rivers. These are the barge feeder systems into the Mississippi River for export out of the Gulf. Approved facilities in the Kansas locations serve as the delivery points for the Kansas City Board of trade wheat contract, and the Northern Illinois River is slated to be the corn futures delivery area for the Chicago Board of Trade in 2000, while the entire Illinois River (down to St. Louis) will serve as the delivery points for the CBOT soybean futures contracts. The USDA data are summarized in Tables 14-19. Be cautious in interpreting the barge loading capacity, as it appears that some facilities with shared capacity are listed multiple times in the USDA data.

We note little change from the Cargill acquisition on the Missouri River, and the Ohio River. We also examined the Columbia River, Arkansas River and Tennessee River (no tables included), and found little or no change from the acquisition. Consequently, we will not consider them further.

On the Upper Mississippi, where there are a large number of competing firms, Cargill's addition of Continental modestly increases its share of storage capacity to near 27 percent, from 20 percent previously.

On the Illinois River, the shares by company vary depending upon whether all the river (for the CBOT soybean contract) or the Northern part of the river (for the CBOT corn contract) are considered, and whether the very large Chicago Continental facility and the Cargill Burns Harbor facility are included as river barge loading locations. The Chicago facilities are higher cost operations; thus they rarely load barges.

We will discuss the shares of capacity excluding the Chicago area facilities, then footnote differences when they are included. ADM is clearly the largest firm, with approximately 33 percent of the storage space on the entire river, but ADM's share is 60 percent in the area above Pekin which will be the delivery area for the corn futures contract. Cargill's acquisition will bring its share of capacity from 18 percent to 25 percent for the entire river, and increase its share of the Northern Illinois storage from 11 percent to 27 percent.[vi] Consolidated Grain and Barge is a large competitor in the lower Illinois River (28 percent of entire river storage), but only has one facility above Pekin. Cargill's acquisition might not appear problematic in this area if ADM was not so large. However, the combination of these two large players and their share of volume traded, not just storage capacity, in the futures market delivery area may prompt closer examination by the DOJ.

Several issues might warrant examination. First, is it appropriate to simply consider the barge loading firms as the competitors to examine, as a conduit to the export market as the special focus. Or must other firms buying grain for feed and processing from the same origination areas also be considered? If so, how many and how important are each in the local or regional market? This question is one we are unable to address in our brief study. If the concern is about (1) whether competitive margins at an important export market conduit are likely to be effectively increased, or (2) whether the firms in the Northern Illinois area approved for delivery by the CBOT may be able to artificially influence deliveries, handling costs, and therefore futures prices, basis, and price spreads, then a narrower drawing of the relevant market may be warranted. Otherwise, the competition from non-river locations will be an important factor diluting the estimated degree of concentration, perhaps dramatically.

Potential competition in the form of (1) excess capacity of current barge loading facilities, or (2) the speed and cost of adding new barge loading and/or storage capacity would also warrant study, to determine whether any potential market power of a few large firms could be quickly and easily defused by entry into these local or regional markets.

Chicago, Toledo and the Illinois River

It might be argued that the consolidation in Chicago is merely a symptom of a dying market which has outlived its usefulness. One industry source contends that Chicago elevators are not a factor in the export trade as they are no longer in the main flow of grain; thus he was not concerned who owns or controls them as they do not drive the market anymore.

Excess capacity present in Chicago and Toledo may be forcing consolidation. Further, broader competition for corn, wheat and soybeans is present than is represented by the few ship or barge loading facilities in Chicago, Toledo and St. Louis which happen to be approved for CBOT deliveries. Perhaps this is no problem from a competition standpoint, but only a perceived problem because of the narrow definitions of delivery points by the CBOT (the expressed purpose for the narrower delivery area was to reduce basis variability). If so, that may be a problem to be solved by the CBOT, not the DOJ. The CBOT has made changes in contract delivery specifications effective beginning in the year 2000 by replacing deliveries via warehouse receipts in Chicago, Toledo and St. Louis with barge shipping certificates at approved locations on the Northern Illinois River (corn) and Illinois River to St. Louis (soybeans). Proposals for changes in the CBOT wheat contract are pending. These changes are clear improvements to the contracts, by increasing the size of the delivery area and the number of facilities approved for delivery. One industry source characterizes the new delivery locations and specifications using shipping certificates as a very liquid market with very few barriers to entry. However, the near 85 percent share of storage capacity by two firms (and probably a higher share of volume) in the Northern Illinois River prompts a more thorough look at the situation there. Expanding the delivery areas to the entire Illinois River, adding the upper Mississippi as an option when it wasn't frozen, or similar changes to reduce concentration of ownership of barge loading facilities (or barges themselves, not considered here) may warrant consideration.

Potential competition

The grain coming to the Illinois River probably comes primarily from areas close to the Illinois or from points farther East, as the Mississippi is close to it on the West, and would intercept any grain from the West except when the Mississippi is closed to barge traffic in the winter. Thus, any artificial margin enhancement in the short run by the largest firms on the Illinois likely could be circumvented by, for example: going to uncooperative fringe competitors on the Illinois which currently have a lot of excess capacity (adding shifts or hours of operation); bypassing the Illinois to go to the Mississippi at a small marginal freight cost from areas East of the Mississippi (except in the winter); moving grain by truck or rail to lower Illinois River competitors, or using more expensive rail shipment to the Gulf -- if other local processors, feed users, etc., did not provide effective competition. Such actions may be sufficient to keep the market well arbitraged and result in little or no margin enhancement. At least one non-Cargill industry source contends the river market "is too "fluid" to allow squeezes to occur. It doesn't take much competition or delivery threat to make markets adjust to reality."

In the intermediate run, barge handling capacity could be added by adding truck-barge or rail-barge loading facilities at relatively low cost, or adding more expensive storage facilities with barge loading facilities at new locations. Industry sources suggest that a new truck-barge loader, with minimal storage capacity, could be up and running in about four months at an estimated cost of about $2-3 million, although required environmental assessments and permits might lengthen the period. A larger, more sophisticated facility with more extensive storage, two truck dumps and a drying system could be built in about eight months at a cost of about $5 million. Thus, entry of new competitors does not appear difficult if an adequate location can be found and environmental requirements accomodated. CBOT requirements of $5 million net worth also don't appear too restrictive for new entrants to qualify as delivery locations. With excess capacity now, and no clear signals that the export demand for grain will surge in the next year or two, there is no incentive for such expansion. If excess capacity remains, it would be difficult to exploit the high concentration on the Northern Illinois River, so new entrants may not be necessary to police the large companies for a long time.

Grain origination off-farms

Table 20 summarizes the GIPSA-USDA data on off-farm storage capacities in the U.S. by company (Mapped in Figure 2, with Cargill and Continental Grain facilities noted). Ownership is not highly concentrated, with a large farmer cooperative influence. The acquisition will expand Cargill's geographic coverage in country locations as well as the river and port locations discussed above. Cargill reports that the two companies accounted for 10-13 percent of grain coming off farms last year (8-10 percent--Cargill, 1-2 percent--Continental Grain). This was from 3 percent of the 10,500 U.S. commercial grain storage facilities (with 6-7 percent of commercial storage space).

Summary and Overview

This quick study of the readily available data pertinent to evaluation of the Cargill acquisition of Continental Grain's grain merchandising business in the U.S. market offers the following insights:

- Concerns regarding loss of competition are prompted by the Cargill's acquisition of its largest competitor in the exporting of grain. Together, they account for roughly 35 percent of corn, soybean and wheat volume, with a higher corn export market share.
- The grain and oilseed markets are national in scope, for U.S. antitrust analysis, and international in scope as well.
- Most port locations are relatively concentrated with a relatively small number of owners, though the largest-volume locations like the Gulf have a large number of competitors. The "dying" Chicago grain elevator business declined from two competitors to one due to the acquisition. This could be a temporary problem due to its still being a CBOT delivery point in 1999, and another delivery point -- Toledo -- is dominated by a Cargill/The Andersons joint venture. This still may be a problem for the CBOT wheat contract in 2000.
- Most river terminal locations were affected very little by the Cargill acquisition. The Northern Illinois River, the new CBOT delivery location for corn, now will have two firms accounting for over 85 percent of the barge loading elevator storage capacity after the acquisition. Excess capacity by smaller elevator competitors, other processor, feed company, etc., competitors in the market, and ease of entry might ease concerns about excess market power in this regional market. The CBOT may need to expand its corn and wheat delivery areas to avoid perception of risk of manipulation by largest companies there.
- There are numerous competitors buying grain from farmers in most areas; the acquisition probably will make little difference in local competition for farmers' grain.
- The better utilization of excess capacity and likely cost reductions in the grain merchandising system are the primary efficiency gains which will have to be documented by Cargill in the antitrust review as offsets to any concerns regarding potential loss of competition.

Will potential efficiency gains and improved ability to serve the changing demands of farmers and customers make Cargill and the U.S. grain merchandising industry more effective competitors in the rapidly changing world market? Or will the further consolidation of the industry into fewer hands in important export and river terminal markets reduce competitiveness significantly in this very important marketing system? Some economists (Good, et al.) have argued that there are many competing uses and markets for grain in the U.S. and overseas to keep markets sufficiently arbitraged.

The dynamic changes in the world seed and grain production and marketing system which have been occurring and appear on the horizon (related to biotechnology) are likely to transform the system from the "commodity" orientation to a specialty (value-added trait) product system over the next decade or two. Is this acquisition likely to play a useful role in positioning this company and the U.S. industry as a more efficient and effective competitor for U.S. farmers' grain, and for customers in the U.S. and world markets? Or does it have some associated shortcomings for industry competitiveness in the short run which need to be remedied before the acquisition is approved by our Department of Justice? Hopefully the data and analysis provided here will contribute to an informed dialog and debate.

References

Mary L. Azcuenaga , Merger Law Enforcement In The Evolving Antitrust Environment, Remarks by Commissioner Azcuenga, Federal Trade Commission, before the CS First Boston 1995 East Coast M&A Conference, May 12, 1995

Kevin Kimle and Marvin Hayenga, "The Changing Structure of the Grain Industry", in *Agricultural Input and Processing Industries*, Iowa Sate University Agricultural Experiment Station and Cooperative Extension Service, RD-05, 1992.

1992 Horizontal Merger Guidelines [With April 8, 1997, Revisions To Section 4 On Efficiencies], U.S. Department of Justice and Federal Trade Commission, 1997.

Structural Change and Performance of the U.S. Grain Marketing Industry , D. W. Larson, P. W. Gallagher and R. P. Dahl, editors, The Ohio State University, Columbus, Ohio, 1998.

Grain & Milling Annual 1999, special publication of Milling and Baking News, Sosland Publishing Co., Kansas City, MO.

Sarahelen R. Thompson and Reynold P. Dahl, *The Economic Performance of the Grain Export Industry*, Technical Bulletin 325-1979, Minnesota Agricultural Experiment Station, University of Minnesota.

Darrel Good, Sarahelen Thompson, Robert Hauser and T. A. Hieronymus, *Northern Illinois Waterway Delivery for Corn and Soybean Futures - A Perspective*, June, 1997.

Nicholas Kalaitzandonakes, "Biotechnology and identity-preserved supply chains", *Choices*, Fourth Quarter, 1998, pp. 15-18.

[i] Economists participating in the study include: Marvin Hayenga and Robert Wisner, coordinators, Iowa State University; Kim Anderson, Oklahoma State University; William Wilson, North Dakota State University; E. Dean Baldwin, The Ohio State University; Darrel Good, University of Illinois; Roger Ginder, Iowa State University. Substantial data and assistance were provided by: GIPSA, FSA, and the Office of the Chief Economist, USDA; Commodity Futures Trading Commission; Chicago Board of Trade; Cargill and several other grain merchandising industry members. Todd Campbell and the Global Center for Agricultural and Rural Development, Iowa State University, provided very important analytical support.

[ii] Good background sources on the grain merchandising system include the following references: *Structural Change and Performance of the U.S. Grain Marketing Industry*; *Agricultural Input and Processing Industries.* A recent article dealing with biotechnology in the grain industry by Kalaitzandonakes also may be useful.

[iii] Cargill leases their Toledo-Maumee facilities to The Andersons and have a marketing agreement with them for grain originated in the Toledo-Maumee area only. The agreement does not cover grain originated or marketed by The Andersons outside of the four Toledo-Maumee facilities. Toledo-Maumee represents only a portion of The Andersons' grain origination and marketing business.

[iv] Other leading exporters of those grains included Zen Noh, Louis Dreyfus, Mitsui, Alfred Toepfer, ADM, Agrex, Garnac, Marubeni America, Tradigrain,, Farmland, Harvest States, Bunge, Columbia Grain, and Peavey, and Alliance, each with more than one percent of total exports. Over 100 additional companies were listed as exporters of smaller volumes in that 1997-98 period.

[v] Perhaps the CBOT may need to shift their contract to the new delivery points in 1999, or negotiate a contract with Cargill and the Andersons which provides adequate safeguards on space availability, etc., for anyone making or taking delivery under CBOT futures contracts in Chicago and Toledo during the next year.

[vi] If Continental Chicago and Cargill Burns Harbor facilities were included, the Cargill Upper Illinois share would be 66 percent, ADM would be 28 percent. For the entire Illinois River, the Cargill share would increase to 46 percent, ADM would be 22 percent, while Consolidated Grain and Barge would be 20 percent.

Table 1. Several Measures of Excess Capacity of U.S. Grain Export Facilities

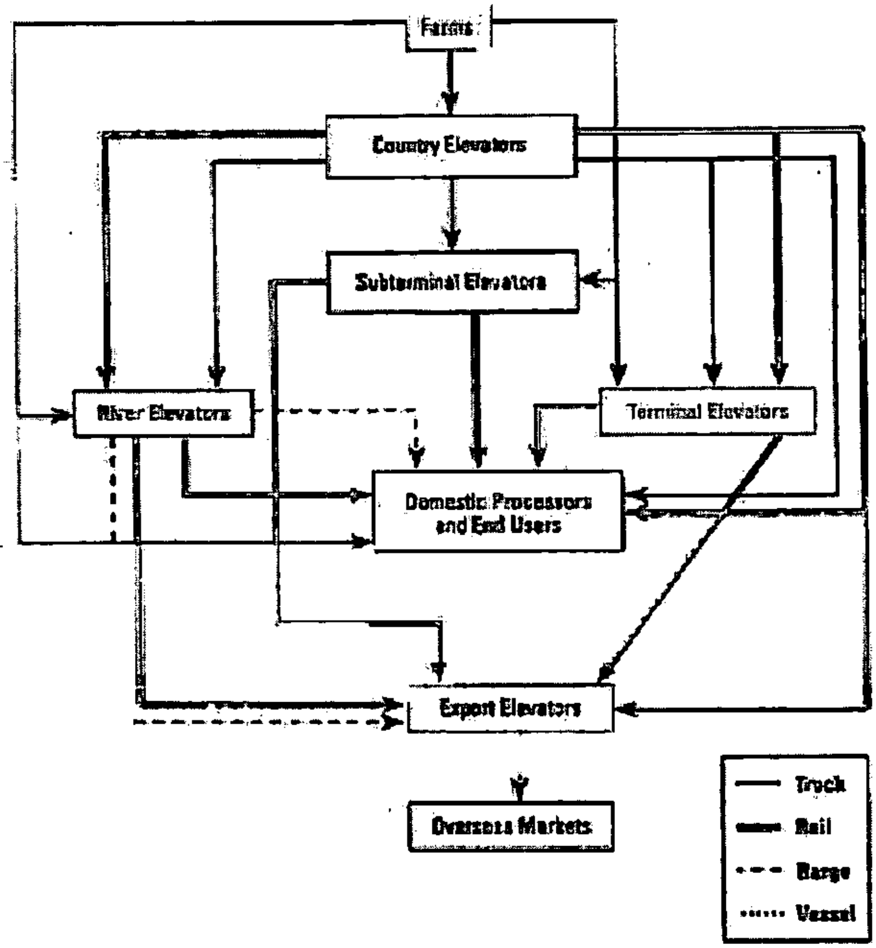
	Annual Capacity of Exporting Facilities*	Annual Capacity Based on Record Month	Annual Capacity Based on Record Quarter (mln Bushels)	Maximum Exports Since 1990	Minimum Exports Since 1990
Lakes	2,673	638	583	274	123
Atlantic	1,048	876	671	164	51
East Gulf	4,130	3,168	2,675	2,527	1,832
Texas Gulf	1,576	1,416	1,072	499	336
Pacific	3,962	1,544	1,277	1,146	702
Interior	360	365	256	239	109
Total	13,749	8,007	6,534	4,654	3,325

* Facility Capacity assumes each facility operates with 3 shift/ day, 6 days/week, 52 weeks/year.

** Export data source -- Cargill data base which includes combination of Inspections & Census.

Source: Cargill

Figure 1 • Grain Marketing, Distribution Channels, and Modes of Transportation



Source: *Structural Change and Performance of the U.S. Grain Marketing System*, edited by Donald W. Larson, Paul W. Gallagher, and Reynold P. Dahl. Urbana, IL: Scherer Communications, 1998.

Figure 2. Storage Locations

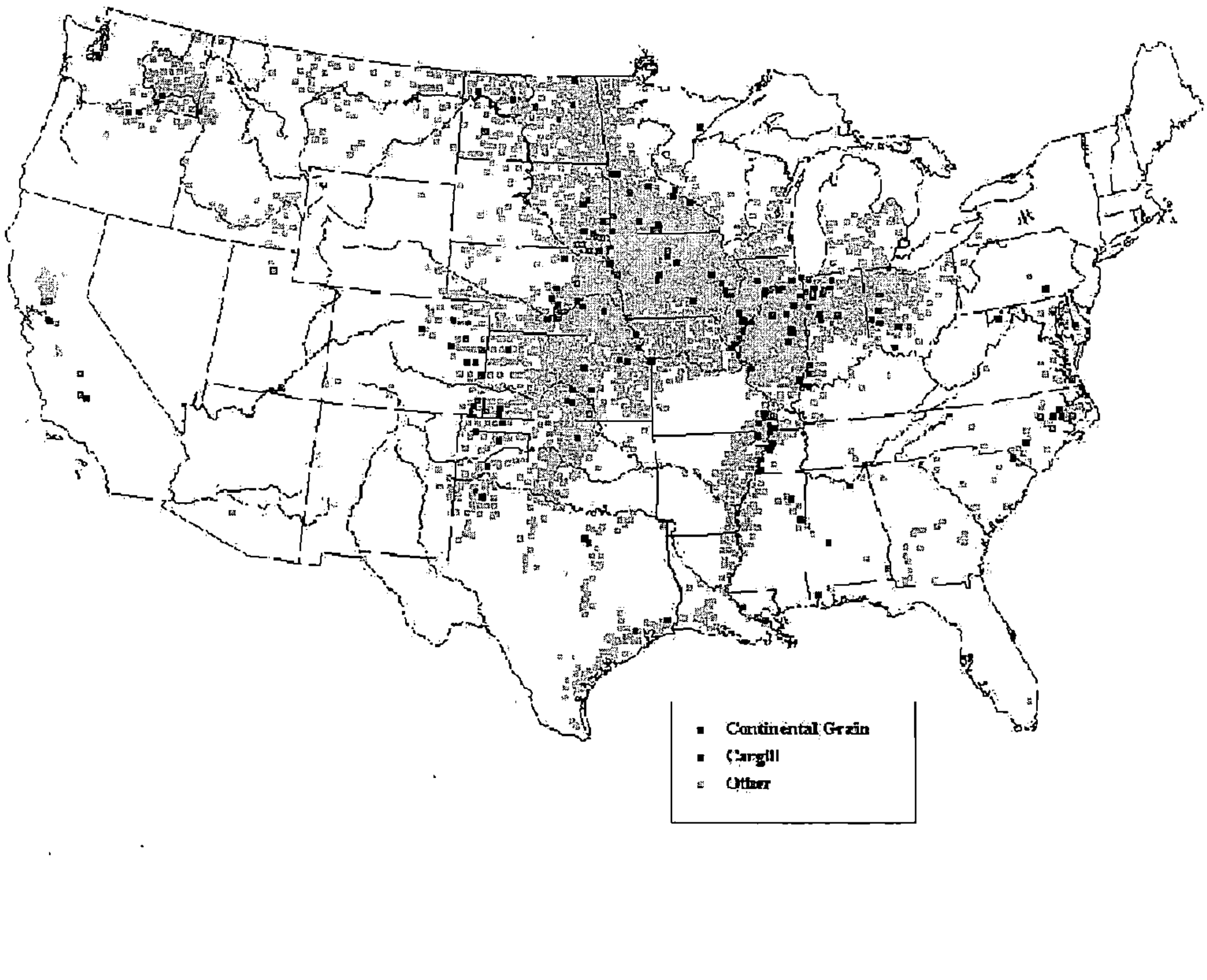


Figure 3. Study Areas

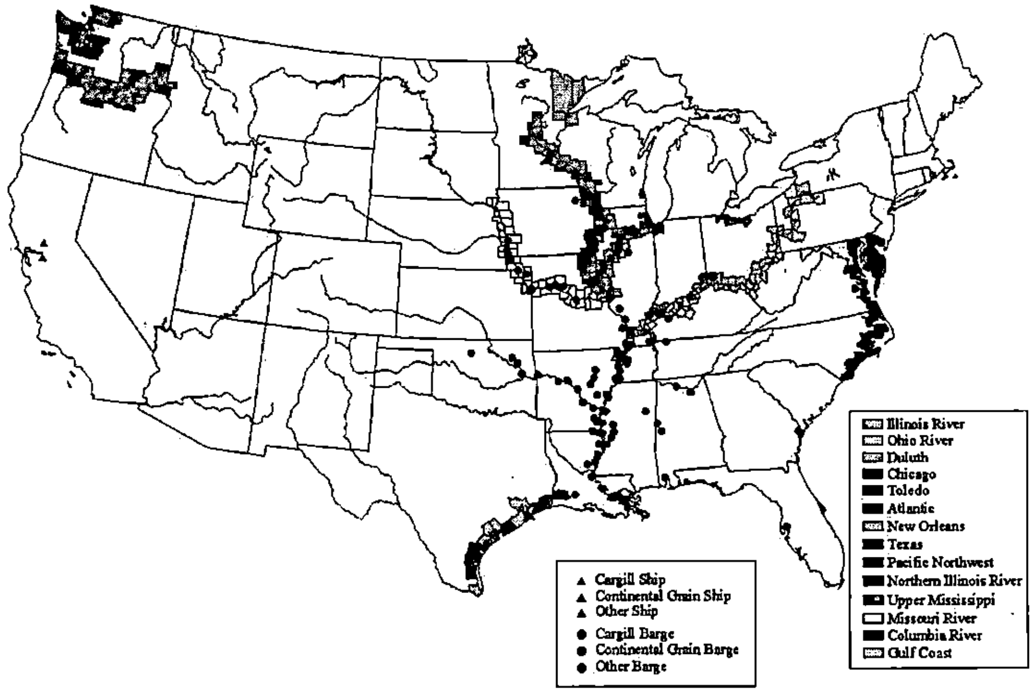


Table 4. Export market shares by top four firms

	Total Port Volume	Top 4 Volume	Top 4 Share Precent	Top 4 Companies
National Exports [All Ports]				
Corn	35,862,622	29,022,788	80.9	ADM, Cargill, Continental, ZenNoh
Wheat	25,922,437	12,068,195	46.6	Cargill, Columbia Grain, Peavey, United Grain
Soybeans	22,402,723	14,531,886	64.9	ADM, Cargill, Continental, ZenNoh
Mississippi River [New Orleans]				
Corn	28,382,994	25,549,852	90.0	ADM, Cargill, Continental, ZenNoh
Wheat	5,784,891	3,976,726	68.7	ADM, Cargill, Continental, Peavey
Soybeans	17,606,377	13,320,898	75.7	ADM, Bunge, Cargill, ZenNoh
Texas Gulf				
Corn	427,421	346,315	81.0	Cargilll, Farmland, Houston Public, JacintoPort
Wheat	7,222,742	6,221,799	86.1	Cargill, Continental, Farmland, Houston Public
Soybeans	919,568	919,568	100.0	Cargill, Continental, Farmland
Atlantic Coast				
Corn	76,432	76,432	100.0	Cargill, GA Port Authority
Wheat	485,621	485,621	100.0	Cargill, GA Port Authority
Soybeans	626,638	626,638	100.0	ADM, GA Port Authority

Great Lakes				
Corn	1,398,552	1,147,592	82.1	Andersons, Cargill, Continental, Harvest States
Wheat	1,891,249	1,744,010	92.2	AGP, Cargill, Harvest States, Peavey
Soybeans	1,904,852	1,349,830	70.9	AGP, Andersons, Harvest States, Peavey
PNW				
Corn	5,577,223	5,577,223	100.0	Cargill, Continental, Peavey
Wheat	10,537,933	8,680,651	82.4	Cargill, Columbia Grain, Louis Dreyfus, United Grain
Soybeans	1,345,287	1,345,287	100.0	Cargill, Continental, Peavey

Source: United States Department of Agriculture; Grain Inspection, Packers and Stockyards Administration

Table 5. Largest Ship Loadouts

Name	***Daily Ship Loadout (bushels)***	***% of Total***	***Storage (bushels)***	***% of Total***
Cargill Incorporated	6,924,000	33.44	93,449,000	35.50
Other	4,206,666	20.32	36,704,000	13.95
Cenex Harvest States Coop	655,000	3.16	31,518,000	11.97
Continental Grain Company	2,690,000	12.99	31,061,000	11.80
Archer Daniels Midland	3,160,000	15.26	28,232,000	10.73
General Mills Corporation	640,000	3.09	17,369,000	6.60
Conagra Incorporated	1,380,000	6.66	16,451,000	6.25
Bunge Corporation	800,000	3.86	6,523,000	2.48
Louis Dreyfus	250,000	1.21	1,895,000	0.72
Total	**20,705,666**		**263,202,000**	

Table 6. Ship Loadout Atlantic

Total Capacity, bushels:	**14,147,000**
Cargill Capacity, bushels:	**10,484,000**
Cargill Share:	**74.11**

Name	*Ship Loadout Capacity per Day (shared)*	*City*	*ST*	*Storage, Bushels*	*% of Total*
Archer Daniels Midland					
ADM/COUNTRY MARK LLC	320,000.00BU	BALTIMORE	MD	3,663,000	
			Sum:	**3,663,000**	25.89
Cargill Incorporated					
CARGILL INCORPORATED	800,000.00BU	CHESAPEAKE	VA	6,945,000	
CARGILL, INCORPORTED	800,000.00BU	NORFOLK	VA	3,539,000	
			Sum:	**10,484,000**	74.11

Table 7. Ship Loadout Chicago

Total Capacity, bushels:	**17,924,000**
Cargill Capacity, bushels:	**17,924,000**
Cargill Share:	**100.00**

Name	*Ship Loadout Capacity per Day (shared)*	*City*	*ST*	*Storage, Bushels*	*% of Total*
Cargill Incorporated					
CARGILL INCORPORATED	480,000.00BU	BURNS HARBOR	IN	5,473,000	
			Sum:	**5,473,000**	30.53
Continental Grain					
CONTINENTAL GRAIN COMPANY	200,000.00BU	CHICAGO	IL	9,188,000	
CONTINENTAL GRAIN COMPANY	240,000.00BU	MILWAUKEE	WI	3,263,000	
			Sum:	**12,451,000**	69.47

Table 8. Ship Loadout Duluth

Total Capacity, bushels:	**52,582,000**
Cargill Capacity, bushels:	**12,164,000**
Cargill Share:	**23.13**

Name	*Ship Loadout Capacity per Day (shared)*	*City*	*ST*	*Storage, Bushels*	*% of Total*
Cargill Incorporated					
CARGILL INCORPORATED	800,000.00BU	DULUTH	MN	12,164,000	
			Sum:	**12,164,0**	23.13
Cenex Harvest States					
CENEX HARVEST STATES	250,000.00BU	SUPERIOR	WI	18,562,000	
			Sum:	**18,562,000**	35.30
Conagra Incorporated					
CONCOURSE GRAIN LLC	420,000.00BU	SUPERIOR	WI	8,283,000	
			Sum:	**8,283,000**	15.75
General Mills					
GENERAL MILLS OPERATIONS,	320,000.00BU	SUPERIOR	WI	13,573,000	
			Sum:	**13,573,000**	25.81

Table 9. Ship Loadout Gulf Coast

Total Capacity, bushels:	84,351,000
Cargill Capacity, bushels:	30,501,000
Cargill Share:	36.16

Name	***Ship Loadout Capacity per Day (shared)***	***City***	***ST***	***Storage, Bushels***	***% of Total***
Archer Daniels Midland					
ARCHER DANIELS MIDLAND	80,000.00 BU	DESTREHAN	LA	6,432,000	
ARCHER DANIELS MIDLAND	1,000,000.00 BU	AMA	LA	5,785,000	
			Sum:	**12,217,000**	14.48
Bunge Corporation					
BUNGE CORPORATION	800,000.00 BU	DESTREHAN	LA	6,523,000	
			Sum:	**6,523,000**	7.73
Cargill Incorporated					
CARGILL INCORPORATED	800,000.00 BU	RESERVE	LA	7,743,000	
CARGILL INCORPORATED	320,000.00 BU	BATON ROUGE	LA	7,707,000	
CARGILL INCORPORATED	1,200,000.00 BU	HOUSTON	TX	6,713,000	
			Sum:	**22,163,000**	26.27
Cenex Harvest States					
CENEX HARVEST STATES	105,000.00 BU	MYRTLE GROVE	LA	6,459,000	
			Sum:	**6,459,000**	7.66
Conagra Incorporated					
CONCOURSE GRAIN LLC	400,000.00 BU	GALVESTON	TX	3,223,000	
CONCOURSE GRAIN LLC	500,000.00 BU	PAULINA	LA	2,480,000	
			Sum:	**5,703,000**	6.76

Continental Grain

CONTINENTAL GRAIN COMPANY	1,400,000.00 BU	WESTWEGO	LA	4,733,000	
CONTINENTAL GRAIN COMPANY	400,000.00 BU	BEAUMONT	TX	3,605,000	
			Sum:	**8,338,000**	9.88

Other

INTERSTATE GRAIN	400,000.00 BU	CORPUS CHRISTI	TX	6,431,000	
PORT OF HOUSTON AUTHORITY	500,000.00 BU	GALENA PARK	TX	6,362,000	
PT OF CORPUS CHRISTI	640,000.00 BU	CORPUS CHRISTI	TX	5,314,000	
ZEN-NOH GRAIN CORPORATION	1,500,000.00 BU	CONVENT	LA	4,841,000	
			Sum:	**22,948,000**	27.21

Table 10. Ship Loadout Louisiana

Total Capacity, bushels: **52,703,000**
Cargill Capacity, bushels: **20,183,000**
Cargill Share: **38.30**

Name	Ship Loadout Capacity per day (shared)		City	ST	Storage, Bushels	% of Total
Archer Daniels Midland						
ARCHER DANIELS MIDLAND	800,000.00	BU	DESTREHAN	LA	6,432,000	
ARCHER DANIELS MIDLAND	1,000,000.00	BU	AMA	LA	5,785,000	
				Sum:	**12,217,000**	23.18
Bunge Corporation						
BUNGE CORPORATION	800,000.00	BU	DESTREHAN	LA	6,523,000	
				Sum:	**6,523,000**	12.38
Cargill Incorporated						
CARGILL INCORPORATED	800,000.00	BU	RESERVE	LA	7,743,000	
CARGILL INCORPORATED	320,000.00	BU	BATON ROUGE	LA	7,707,000	
				Sum:	**15,45,000**	29.32
Cenex Harvest States						
CENEX HARVEST STATES	105,000.00	BU	MYRTLE GROVE	LA		
				Sum:	**6,459,000**	12.26
Conagra Incorporated						
CONCOURSE GRAIN LLC	500,000.00	BU	PAULINA	LA	2,480,000	
				Sum:	**2,480,000**	4.71
Continental Grain						
CONTINTENTAL GRAIN COMPANY	1,400,000.00	BU	WESTWEGO	LA	4,733,000	
				Sum:	**4,733,000**	8.98
Other						
ZEN-NOH GRAIN CORPORATION	1,500,000.00	BU	CONVENT	LA	4,841,000	
				Sum:	**4,841,000**	9.19

Table 11. Ship Loadout Texas

Total Capacity, bushels:	**31,648,000**
Cargill Capacity, bushels:	**10,318,000**
Cargill Share:	**32.60**

Name	*Ship Loadout Capacity per Day (shared)*		*City*	*ST*	*Storage, Bushels*	*% of Total*
Cargill Incorporated						
CARGILL INCORPORATED	1,200,000.00	BU	HOUSTON	TX	6,713,000	
				Sum:	**6,713,000**	21.21
Conagra Incorporated						
CONCOURSE GRAIN LLC	400,000.00	BU	GALVESTON	TX	3,223,000	
				Sum:	**3,223,000**	10.18
Continental Grain						
CONTINENTAL GRAIN CO	400,000.00	BU	BEAUMONT	TX	3,605,000	
				Sum:	**3,605,000**	11.39
Other						
INTERSTATE GRAIN	400,000.00	BU	CORPUS CHRISTI	TX	6,431,000	
PORT OF HOUSTON AUTHORITY	500,000.00	BU	GALENA PARK	TX	6,362,000	
PT OF CORPUS CHRISTI	640,000.00	BU	CORPUS CHRISTI	TX	5,314,000	
				Sum:	**18,107,000**	57.21

Table 12. Ship Loadout Toledo

Total Capacity, bushels: 26,224,000

Cargill Capacity, bushels: 13,964,000

Cargill Share: 53.25

Name	**Ship Loadout Capacity per Day (shared)**		**City**	**ST**	**Storage, Bushels**	**% of Total**
Archer Daniels Midland						
ADM/COUNTRY MARK, LLC	400,000.00	BU	TOLEDO	OH	9,795,000	
				Sum:	**9,795,000**	37.35
Cargill Incorporated						
CARGILL INCORPORATED	240,000.00	BU	TOLEDO	OH	6,732,000	
THE ANDERSONS, INC.	400,000.00	BU	TOLEDO	OH	7,232,000	
				Sum:	**13,964,000**	53.25
Conagra Incorporated						
CONAGRA, INC.	60,000.00	BU	HURON	OH	2,465,000	
				Sum:	**2,465,000**	9.40

Table 13. Ship Loadout Pacific

Total Capacity, bushels:	**38,050,000**
Cargill Capacity, bushels:	**17,515,000**
Cargill Share:	**46.03**

Name	*Ship Loadout Capacity per Day (shared)*	*City*	*ST*	*Storage, Bushels*	*% of Total*
Archer Daniels Midland					
KALAMA EXPORT COMPANY LLC	640,000.00BU	KALAMA	WA	2,557,000	
			Sum:	**2,557,000**	6.72
Cargill Incorporated					
CARGILL INCORPORATED	584,000.00BU	PORTLAND	OR	9,598,000	
CARGILL INCORPORATED	800,000.00BU	SEATTLE	WA	4,580,000	
			Sum:	**14,178,000**	37.26
Cenex Harvest States					
CENEX HARVEST STATES COOP	300,000.00BU	KALAMA	WA	6,497,000	
			Sum:	**6,497,000**	17.07
Continental Grain					
CONT GR CO & HAR STS JV DBA	250,000.00BU	TACOMA	WA	3,337,000	
			Sum:	**3,337,000**	8.77
Louis Dreyfus					
LOUIS DREYFUS CORPORATION	250,000.00BU	PORTLAND	OR	1,895,000	
			Sum:	**1,895,000**	4.98
Other					
COLUMBIA GRAIN INTL INC	466,666.00BU	PORTLAND	OR	4,181,000	
UNITED GRAIN CORP OF OREGON	500,000.00BU	VANCOUVER	WA	5,405,000	
			Sum:	**9,586,000**	25.19

Table 14. Largest Barge

Name	*Daily Barge Loadout (bushels)*	*% of Total*	*Storage (bushels)*	*% of Total*
Other	6,279,000	26.55	135,091,144	30.78
Bunge Corporation	3,875,000	16.38	123,447,000	28.12
Archer Daniels Midland	4,285,000	18.12	44,785,635	10.20
Cargill Incorporated	2,999,000	12.68	44,136,000	10.06
Cenex Harvest States Coop	1,040,000	4.40	25,136,000	5.73
Consolidated Grain & Barge	2,275,000	9.62	24,700,000	5.63
Continental Grain Company	1,974,000	8.35	21,635,327	4.93
Conagra Incorporated	462,000	1.95	14,763,000	3.36
Louis Dreyfus	205,000	0.87	2,678,000	0.61
Riceland Foods Incorporated	220,000	0.93	2,344,000	0.53
MFA Incorporated	40,000	0.17	226,000	0.05
Total	**23,654,000**		**438,942,106**	

Table 15. Barge Loadout Illinois River

Total Capacity, bushels: 32,727,000

Cargill Capacity, bushels: 8,890,000

Cargill Share: 27.16

Name	*Barge Loadout Capacity per Day (shared)*	*City*	*ST*	*Storage, Bushels*	*% of Total*
Archer Daniels Midland					
ARCHER DANIELS MIDLAND CO	100,000.00BU	FREDERICK	IL	2,757,000	
ARCHER DANIELS MIDLAND CO	150,000.00BU	CREVE COEUR	IL	1,401,000	
ARCHER DANIELS MIDLAND	150,000.00BU	PEORIA	IL	1,931,000	
ARCHER DANIELS MIDLAND	500,000.00BU	HAVANA	IL	1,271,000	
ARCHER DANIELS MIDLAND	250,000.00BU	OTTAWA	IL	1,095,000	
ARCHER DANIELS MIDLAND	310,000.00BU	MORRIS	IL	822,000	
ARCHER DANIELS MIDLAND	150,000.00BU	PEKIN	IL	743,000	
ARCHER DANIELS MIDLAND	645,000.00BU	HENRY	IL	552,000	
ARCHER DANIELS MIDLAND	645,000.00BU	HENNEPIN	IL	500,000	
ARCHER DANIELS MIDLAND	340,000.00BU	NAPLES	IL	310,000	
ARCHER DANIELS MIDLAND	645,000.00BU	LACON	IL	199,000	
ARCHER DANIELS MIDLAND	645,000.00BU	CHILLICOTHE	IL	172,000	

ARCHER DANIELS MIDLAND	200,000.00BU	SPRING VALLEY	IL	109,000	
ARCHER DANIELS MIDLAND	200,000.00BU	LA SALLE	IL	80,000	
			Sum:	**11,942,000**	36.49
Cargill Incorporated					
CARGILL INCORPORATED	100,000.00BU	FLORENCE	IL	1,887,000	
CARGILL INCORPORATED	250,000.00BU	SPRING VALLEY	IL	1,431,000	
CARGILL INCORPORATED	100,000.00BU	MEREDOSIA	IL	961,000	
CARGILL INCORPORATED	100,000.00BU	OTTAWA	IL	879,000	
CARGILL INCORPORATED	100,000.00BU	LOCKPORT	IL	575,000	
CARGILL INCORPORATED	100,000.00BU	HAVANNA	IL	575,000	
CARGILL INCORPORATED	100,000.00BU	MORRIS	IL	304,000	
			Sum:	**6,612,000**	20.20
Consolidated Grain &					
CONSOLIDATED GRAIN & BARGE	120,000.00BU	NAPLES	IL	8,096,000	
CONSOLIDATED GRAIN & BARGE	450,000.00BU	HENNEPIN	IL	1,257,000	
CONSOLIDATED GRAIN & BARGE	450,000.00BU	UTICA	IL	1,005,000	
Consolidated Grain and Barge	50,000.00BU	Peru	IL	0	
			Sum:	**10,358,000**	31.65

Continental Grain

CONTINENTAL GRAIN CO.	300,000.00BU	HENNEPIN	IL	110,000	
CONTINENTAL GRAIN COMPANY	300,000.00BU	SENECA	IL	869,000	
CONTINENTAL GRAIN COMPANY	50,000.00BU	HAVANA	IL	451,000	
CONTINENTAL GRAIN COMPANY	300,000.00BU	LOCKPORT	IL	212,000	
CONTINENTAL GRAIN COMPANY	50,000.00BU	LACON	IL	210,000	
CONTINENTAL GRAIN COMPANY	50,000.00BU	BEARDSTOWN	IL	199,000	
CONTINENTAL GRAIN COMPANY	300,000.00BU	MORRIS	IL	125,000	
CONTINENTAL GRAIN COMPANY	300,000.00BU	SPRING VALLEY	IL	102,000	
Farmer's Elevator Company	50,000.00BU	Seneca	IL	0	
			Sum:	**2,278,000**	6.96

Other

JERSEY COUNTY GRAIN COMPANY	100,000.00BU	HARDIN	IL	805,000	
SOURS GRAIN COMPANY	300,000.00BU	PEKIN	IL	732,000	
			Sum:	**1,537,000**	4.7

Table 16. Barge Loadout Northern Illinois River

			Total Capacity, bushels:		15,415,000
			Cargill Capacity, bushels:		4,817,000
			Cargill Share:		31.25
Name	***Barge Loadout Capacity per Day (shared)***	***City***	***ST***	***Storage, Bushels***	***% of Total***
Archer Daniels Midland					
ARCHER DANIELS MIDLAND CO	150,000.00BU	CREVE COEUR	IL	1,401,000	
ARCHER DANIELS MIDLAND	150,000.00BU	PEORIA	IL	1,931,000	
ARCHER DANIELS MIDLAND	250,000.00BU	OTTAWA	IL	1,095,000	
ARCHER DANIELS MIDLAND	310,000.00BU	MORRIS	IL	822,000	
ARCHER DANIELS MIDLAND	150,000.00BU	PEKIN	IL	743,000	
ARCHER DANIELS MIDLAND	645,000.00BU	HENRY	IL	552,000	
ARCHER DANIELS MIDLAND	645,000.00BU	HENNEPIN	IL	500,000	
ARCHER DANIELS MIDLAND	645,000.00BU	LACON	IL	199,000	
ARCHER DANIELS MIDLAND	645,000.00BU	CHILLICOTHE	IL	172,000	
ARCHER DANIELS MIDLAND	200,000.00BU	SPRING VALLEY	IL	109,000	
ARCHER DANIELS MIDLAND	200,000.00BU	LA SALLE	IL	80,000	
			Sum:	**7,604,000**	49.33
Cargill Incorporated					
CARGILL INCORPORATED	250,000.00BU	SPRING VALLEY	IL	1,431,000	
CARGILL INCORPORATED	100,000.00BU	OTTAWA	IL	879,000	
CARGILL INCORPORATED	100,000.00BU	LOCKPORT	IL	575,000	

CARGILL INCORPORATED	100,000.00BU	MORRIS	IL	304,000	
			Sum:	**3,189,000**	20.69
Consolidated Grain &					
CONSOLIDATED GRAIN & BARGE	450,000.00BU	HENNEPIN	IL	1,257,000	
CONSOLIDATED GRAIN & BARGE	450,000.00BU	UTICA	IL	1,005,000	
Consolidated Grain and Barge	50,000.00BU	Peru	IL	0	
			Sum:	**2,262,000**	14.67
Continental Grain					
CONTINENTAL GRAIN CO.	300,000.00BU	HENNEPIN	IL	110,000	
CONTINENTAL GRAIN COMPANY	300,000.00BU	SENECA	IL	869,000	
CONTINENTAL GRAIN COMPANY	300,000.00BU	LOCKPORT	IL	212,000	
CONTINENTAL GRAIN COMPANY	50,000.00BU	LACON	IL	210,000	
CONTINENTAL GRAIN COMPANY	300,000.00BU	MORRIS	IL	125,000	
CONTINENTAL GRAIN COMPANY	300,000.00BU	SPRING VALLEY	IL	102,000	
Farmer's Elevator Company	50,000.00BU	Seneca	IL	0	
			Sum:	**1,628,000**	10.56
Other					
SOURS GRAIN COMPANY	300,000.00BU	PEKIN	IL	732,000	
			Sum:	**732,000**	4.75

Table 17. Barge Loadout Missouri River

Total Capacity, bushels:	**40,562,554**
Cargill Capacity, bushels:	**927,000**
Cargill Share:	**2.29**

Name	*Barge Loadout Capacity per Day (shared)*		*City*	*ST*	*Storage, Bushels*	*% of Total*
Archer Daniels Midland						
ARCHER DANIELS MIDLAND	200,000.00	BU	ST LOUIS	MO	2,154,000	
				Sum:	**2,154,000**	5.31
Bunge Corporation						
BUNGE CORPORATION	45,000.00	BU	BROWNVILLE	NE	833,000	
BUNGE CORPORATION	45,000.00	BU	BROWNVILLE	NE	833,000	
				Sum:	**1,666,000**	4.11
Cenex Harvest States						
CENEX HARVEST STATES	90,000.00	BU	KANSAS CITY	MO	4,307,000	
				Sum:	**4,307,000**	10.62
Continental Grain						
CONTINENTAL GRAIN COMPANY	90,000.00	BU	K C (CHOTEAU)	MO	927,000	
				Sum:	**927,000**	2.29
MFA Incorporated						
MFA INCORPORATED	40,000.00	BU	JEFFERSON MO	MO	226,000	
				Sum:	**226,000**	0.56
Other						
BARTLETT AND COMPANY	150,000.00	BU	KANSAS CITY	KS	10,083,000	
BARTLETT AND COMPANY	50,000.00	BU	ST JOSEPH	MO	3,978,000	
BARTLETT AND COMPANY	50,000.00	BU	WAVERLY	MO	1,386,000	
BARTLETT AND COMPANY	50,000.00	BU	NEBRASKA CITY	NE	1,020,000	
COOP ASSN NO 1	32,000.00	BU	SLATER	MO	1,819,669	
COOPERATIVE ASSN NO 1	32,000.00	BU	MIAMI	MO	751,584	
DEBRUCE GRAIN INC	100,000.00	BU	NEBRASKA CITY	NE	3,782,000	

DILLER GRAIN CO INC	50,000.00	BU	BROWNVILLE	NE	312,449	
DILLER GRAIN CO INC	50,000.00	BU	BROWNVILLE	NE	312,449	
GLASGOW COOPERATIVE ASSN	45,000.00	BU	GLASGOW	MO	2,460,209	
HAVEMAN GRAIN CO., INC.	50,000.00	BU	ROCK BLUFF	NE	254,194	
ITALGRANI ELEVATOR CO	150,000.00	BU	ST LOUIS	MO	3,976,000	
WHITE CLOUD GRAIN COMPANY	25,000.00	BU	WHITE CLOUD	KS	1,147,000	
				Sum:	**31,282,554**	77.12

Table 18. Barge Loadout Ohio River

Total Capacity, bushels: 32,717,962

Cargill Capacity, bushels: 4,432,327

Cargill Share: 13.55

Name	Barge Loadout Capacity per Day (shared)	City	ST	Storage, Bushels	% of Total
Archer Daniels Midland					
ADM/COUNTRYMARK, LLC	60,000.00 BU	CINCINNATI	OH	1,397,000	
ADM/COUNTRYMARK, LLC	200,000.00 BU	SILVER GROVE	KY	393,000	
ARCHER DANIELS MIDLAND CO	110,000.00 BU	EVANSVILLE	IN	3,583,935	
ARCHER DANIELS MIDLAND CO	110,000.00 BU	NEWBURGH	IN	1,476,700	
ARCHER DANIELS MIDLAND	50,000.00 BU	MOUND CITY	IL	723,000	
ARCHER-DANIELS MIDLAND	55,000.00 BU	LEDBETTER	KY	1,517,000	
			Sum:	**9,090,635**	27.78
Bunge Corporation					
BUNGE CORPORATION	100,000.00 BU	CAIRO	IL	4,142,000	
BUNGE CORPORATION	350,000.00 BU	SHAWNEETOWN	IL	3,369,000	
			Sum:	**7,511,000**	22.96
Cargill Incorporated					
CARGILL INCORPORATED	100,000.00 BU	EVANSVILLE	IN	1,941,000	
CARGILL INCORPORATED	140,000.00 BU	CINCINNATI	OH	366,000	
CARGILL,INC.	140,000.00 BU	CINNCINNATI	OH	292,000	
			Sum:	**2,599,000**	7.94
Conagra Incorporated					
CONAGRA INC	112,000.00 BU	HENDERSON	KY	3,611,000	
			Sum:	**3,611,000**	11.04

Consolidated Grain &

CONSOLIDATED GRAIN & BARGE	200,000.00 BU	MT VERNON	IN	2,440,000	
CONSOLIDATED GRAIN & BARGE	100,000.00 BU	CINCINNATI	OH	1,724,000	
CONSOLIDATED GRAIN & BARGE	120,000.00 BU	JEFFERSONVILLE	IN	1,398,000	
CONSOLIDATED GRAIN & BARGE	400,000.00 BU	MOUND CITY	IL	1,204,000	
CONSOLIDATED GRAIN & BARGE	100,000.00 BU	AURORA	IN	663,000	
CONSOLIDATED GRAIN & BARGE	100,000.00 BU	NORTH BEND	OH	256,000	
CONSOLIDATED GRAIN & BARGE	50,000.00 BU	PADUCAH	KY	225,000	
CONSOLIDATED GRAIN & BARGE	10,000.00 BU	HENDERSON	KY	163,000	
			Sum:	**8,073,000**	24.67

Continental Grain

CONTINENTAL GRAIN COMPANY	100,000.00 BU	MOUNT	IN	1,833,327	
			Sum:	**1,833,327**	5.60

Table 19. Barge Loadout Upper Mississippi River

Total Capacity, bushels:	**93,925,000**
Cargill Capacity, bushels:	**27,804,000**
Cargill Share:	**29.60**

Name	*Barge Loadout Capacity per Day (shared)*	*City*	*ST*	*Storage, Bushels*	*% of Total*
Archer Daniels Midland					
ARCHER DANIELS MIDLAND CO	120,000.00BU	WINONA	M	309,000	
ARCHER DANIELS MIDLAND	30,000.00BU	ST PAUL	M	2,204,000	
ARCHER DANIELS MIDLAND	200,000.00BU	ST LOUIS	M	2,154,000	
ARCHER DANIELS MIDLAND	275,000.00BU	BURLINGTON	IA	998,000	
ARCHER DANIELS MIDLAND	120,000.00BU	KEITHSBURG	IL	383,000	
			Sum:	**6,048,000**	6.44
Bunge Corporation					
BUNGE CORPORATION	200,000.00BU	SAVAGE	M	9,276,000	
BUNGE CORPORATION	880,000.00BU	ALBANY	IL	4,947,000	
BUNGE CORPORATION	880,000.00BU	LOUISIANA	M	2,636,000	
BUNGE CORPORATION	880,000.00BU	EAST HANNIBAL	IL	2,303,000	
BUNGE CORPORATION	880,000.00BU	LA GRANGE	M	1,171,000	
			Sum:	**20,333,000**	21.65
Cargill Incorporated					
AGRI GRAIN MARKETING	200,000.00BU	MCGREGOR	IA	1,223,000	
AGRI GRAIN MARKETING	125,000.00BU	BUFFALO	IA	1,036,000	
AGRI GRAIN	100,000.00BU	LACROSSE	WI	684,000	

MARKETING					
AGRI GRAIN MARKETING	100,000.00BU	FULTON	IL	571,000	
CARGILL INCORPORATED	350,000.00BU	SAVAGE	M	17,359,000	
			Sum:	**20,873,000**	22.22
Cenex Harvest States					
CENEX HARVEST STATES	150,000.00BU	DAVENPORT	IA	4,795,000	
CENEX HARVEST STATES COOPS	70,000.00BU	ST PAUL	M	1,400,000	
CENEX HARVEST STATES COOPS	70,000.00BU	MINNEAPOLIS	M	1,339,000	
CENEX HARVEST STATES COOPS	170,000.00BU	WINONA	M	506,000	
HARVEST STATES COOPERATIVES	300,000.00BU	SAVAGE	M	641,000	
			Sum:	**8,681,000**	9.24
Conagra Incorporated					
CONAGRA INC	50,000.00BU	ALTON	IL	3,385,000	
CONAGRA INC	150,000.00BU	DUBUQUE	IA	2,183,000	
CONAGRA INC	40,000.00BU	ST PAUL	M	1,509,000	
CONAGRA INC	10,000.00BU	PRAIRIE	WI	73,000	
			Sum:	**7,150,000**	7.61
Continental Grain					
CONTINENTAL GRAIN COMPANY	150,000.00BU	SAVAGE	M	5,432,000	
CONTINENTAL GRAIN COMPANY	50,000.00BU	MUSCATINE	IA	1,257,000	
CONTINENTAL GRAIN COMPANY	125,000.00BU	NEW BOSTON	IL	242,000	
			Sum:	**6,931,000**	7.38
Other					
ALTAIR TRADING CORP	25,000.00BU	OQUAWKA	IL	739,000	

COLUSA ELEVATOR CO	55,000.00BU	FERRIS	IL	357,000	
COLUSA ELEVATOR COMPANY	55,000.00BU	NAUVOO	IL	2,783,000	
COLUSA ELEVATOR COMPANY	55,000.00BU	COLUSA	IL	1,299,000	
GABE LOGSDON & SONS INC	75,000.00BU	GREGORY	M	2,778,000	
ITALGRANI ELEVATOR CO	150,000.00BU	ST LOUIS	M	3,976,000	
JERSEY COUNTY GRAIN COMPANY	100,000.00BU	HARDIN	IL	805,000	
PATTISON BRO MS RIVER TERM	300,000.00BU	CLAYTON	IA	7,488,000	
URSA FARMERS COOP CO	200,000.00BU	MEYER	IL	2,746,000	
URSA FARMERS COOP CO	200,000.00BU	WARSAW	IL	810,000	
URSA FARMERS COOP CO	200,000.00BU	URSA	IL	128,000	
			Sum:	**23,909,000**	25.46

Table 20. Largest U.S. Grain Storage Firms

Name	*Barge Loadout (bushels)*	*% of Total*	*Ship Loadout (bushels)*	*% of Total*	*Storage (bushels)*	*% of Total*
Other	6,279,000	26.55	4,206,666	20.32	5,090,191,808	71.54
Cargill Incorporated	2,999,000	12.68	6,924,000	33.44	439,868,644	6.18
Archer Daniels Midland	4,285,000	18.12	3,160,000	15.26	412,398,225	5.80
Conagra Incorporated	462,000	1.95	1,380,000	6.66	181,332,000	2.55
Bunge Corporation	3,875,000	16.38	800,000	3.86	158,567,000	2.23
Continental Grain Company	1,974,000	8.35	2,690,000	12.99	155,402,327	2.18
Cenex Harvest States Coop	1,040,000	4.40	655,000	3.16	133,386,000	1.87
Farmland Industries	0	0.00	0	0.00	118,819,000	1.67
Riceland Foods Incorporated	220,000	0.93	0	0.00	98,201,000	1.38
The Andersons Incorporated	0	0.00	0	0.00	78,547,389	1.10
General Mills Corporation	0	0.00	640,000	3.09	65,793,000	0.92
Consolidated Grain & Barge	2,275,000	9.62	0	0.00	57,241,950	0.80
Central Soya	0	0.00	0	0.00	52,013,000	0.73
The Scoular Company	0	0.00	0	0.00	30,061,073	0.42
MFA Incorporated	40,000	0.17	0	0.00	25,168,538	0.35
Topflight Grain Cooperative	0	0.00	0	0.00	13,920,000	0.20
Louis Dreyfus	205,000	0.87	250,000	1.21	4,668,000	0.07
Total	**23,654,000**		**20,705,666**		**7,115,578,954**	