

Agricultural Cooperatives in the U. S. Grain Export Industry

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Agricultural Cooperatives in the U.S.

Grain Export Industry

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Abstract

Agricultural cooperatives are a small but important part of the U.S. grain export industry. Data availability has restricted research on the export capability of agricultural cooperatives. A first step toward increased understanding is a descriptive analysis of the industry. The results of a survey sent to cooperative grain export firms are analyzed in this paper. From 1980 to 1984, decreased agricultural exports from the United States were particularly threatening to cooperatives because they are less diversified, sell to fewer customers and do not have the market intelligence and analysis capability of their competitors. In the future, cooperatives may provide a "competitive yardstick" in the grain export industry if management responds to the changing international environment.

Introduction

Agricultural cooperatives have made a substantial contribution to the development of the domestic agricultural sector in the United States. Cooperative involvement in grain marketing has provided a "competitive yardstick" for farmers. In the future, international activity is critical to achieve the growth and diversification necessary for survival in a competitive economy. International

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activity is particularly important for cooperatives if they are to continue to provide a "competitive yardstick" in today's international markets. The ability to serve farmers may hinge on cooperatives' involvement and performance in the international arena.

Cooperative export firms hold a small share of the world market for wheat, feedgrains and soybeans. In 1976, cooperatives supplied only 2 percent of the total world import demand for wheat, 5 percent for feedgrains and 8 percent for soybeans (Thurston et al., 1976, p. 48). The export market share of cooperatives is not available for more recent periods, but recent estimates of the major private grain export firms have ranged from 85 percent (Thompson and Dahl, 1979) to 90 percent (McCalla and Schmitz, 1979). The implicit market share attributable to cooperatives was less than 15 percent in 1979. Most cooperative export firms are relatively small compared to the business volume of the larger private exporting companies. However, cooperatives have a history of innovation and provision of services needed to best serve their farmer patrons.

Problem Statement

Empirical analysis on the export activity of cooperatives is necessary to take advantage of the future growth potential in the international market. The current activities of cooperative export firms must be understood before reliable recommendations for improving export performance can be formulated. However, data on the grain export activity of cooperatives is proprietary and sensitive. A general lack of willingness to provide data exists throughout the grain export industry. USDA export sales reporting figures are unavailable for academic research due to confidentiality clauses in the enabling legislation. Because of these constraints on data availability, there is a scarcity of published research on the export activity of cooperatives. Nevertheless, a descriptive analysis is needed as a first step and may provide a basis or direction for more rigorous academic studies in the future.

Procedure. A survey of U.S. grain export firms was developed by a team of university, government and business economists actively involved in research issues related to grain export performance. The questionnaire addressed major areas of importance in the grain export industry such as market intelligence and information sources, commodities exported, export destinations, diversification of risk, use of U.S. port areas, modes of domestic transportation and participation in government subsidized export sales programs. Because of the sensitive nature of the information requested, the questions were phrased so that firms could provide information without revealing their actual sales volume. For example, trends in

sales to particular geographic areas were measured using rankings of importance and relative ratings such as "increased, no change, decreased".

The Department of Agricultural Economics at Oklahoma State University mailed the survey to all cooperative firms currently involved in grain exports. The list of firm addresses was obtained from the Farmer Cooperative Service-USDA and official registries of grain export firms maintained by the Foreign Agricultural Service. An initial mailing was followed by a reminder letter to non-respondents. The final response rate of usable questionnaires was 57 percent, unusually high for survey data collection.

Cooperative Grain Export Firms

Grain export marketing by cooperatives is composed of direct and indirect export sales. A direct export sale is defined as a sale to a foreign buyer located overseas. An indirect export sale is defined as a sale made to another exporter of grain operating within the United States. Usually this is a major exporter who subsequently makes a direct sale. All of the cooperatives responding to this questionnaire are involved in direct overseas sales. Through a combination of direct and indirect exports, cooperatives have exported or originated for export a large percentage of total U.S. export sales. Over the years, farmer owned cooperatives have assumed an increased role in the grain export system.

On the average the cooperative firms responding to the survey have been exporting grain for 22 years, with a range from six to forty-one years. This indicates that existing cooperative export firms have had the ability to gain substantial experience through market participation. According to their own response, twenty-five percent of the cooperatives are classified as large, fifty percent as medium sized and twenty-five percent as smaller sized firms in the U.S. grain export industry. However, no correlation was observed between the size of the firm and the age of the firm which would have indicated a trend of growth in size over time.

Cooperative Market Intelligence and Information Sources

Conklin (1981) suggested that firms place a great deal of importance on market intelligence and analysis in the grain export industry. In this survey, the firms were asked whether or not they had their own market intelligence and analysis capability within the firm. Seventy-five percent of the cooperatives indicated that they had market intelligence capability and twenty-five percent indicated no such ability. Of the firms with market intelligence capacity, eighty-

three percent indicated that an increasing amount of resources will be devoted to this area within the next five years. Overall, this indicates that cooperative firms do place a high priority on market intelligence and supports the earlier research of Conklin (1981).

The type of market information used by cooperative export firms was also investigated. Cooperative survey response supported the contention that firms place a high degree of importance on their internal market intelligence system and contacts with both domestic and foreign buyers. Contacts with foreign buyers and domestic traders were considered highly important. However, commercial wire news services were also frequently used, with CNS (Commodity News Service) ranked by 62.5 percent of the cooperative firms as being of high or very high importance. Reuters, GIN (Grain Industry News) and AP (Associated Press) were also used by the cooperative export firms, but were not as highly ranked as CNS. The USDA Federal and State Market News received a mixed review by the cooperative firms. The USDA recorded telephone reports and direct contacts with the market news reporter were ranked as having little or no importance. On the other hand, the USDA teletype system and published reports are regarded as important information sources by the cooperative firms. Radio and television are not considered important as information sources by cooperative grain exporters.

Market Participation by Cooperative Firms

Commodities Exported. Cooperative grain export firms are not well diversified in international grain export markets. Rather, they have specialized by commodity in an attempt to move the product produced by the producer member of local cooperative elevators (Thurston et al., 1976). None of the responding cooperatives exported more than four different commodities. Out of a total of 19 commodities suggested on the questionnaire only six were checked by the respondents (see Table 1). Corn was ranked as the number one export commodity, both by volume and value, by 62.5 percent of the cooperative firms. Wheat and rice were both ranked as the most important export commodity by 12.5 percent each. The second most important export commodity was listed as soybeans by 50 percent, wheat by 25 percent, barley, corn and grain sorghum by 12.5 percent each. Wheat was rated as the third most important export commodity by 37.5 percent of the cooperatives while 12.5 percent rated soybeans in the same category. Overall, 75 percent of the firms exported wheat, 75 percent exported corn, 62.5 percent exported soybeans, 37.5 percent exported grain sorghum, 25 percent exported barley and 12.5 percent exported rice.

Export Destinations. The destination of commodities exported by cooperatives may simply be a function of the geographic location of demand for

Table 1: Grain Exports by Cooperative Firms, 1980-1984, Ranked by the Firms in Order of Importance.

	#1 Export Commodity	#2 Export Commodity	#3 Export Commodity	Non-Ranked Commodity	Percentage of Firms By Commodity
	Percentage of Responding Firms				
Wheat	12.5	25.0	37.5	0.0	75.0
Rice	12.5	0.0	0.0	0.0	12.5
Barley	0.0	12.5	0.0	12.5	25.0
Corn	62.5	12.5	0.0	0.0	75.0
Grain Sorghum	0.0	12.5	0.0	25.0	37.5
Soybeans	0.0	50.0	12.5	0.0	62.5

specific commodities. However, the most important destination countries may also reflect established business relationships which have evolved over time between U.S. cooperatives and overseas importers. Since cooperatives are not well diversified in the number of commodities exported, diversification in the geographic location of foreign demand would be a means of reducing risk and/or of increasing future market shares by cooperative firms.

The Soviet Union was the single most important destination for 50 percent of the grain export cooperatives. Canada, Mexico and the European Community were cited as the top foreign destination by 12.5 percent each (see Table 2). Canada and Mexico were listed as the second most important destination by 25 percent each, but otherwise the cooperative firms do not overlap extensively in their ranking of the second most important destination. Japan was listed as the third most important export destination by only 25 percent of the respondents (see Table 2). Overall the Soviet Union, South America and Japan were the most frequently mentioned destinations (62.5 percent each) followed closely by Mexico, the European Community and North Africa (50 percent each).

Diversification of Cooperative Firms. The brief evidence presented above indicates that cooperatives do not participate in a wide range of commodity markets and that they have cultivated trading relationships primarily with the major importing nations. This form of market participation leaves cooperative export firms exposed to a high degree of price and volume risk since the economic survival of the enterprise might be jeopardized by volatile swings in individual commodity markets. One means of reducing the risk resulting from volatility in international grain markets would be to expand business operations into areas other than grain exporting. To determine the extent to which this type of diversification has occurred, firms were asked what percentage of their total business was in the export of grains (loosely defined to include oilseeds and their derivatives). Thirty-seven percent of the cooperatives indicated that they were heavily concentrated in grain exports, with more than 80 percent of their total business attributable to that activity. Twenty-five percent indicated partial diversification with 61-80 percent of their business in grain exports; 12.5 percent reported 21-40 percent and 25 percent reported less than 20 percent. Hence, there is no evidence to indicate that cooperative firms are systematically diversified. A cross comparison of firm size and the percentage of business attributable to grain exports indicates that sixty-six percent of the most concentrated grain export firms (81-100 percent of business from that activity) were also the largest cooperative export firms. This relationship indicates that growth in cooperative export firms is based more on specialization than on diversification.

In a separate question, firms were asked whether or not they owned, leased or purchased the services of grain handling facilities and equipment in foreign countries. None of the cooperative firms responded affirmatively to this question.

Table 2: Grain Exports by Destination for Agricultural Cooperatives, as Ranked by the Firms in Order of Importance.

	#1 Export Destination	#2 Export Destination	#3 Export Destination	Non-ranked Destination	Percentage of Firms by Destination
Percentage of Responding Firms					
Canada	12.5	25.0	0.0	0.0	37.5
Mexico	12.5	25.0	0.0	12.5	50.0
Central					
America	0.0	0.0	0.0	25.0	25.0
Caribbean	0.0	0.0	0.0	25.0	25.0
South					
America	0.0	12.5	12.5	37.5	62.5
EC-10	12.5	0.0	0.0	37.5	50.0
Other					
W. Europe	0.0	0.0	0.0	37.5	37.5
Eastern					
Europe	0.0	12.5	0.0	25.0	37.5
USSR	50.0	0.0	0.0	12.5	62.5
West Asia	0.0	0.0	12.5	12.5	25.0
South Asia	0.0	0.0	0.0	12.5	12.5
Japan	0.0	12.5	25.0	25.0	62.5
China	0.0	0.0	0.0	12.5	12.5
Taiwan	0.0	0.0	0.0	25.0	25.0
Other E. &					
S.E. Asia	0.0	0.0	12.5	25.0	37.5
North Africa	0.0	0.0	12.5	37.5	50.0
Sub Sahara	0.0	2.5	0.0	12.5	25.0
Ultimate					
Destination					
Unknown	0.0	12.5	12.5	12.5	37.5

Cooperative firms apparently are not attempting to expand their revenue base by operating related enterprises overseas. This may be due to the goals of the cooperative grain export firms, which are primarily oriented toward service for their domestic members.

Volume of Grain Exports by Cooperatives

The performance of cooperative firms in the grain export industry was investigated by comparing the firm's indication of change in the volume of its grain exports with USDA data on total U.S. exports for specific commodities (Table 3). In this manner, the performance of cooperative firms relative to the overall performance of the entire grain export sector is revealed.

Overall, the cooperative firms indicated a severe decline in the volume of grain exports from 1980 to 1984 (see Table 4). This coincides with a general decline in U.S. Agricultural Commodity exports, indicating that cooperative firms as a group have been unable to avoid the pressures of declining U.S. agricultural exports.

In the wheat export market, 83 percent of the wheat exporting cooperative firms indicated a decrease in the volume of wheat exports from 1980 to 1984. The value of total U.S. wheat exports has registered a slight decline from 1980 to 1984. The volume of U.S. wheat exports declined from nearly 44 million tons in 1981 to 38.5 million tons in 1983, then rose to 42.2 million tons in 1984. Hence, the survey results indicate that cooperative wheat export firms have followed the general trend of the market concerning the volume of exports.

The actual volume of U.S. corn exports fell from 63 million tons in 1980 to 49 million tons in 1984. Eighty-three percent of the cooperative firms exporting corn from 1980 to 1984 indicated a large decrease in the volume of corn exports. The comparison of soybean exports by cooperatives to actual trade flows is similar. U.S. soybean exports increased from 21.8 million tons in 1980 to 25.5 million tons in 1982, then decreased to 19.5 million tons in 1984. Eighty percent of the cooperative firms indicated a decrease in the volume of soybean exports from 1980 to 1984. The evidence on corn and soybean exports by the firms responding to this survey suggests that a small number of firms may be able to maintain their share of the market during a period of overall decline. However, this is unlikely to be common and may be indicative of special trade relationships in specific foreign markets.

Table 3: Quantity and Value of Exports of Selected Grain Commodities, 1980-1984

Quantity = Metric Tons
Value = \$1,000

Commodity	1980		1981		1982		1983		1984	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Wheat	36,749,658	6,374,651	43,907,851	7,843,962	40,782,080	6,675,963	38,468,493	6,235,224	42,214,857	6,472,775
Rice	3,074,801	1,228,540	3,197,645	1,527,309	2,574,047	997,316	2,415,523	925,623	2,194,209	845,454
Barley	1,462,702	204,809	1,956,034	277,792	1,374,688	166,641	1,521,375	195,682	1,971,084	261,044
Corn	63,042,414	8,492,229	54,746,145	7,935,301	48,789,208	5,528,381	47,528,543	6,366,883	49,022,278	6,998,088
Grain Sorghum	7,996,474	1,051,288	7,999,809	1,150,585	6,015,059	692,255	5,280,421	699,067	6,792,286	847,461
Soybeans	21,778,536	5,879,942	21,830,405	6,185,529	25,474,895	6,217,747	22,704,179	5,913,386	19,488,922	5,419,175
TOTAL	133,104,585	23,291,369	133,637,889	24,920,478	125,009,997	20,332,303	117,918,534	20,335,865	121,710,636	20,843,997

Source: Foreign Agricultural Trade of the United States (FATUS), Various Issues.

Table 4: Change in Volume of Grain Exports by Commodity, for Agricultural Cooperatives, 1980-1984

	Decrease	No Change	Increase
	Percentage of Firms		
Wheat	8.33	16.7	0.0
Rice	100.0	0.0	0.0
Barley	50.0	50.0	0.0
Corn	83.3	16.7	0.0
Grain Sorghum	100.0	0.0	0.0
Soybeans	80.0	20.0	0.0

Destination of Grain Exports by Cooperatives

The overall trend in grain exports by cooperatives from 1980 to 1984 has been one of gradual decline in a shrinking global export market. However, the overall decline is an average of increases and decreases in exports of commodities to specific foreign locations. Cooperative firms increased their exports to several important export destinations from 1980 to 1984 while decreasing exports in other markets over the same period. Table 5 shows the direction of change in the volume and value of cooperative grain exports to specific geographic locations from 1980 to 1984. Exports by cooperatives to Mexico, the Soviet Union, the Middle East and Sub-Saharan Africa increased from 1980 to 1984. Over the same period, exports by cooperatives to the European Community, Japan and Canada decreased. A steady export performance was reported to South America, other Western Europe (excluding the European Community), parts of East and Southeast Asia and North Africa. The results of this survey indicate that the decline in cooperative firm exports may be attributable to three large markets: the European Community, Japan and Canada. However, this does not imply that a recovery by cooperative firms is dependent upon increased exports to these specific markets.

The cooperative firms were requested to identify their motivation for entering new foreign markets or expanding existing ones. The possible answers were (a) to decrease the firms exposure to geographic risk, (b) to increase business volume, (c) to take advantage of government subsidies, and (d) other. Seventy-five percent of the firms indicated that the principal motivation for expanding into new market areas or increasing exports to existing markets was to increase business volume. This is probably due to the close relationship between business volume and profits in the grain export business. Only 12.5 percent of the firms replied that reducing risk was the chief reason for entering new markets. The fact that only 12.5 percent indicated an intention to reduce risk by market penetration may indicate that cooperatives do not perceive the concentration of exports to a limited geographic area as a great risk.

Cooperative Grain Exports by U.S. Port Area. The use of U.S. port areas by cooperative export firms has changed from 1980 to 1984. Cooperative grain exports from the Pacific Coast and Inland Lake Ports have increased from 1980 to 1984 while cooperative exports from the Gulf of Mexico, Atlantic Coast and the Saint Lawrence seaway have decreased (see Table 6). Grain exports through a particular port area depend upon the location of the exporting firm, the final destination of the commodity and other factors such as the type of facilities available at a particular port area. However, it would be erroneous to over-emphasize the relationship between changes in the use of specific U.S. port areas and changes in the location of foreign demand. Changes in the geographic

Table 5: Change in Volume of Grain Exports for Agricultural Cooperatives, by Destination, 1980-1984.

	Decrease	Remain Same	Increase
Percentage of Firms			
Canada	66.7	0.0	33.3
Mexico	20.0	20.0	60.0
Central America	50.0	50.0	0.0
Caribbean	50.0	50.0	0.0
South America	20.0	60.0	20.0
EC-10	75.0	0.0	25.0
Other W. Europe	33.3	66.7	0.0
Eastern Europe	33.3	66.7	0.0
USSR	20.0	40.0	40.0
Middle East	0.0	0.0	100.0
South Asia	0.0	100.0	0.0
Japan	60.0	20.0	20.0
China	100.0	0.0	0.0
Taiwan	50.0	50.0	0.0
Other E & SE Asia	33.3	66.7	0.0
North Africa	0.0	100.0	0.0
Sub Saharan Africa	0.0	0.0	100.0
Ultimate Desti- nation Unknown	33.3	66.7	0.0

Table 6: Change in Grain Exports by Cooperative Firms Through U.S. Port Areas, 1980-84.

	Decrease	Remain Same	Increase
Percentage of Firms			
Pacific Coast	0.0	66.7	33.3
Gulf Coast	40.0	60.0	0.0
Atlantic Coast	66.7	33.3	0.0
Inland Lake Ports	33.3	33.3	33.3
St. Lawrence Seaway	100.0	0.0	0.0

location of demand for U.S. grain exports may not have a large impact on the use of some U.S. port areas (Makus, 1983).

Modes of Domestic Transportation Used by U.S. Grain Export Cooperatives. Grain destined for export is moved from the farmer or terminal elevator to the port area by railroad, truck and/or barge. The use of barges and railroads by cooperative firms moving grain for export has increased from 1980 to 1984. The cooperative export firms reported a decrease in the use of trucks, even though trucks have never been a significant means of moving grain for export. The mode of transportation employed depends on the location of grain, location of the port area and the relative costs of competing transportation modes. The decrease in the use of truck transport is probably due to the increasing cost of this mode relative to rail and barge transport.

P.L. 480 Grain Exports. Sixty-two percent of the cooperatives responding to the survey indicated that a proportion of their grain exports involved P.L. 480 sales (Table 7). Of these, 80 percent of the firms indicated that less than 20 percent of their grain exports involved P.L. 480 subsidies while 20 percent reported approximately half of their total grain exports through P.L. 480. These percentages would not be unusual if cooperatives export an average share of P.L. 480 grain. In 1983, about 8 percent of U.S. wheat was exported through subsidized government programs (USDA).

Conclusion

Agricultural cooperatives are an important part of the U.S. grain export industry. The number of agricultural commodities exported by cooperatives is relatively low and the major foreign destinations are the Soviet Union, Canada, Mexico and the European Community. Hence, when U.S. grain exports decline because of decreasing demand in traditional markets, cooperative export firms are likely to experience reduced business volume. A general lack of diversification in types of business activity, commodity specialization and the geographic distribution of foreign markets leaves cooperative export firms exposed to variations in international grain export markets. In the future, cooperative firms could benefit from efforts to diversify business activity.

The decline in agricultural exports from 1980 to 1984 has had a negative impact on cooperative export firms. However, the evidence presented in this survey does not indicate that cooperative firms have failed to compete effectively with the larger private companies and the foreign firms. Several cooperative export firms have been extremely successful and provide a model for the industry. Increased cooperation among exporting co-ops may increase the proportion of

Table 7: Percentage of Cooperative Grain Exports Covered Under PL-480, by Size of Firm.

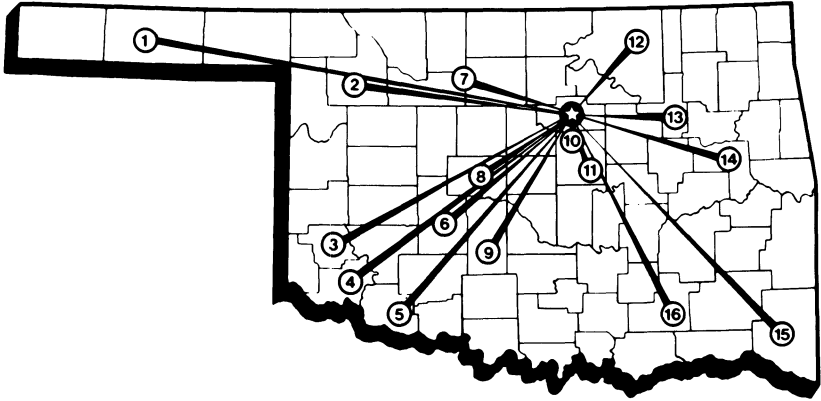
Size of Firm	Proportion of Exports Under P.L. 480		
	None	1-20%	41-60%
	Percentage of Firms		
Small	25.0	0.0	0.0
Medium	12.5	25.0	12.5
Large	0.0	25.0	0.0

direct to indirect export sales and increase business volume. To facilitate diversification across product lines and geographic markets, the international cooperative system may establish linkages between firms in the exporting and importing nations. Diversification will help to reduce variation in business volume and contribute to industry stability.

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