IMPROVING THE EXPORT CAPABILITY OF GRAIN COOPERATIVES

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IMPROVING THE EXPORT CAPABILITY OF GRAIN COOPERATIVES

Contents

Highlights

Grain farmers can increase their share of an expanding direct export market through a coordinated marketing system built around a national export cooperative.

Other elements essential to increasing farmers' present 7 to 8 percent share of direct exports include higher grain commitment to cooperatives, regional cooperation, global market information, and foreign sales offices.

Total grain trading by all countries by 1985 is expected to range from a low about equal to 1974 volume to a high of 50 percent more than for 1974. While this projection has quite a range, it indicates, however, that future grain trade is expected to be considerably higher than for years prior to 1972.

U.S. grain exports have a high probability of maintaining the 1974 level and a moderate to strong probability of being substantially higher by 1985. The U.S. is expected to maintain its past 3-year average of more than 50 percent of world grain trade.

U.S. grain moves into export through 67 port elevators with a total storage capacity of 350 million bushels. Though major grain companies are building five new port elevators, additional capacity will likely be needed by 1985 on the Gulf and Atlantic coasts.

U.S. grain exporting is dominated by five grain companies that account for about 85 percent of the total volume. These exporters have tremendous economic power, being highly diversified and having worldwide operations. They are both a customer and a competitor of cooperatives.

A substantial amount of grain moves prematurely out of the cooperative system. Major causes are lack of formal commitments and insufficient coordination and joint effort among regionals.

Local grain cooperatives receive about 40 percent of farm sales, but only half of that amount continues on to regional cooperatives.

Regionals in turn, originate 25 to 30 percent of the U.S. grain that moves to ports for export. However, they sell 70 percent of their export-bound grain to the five major exporters rather than selling it direct to foreign buyers. Regional cooperatives directly export only 7 to 8 percent of U.S. exports. These direct export sales by

North Pacific Grain Growers, Inc., Portland, Oreg., moves grain into world trade through its Kalama, Wash., elevator. The Manhattan, once the Nation's largest merchant ship, lifted partial loads of wheat at Kalama three times before being converted to an ice breaker.

regionals have been largely uncoordinated f.o.b. sales through agents.

Though regional cooperatives have only nine port elevators, or 17 percent of the U.S. total, they could double their export volume through greater use of existing facilities and by adding facilities on the Atlantic, Gulf and Pacific coasts.

Regional cooperatives are in pretty good shape financially. Most have greater term loan borrowing power than they are using.

Recommendations

Grain farmers can capture a greater share of the expanding export market by acting on the following suggestions for improving the cooperative grain marketing system:

1. Develop an overall strategy for direct export sales that would maximize cooperative strengths, permit c.i.f. sales, and provide personalized service to foreign buyers;
2. Form one export cooperative—not through merger but with all regionals as members of a federation—to make all export decisions, own or lease present and future port facilities, and coordinate grain movements and sales to foreign buyers;
3. Develop a foreign sales and information system through a competent research staff and a top-notch sales organization that includes foreign sales offices staffed with the export cooperative's employees;
4. Establish additional port elevators, either through acquisition, or, as a last resort, construction;
5. Centralize the leasing of hopper cars under a new cooperative agency to coordinate the movement of grain to port elevators;
6. Increase regional commitment of grain to the central export cooperative;
7. Establish a seasonal export pool between regional cooperatives and the central export cooperative; and
8. Determine capital contributions by each regional based on the volume of grain to be marketed through the export cooperative.

U.S. supertankers are normally used to carry petroleum and other liquids, however, they also are used to ship U.S. grains, oilseeds, and other bulk products. Availability of such vessels has improved in the past 2 years, after the 1973 shortage.

IMPROVING THE EXPORT CAPABILITY OF GRAIN COOPERATIVES

by Stanley K. Thurston, Michael J. Phillips, James E. Haskell, and David Volkin.

At first glance, U.S. grain cooperatives would seem to be in a good position to maximize returns to producers through the sale of their grain. Cooperative country elevators handle about 40 percent of all off-farm sales of corn, wheat, and soybeans. Strong local cooperatives are present in all major grain-producing areas of the country. Regional grain cooperatives have been formed to serve producers and locals in domestic and foreign sales efforts. Finally, there is good general support for cooperative activity both in this country and abroad.

But closer examination reveals numerous deficiencies in the cooperative grain marketing system, most of which are associated with export capability. Also evident is the formidable competition that cooperatives face in the export market. In combination, these obstacles severely limit the ability and effectiveness of cooperatives to serve producer members.

Grain exports have become, and will continue to be, of vital importance to the incomes of U.S. grain producers. The value of agricultural exports increased to more than $21 billion in 1974 from about $7 billion in 1972. The percent of U.S. grain production moving into foreign markets increased from 30 percent in the 1960's to more than 40 percent oday. For crop year 1973, we exported roughly 67 percent of our wheat, 35 percent of the soybeans as beans, 22 percent of the corn, and 25 percent of the grain sorghum. It seems obvious that cooperatives should have the capability to effectively export grain as well as the ability to market domestically.

While local cooperatives handle about 40 percent of off-farm sales, regional cooperatives handle only 19 percent, or about half the volume received at the local level. Even more revealing, cooperatives directly export only 7.5 percent of total U.S. grain exports, or about 3.5 percent of off-farm sales. And this small market share is divided among four cooperatives who participate in direct export sales. Cooperative control of grain is rapidly diminished as it moves through marketing channels.

By comparison, the major competitors of cooperatives each have a minimum of 10 percent of the export market for grain. Two have about 25 percent apiece. They have extensive market intelligence systems, foreign subsidiaries, and a network of

overseas sales offices. Their diversified operations allow for cross-subsidization of activities and greatly increase grain export flexibility.

In addition, these large grain companies utilize the cooperative structure to maximum advantage. Cooperatives assemble a substantial portion of grain at the local level and move part of that to an export position. With their superior marketing ability, the grain companies are in a position to purchase much of their grain for ultimate export without involving themselvesin grain procurement from producers.

The major problem in cooperative export activity is fragmentation and lack of coordination within the system. While some success in joint export efforts has been achieved, cooperatives generally have been unable to fully translate their strong local position into export marketing benefits. In some cases, regional cooperatives have not seen fit to coordinate their activities with neighboring regionals. Neither have they been able to work out significant arrangements for the joint use of port facilities, sales agents, or market intelligence sources. The net result is a largely uncoordinated system.

Many other problems can be directly linked to lack of commitment throughout the cooperative system. Grain producers view cooperatives as "just another market" for their grain. Few have a formal obligation to commit grain to the system. Likewise, local cooperatives are not obligated to deliver grain to the regionals. And finally, regional cooperatives who are associated with an export organization have no formal commitment to deliver grain to those organizations. Lack of commitment to the system at all levels reduces cooperative ability to participate in long-term marketing arrangements, limits market information on which o base price decisions, and restricts corporate planning for physical and financial efficiency.

These are but a few of the obstacles cooperatives must overcome to remain viable in grain expors. Others will emerge throughout this report.

The purpose of this study is to suggest directions toward which cooperatives might move to become more effective in the grain export market. More specifically, the objectives are to:

(1) Analyze the present and prospective demand for U.S. grain;

(2) Examine the participants involved in exporting grain—their organization, structure, marketing emphasis, and performance; and

(3) Describe and evaluate some export alternatives cooperatives might utilize to improve their export marketing posture.

The first section of this report gives an overview of world trade in grain. This is followed by two descriptive and analytical sections: the first directed at a profile of the grain export system in this country and the second at the cooperative role in that system. Then, the last section will lay out what appears to be the most viable options open to U.S. grain producers.

Overview of World Trade in Grain

The economic factors influencing the grain industry have changed considerably in the past few years. Prior to 1972, the level of grain prices was largely determined by the Government. Prices were depressed by huge surpluses even though 60 million acres of land were in retirement. Millions of bushels of grain were held in storage by the Commodity Credit Corporation. Incomes of grain producers were more closely correlated to the loan value and Government-held stock than with competitive market factors.

Conditions changed rapidly during 1972. Crop failures due to bad weather in many parts of the world created strong foreign demand almost overnight. Surplus

grain began to disappear and farm prices started to rise. Grain producers responded to this signal by increasing production. Exports suddenly became the prime determinant of the level of prices.

While the high level of exports of the mid-seventies were at least in part due to unfavorable weather, it is generally agreed that a long-term closer supply-demand balance does appear to be with us. While variations in export demand undoubtedly will continue, indications are that grain exports will continue at a generally higher level and therefore remain a major determinant of farm prices in the future. USDA economists estimate that the United States will be exporting more than 3 billion bushels of grain by 1985. This would triple what was exported in 1960 and double the level of exports in 1970.

With this new situation emerging, the questions being asked by grain cooperatives, who are intent on becoming a more significant factor in the market, are: What will the export market look like for individual grains? Will the market of the future be different from the present market? Who will be our best customers?

Wheat

Historical Observations, 1970/71-1973/74

Total world trade in wheat has increased since 1970, reaching an all-time high of 71 million tons in the 1972/73 marketing year (table 1). A small decline from this record high was recorded in the 1973/74 marketing year.

The European Economic Community (EEC-9), importing about 12 million tons annually, has been the largest importer of wheat over the past 4 years.[1] The next most significant importers of wheat have been Eastern Europe, Japan, North Africa, and South Asia. These five world regions for 1 year have accounted for more than 50 percent of all the world wheat imported since 1970. The one exception occurred in 1972 when the USSR imported 21 percent of the wheat available for world trade. The USSR has been the most sporadic buyer of wheat since 1970. Its purchases have ranged from less than 1 percent of the world wheat supply available for export to more than 20 percent of the supply in 1972.

U.S. Role in World Trade of Wheat

The United States exports wheat to every importing region in the world (table 2). The total wheat exported from the United States fluctuates from year to year. From 1970 to 1971, U.S. wheat exports decreased by 3 million tons but during the next 2 years increased by 15 million tons, reaching an all-time high of 30 million tons in 1972.

The United States' largest customers are Japan and East Asia, which during the past 4 years have accounted for more than 20 percent of our sales. The EEC-9 and South Asian countries have been the third and fourth largest U.S. customers. In 1970 and 1971, these four regions accounted for more than 50 percent of the U.S. wheat export market. In the past 2 years, these countries plus the USSR and Peoples Republic of China (PRC) accounted for more than 50 percent of U.S. exports.

The United States has played a very important role in supplying the world wheat import market (appendix table 1). Since 1971, the United States has supplied about one-third of the world import demand. The lowest world share of 28 percent was in the 1971/72 marketing year and the highest share of 45 percent occurred in the 1973/74 marketing year.

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[1]For the purpose of this study, the world has been divided into 20 regions. For a detailed account of the countries in each of these regions, see appendix 1.

Table 1—World wheat importing countries, 1970/71-1973/74[1]

World region	1970/71		1971/72		1972/73		1973/74	
	Total imports	Share of world imports	Total imports	Share of world imports	Total imports	Share of world imports	Total imports	Share of world imports
	1,000 MT	*Pct.*	*1,000 MT*	*Pct.*	*1,000 MT*	*Pct.*	*1,000 MT*	*Pct.*
EEC-9	12,188	22.4	11,158	19.8	12,572	17.7	11,682	17.4
East Europe	6,702	12.3	5,239	9.3	4,618	6.5	4,690	7.0
Japan	4,834	8.9	4,964	8.8	5,486	7.7	5,650	8.4
North Africa	4,690	8.6	4,931	8.7	4,991	7.0	6,240	9.3
South Asia	4,578	8.4	4,457	7.9	4,196	5.9	7,200	10.7
Subtotal	32,992	60.6	30,749	54.5	31,863	44.8	35,462	52.8
Other	20,830	38.5	22,203	39.4	24,447	34.3	27,640	41.1
USSR	484	.9	3,442	6.1	14,900	20.9	4,100	6.1
Total	54,306	100.0	56,394	100.0	71,210	100.0	67,202	100.0

[1]Data are for wheat only. They do not include flour equivalent.

Source: Compiled from reports of the U.S. Department of Commerce Commerce and Grain and Feed Division of Foreign Agricultural Service, USDA.

Table 2—U.S. wheat export market, 1970/71-1973/74

World region	1970/71		1971/72		1972/73		1973/74	
	U.S. exports	Share of total	U.S. exports	Share of total	U.S. exports	Share of total	U.S. exports	Share of total
	1,000 MT	*Pct.*	*1,000 MT*	*Pct.*	*1,000 MT*	*Pct.*	*1,000 MT*	*Pct.*
Japan	2,878	15.6	2,195	14.0	3,378	11.2	3,067	10.4
East Asia	2,668	14.5	2,575	16.4	2,961	9.8	3,228	10.9
EEC-9	3,241	17.6	1,762	11.2	2,732	9.1	2,469	8.3
South Asia	2,269	12.3	2,180	13.9	2,316	7.7	2,884	9.7
Subtotal	11,056	60.0	8,712	55.5	11,387	37.8	11,648	39.3
Other	7,360	40.0	6,958	44.5	8,651	28.7	12,054	40.7
USSR	- - -	- - -	- - -	- - -	9,469	31.5	2,725	9.2
PRC	- - -	- - -	- - -	- - -	591	2.0	3,190	10.8
Total	18,416	100.0	15,670	100.0	30,098	100.0	29,617	100.0

Source: Compiled from reports of the U.S. Department of Commerce and Grain and Feed Division of the Foreign Agricultural Service, USDA.

In analyzing the U.S. market share by world regions, it readily becomes apparent that many regions of the world depend on the United States for a major source of their imported wheat. Middle America depends on the United States more than any other region—obtaining 80 percent of its wheat imports from the United States. Of the four largest customers for U.S. wheat, three of those regions—East Asia, Japan and South Asia—obtain more than 50 percent of their imported wheat from the United States. The EEC-9, the fourth largest U.S. customer, obtains about 20 percent of its wheat imports from the United States.

In the past 2 years, the USSR has received more than 60 percent of its wheat imports from the United States. The PR increased its portion of U.S. wheat imports from 11 to 49 percent of its total wheat imports in the past 2 years.

Projections of World Trade in Wheat to 1985

Projections to the year 1985 prepared by USDA's Economic Research Service provide some insight into what the future may hold for world trade in wheat. The ERS approach to these projections has been to estimate world demand based on (1) a low-level demand and (2) a high-level demand.[2]

Basically, the low-demand situation assumes a continual growth in import demand constrained by high prices and policies of major importing countries to attain self-sufficiency—essentially a return to trends established prior to 1972. The high demand alternative basically assumes that animal production willbe encouraged in grain importing countries leading to a heightened demand for feedstuffs. Furthermore, income growth in less developed countries is expected to increase 1 to 2 percent per year above the growth rates at low projection levels, thus increasing consumption of wheat.

Low Level Projections. Given those assumptions, the low projections show a decline in world wheat trade that corresponds to the early seventies (table 3). With this projection,the world wheat trade will decline to a total of 61 million tons of wheat traded in 1985. The EEC-9, Eastern Europe, and USSR are assumed to be relatively self-sufficient and therefore not importing large quantities of wheat.

The market for the next decade, however, will be different from that of the present. The top five markets bear little resemblance to the present market. The new markets in this group include East Asia, West Asia, and OSA (South America excluding Brazil). These markets plus Japan and North Africa will account for 65 percent of the wheat imported in 1985.

If past U.S. export market share is any indication of the future, the United States will be exporting about 29 million tons of wheat in 1985. This is about equal to the quantity the United States exported in 1972 or 1973 and considerably more than in 1970 or 1971.

High Level Projections. In these projections, total world trade in wheat would be 84 million tons, which would be a record-breaking demand level (table 4). Again, the configuration of the market would be different. With more reliance on other countries for production of wheat, South Asia would be the largest importer of wheat. Other new markets would include East and West Asia. These markets, plus the EEC-9 and North Africa, would account for 62 percent of the wheat imported in 1985.

If past market shares held by the United States are reliable indicators for the future, then the United States would be exporting 47 million tons of wheat in 1985. This would be a record-breaking level of wheat exports.

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[2]Quentin M. West, "Research Tasks in World Food Economics," a paper presented at the annual meeting of the Industrial Research Institute, Inc., Boca Raton, Florida, May 7, 1974. For a more detailed discussion of these assumptions, see appendix 2.

Table 3—Low level projections of world and U.S. wheat trade to 1985

World region	Total imports	Share of world imports	From United States[1]
	1,000 MT	*Pct.*	*1,000 MT*
East Asia	10,548	17.2	6,814
West Asia	8,220	13.4	3,313
North Africa	8,193	13.3	2,147
Japan	8,086	13.2	4,447
OSA	4,869	7.9	3,165
Subtotal	39,916	65.0	19,886
PRC	3,931	6.4	1,262
Brazil	3,914	6.4	1,636
EEC-9	3,496	5.7	748
South Asia	3,354	5.5	1,583
Middle America	2,760	4.5	2,233
Central Africa	2,172	3.5	1,188
East Europe	1,208	2.0	167
Southeast Asia	587	1.0	243
OWC	0	- - -	0
USSR	- - -	- - -	0
Total	61,338	100.0	28,946

[1]Derived figures based on projected total imports and 1970/71-1973/74 average U.S. wheat share.

Table 4—High level projections of world and U.S. wheat trade to 1985

World region	Total imports	Share of world imports	From United States[1]
	1,000 MT	*Pct.*	*1,000 MT*
South Asia	14,606	17.4	6,894
East Asia	11,526	13.7	7,446
West Asia	9,680	11.5	3,901
North Africa	8,266	9.9	2,166
EEC-9	8,130	9.7	1,740
Subtotal	52,208	62.2	22,147
Japan	7,918	9.4	4,355
PRC	5,827	6.9	1,870
OSA	5,059	6.0	3,288
Brazil	4,551	5.4	1,902
Middle America	2,889	3.5	2,337
Central Africa	2,330	2.8	1,275
OWE	1,631	2.0	734
East Europe	950	1.1	131
Southeast Asia	612	.7	253
USSR	- - -	- - -	7,597
Total	83,975	100.0	46,840

[1]Derived figures based on projected total imports and 1970/71-1973/74 average U.S. wheat share.

Feedgrains

Historical Observations, 1970/71-1973/74

Total world trade in feedgrains, including corn, sorghum, oats, barley, and rye, reached an all-time high of 69 million tons in the 1973/74 marketing year[3] (table 5). The largest importing region since 1970 has been the EEC-9, importing about 22 to 24 million tons annually. Japan is the next most important region, followed by the Other Western European (OWE) region. These three world regions have accounted for more than 65 percent of the world feedgrains imported since 1970.

The centrally planned countries of Eastern Europe and USSR have been more consistent importers of feedgrains relative to wheat. However, the PRC has been an erratic customer importing no feedgrains in 1970 contrasted with 2.5 million tons in 1973.

U.S. Role in World Trade of Feedgrains

The total amount of U.S. feedgrain exports has increased every year since 1970 (table 6)—from 19 million tons in 1970 to a record high of 44 million tons in 1973.

Sales have been made to every major importing region in the world. The largest U.S. customers have been the EEC-9 and Japan, accounting for more than 50 percent of the U.S. exports since 1970. The next most important U.S. markets have been the USSR and OWE, which combined with EEC-9 and Japan have generated more than 75 percent of the U.S. export market.

The United States has supplied the world import market for feedgrains with about 50 percent of its total demand since 1970 (appendix table 2). The lowest share of 38 percent was in the 1971/72 marketing year and the highest share of 63 percent was in the 1973/74 marketing year.

By world regions, the United States has ranged from supplying practically all of a region's demand to about one-third of its needs. The regions most dependent on the United States as a source of supply have been those with a relatively small demand for feedgrains. For example, Central Africa has depended on the United States for more than 90 percent of its feedgrain imports while Eastern Europe has depended the least on the United States—obtaining about two-thirds of its supply from other sources.

Of the four largest customers for U.S. feedgrains, two—Japan and the USSR—obtained about 50 percent of their imported feedgrains from the United States since 1970. More significantly, these two regions have been increasing their supply of feedgrains every year since 1970. In the 1973/74 marketing year, Japan and the USSR respectively bought 75 and 85 percent of their feedgrain supplies from the United States.

It should be noted that in the past 2 years the PRC has imported a substantial part of its total demand from the United States. Records show that all the feedgrains imported by the PRC in the 1972/73 marketing year and 72 percent in 1973/74 came from the United States.

Projections of World Trade in Feedgrains to 1985

Low Level Projections. These projections show a world trade figure for feedgrains similar to the total prior to 1972 (table 7). This projection shows a total world trade

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[3]Corn and sorghum have accounted for more than 90 percent of the total feedgrain volume since 1970.

Table 5—World feedgrain importing countries, 1970/71-1973/74[1]

World region	1970/71		1971/72		1972/73		1973/74	
	Total imports	Share of world imports	Total imports	Share of world imports	Total imports	Share of world imports	Total imports	Share of world imports
	1,000 MT	*Pct.*	*1,000 MT*	*Pct.*	*1,000 MT*	*Pct.*	*1,000 MT*	*Pct.*
EEC-9	23,880	50.0	22,507	41.5	21,550	36.3	24,420	35.4
Japan	10,476	22.0	10,274	18.9	12,131	20.4	13,750	20.0
OWE	4,871	10.2	4,900	9.0	5,891	9.9	8,116	11.8
Subtotal	39,227	82.2	37,681	69.4	39,572	66.6	46,286	67.2
Other	8,222	17.2	12,220	22.6	13,767	23.3	17,190	24.9
USSR	271	.6	4,328	8.0	6,001	10.1	5,425	7.9
Total	47,720	100.0	54,229	100.0	59,340	100.0	68,901	100.0

[1]Feedgrains include corn, sorghum, oats, barley, and rye. Corn and sorghum account for more than 90 percent of the feedgrain.
Source: Compiled from reports of the U.S. Department of Commerce and the Grain and Feed Division of the Foreign Agricultural Service, USDA.

Table 6—U.S. feedgrain export market, 1970/71-1973/74

World region	1970/71		1971/72		1972/73		1973/74	
	U.S. exports	Share of U.S. total	U.S. exports	Share of U.S. total	U.S. exports	Share of U.S. total	U.S. exports	Share of U.S. total
	1,000 MT	*Pct.*	*1,000 MT*	*Pct.*	*1,000 MT*	*Pct.*	*1,000 MT*	*Pct.*
EEC-9	8,266	42.7	8,214	39.7	10,653	30.8	12,383	28.3
Japan	5,908	30.6	3,835	18.5	8,410	24.3	10,246	23.4
USSR	- - -	0	2,950	14.3	3,735	10.8	4,688	10.7
OWE	809	4.2	1,240	6.0	3,247	9.4	4,591	10.5
Subtotal	14,983	77.5	16,239	78.5	26,045	75.3	31,908	72.9
Other	4,345	22.5	4,451	21.5	8,527	24.7	11,862	27.1
Total	19,328	100.0	20,690	100.0	34,572	100.0	43,770	100.0

Source: Compiled from reports of the U.S. Department of Commerce and the Grain and Feed Division of the Foreign Agricultural Service, USDA.

Table 7—Low level projections of world and U.S. feedgrain trade to 1985

World region	Total imports	Share of world imports	From United States[1]
	1,000 MT	*Pct.*	*1,000 MT*
Japan	28,000	48.9	17,052
OWE	6,000	10.5	2,496
East Asia	4,500	7.8	1,940
West Asia	3,500	6.1	2,251
South Asia	3,000	5.2	1,848
Subtotal	45,000	78.5	25,587
OSA	2,800	4.9	2,251
North Africa	2,200	3.8	2,090
Central Africa	2,000	3.5	1,900
Middle America	2,000	3.5	1,806
Eastern Europe	2,000	3.5	646
EEC-9	1,300	2.3	555
PRC	0	0	0
Canada	0	0	0
Southeast Asia	0	0	0
Brazil	0	0	0
Rep. of So. Africa	0	0	0
USSR	0	0	0
Total	57,300	100.0	34,835

[1]Derived figures based on projected total imports and 1970/71-1973/74 average U.S. feedgrain share.

Table 8—High level projections of world and U.S. feedgrain trade to 1985

World region	Total imports	Share of world imports	From United States[1]
	1,000 MT	*Pct.*	*1,000 MT*
Japan	30,000	33.2	18,270
EEC-9	9,000	10.0	3,843
USSR	8,000	8.9	5,776
OWE	6,500	7.2	2,704
Eastern Europe	6,000	6.6	1,938
Subtotal	59,500	65.9	32,531
East Asia	5,200	5.7	2,241
West Asia	5,200	5.7	3,344
Middle America	4,700	5.2	4,244
OSA	3,800	4.2	3,055
South Asia	3,800	4.2	2,341
North Africa	3,700	4.1	3,515
Central Africa	500	3.9	3,325
PRC	1,000	1.1	798
Canada	0	0	0
Southeast Asia	0	0	0
Brazil	0	0	0
Rep. of So. Africa	0	0	0
Total	90,400	100.0	55,394

[1]Derived figures based on projected total imports and 1970/71-1973/74 average U.S. feedgrain share.

of 57 million tons in 1985—a decline from the record high of 69 million tons in 1973/74 marketing year.

The major reduction in the total 1985 figure is expected to come from the EEC-9. In the 1973/74 marketing year, this region accounted for 24 million tons of feedgrains—more than one-third of the world demand. In 1985 the EEC-9 would account for only 1.3 million tons—about 2 percent of the demand.

As with wheat, the feedgrains markets of 1985 will be different from those of the present market. The biggest market of the future will be Japan whose demand is expected to double from its present level. The other major markets will include OWE, East Asia, West Asia, and South Asia. These five markets are expected to account for about 79 percent of the world imports of feedgrains by 1985.

The United States is expected to supply more than 60 percent of the world's needs by 1985, which means exports of about 35 million tons.

High Level Projections. With these projections, total world trade in feedgrains would be about 90 million tons—a record trade figure (table 8). However, the configuration of the market would more nearly represent the present market. This is because of the higher imports of feedgrains by the EEC-9.

Again, the largest market will be Japan, importing 30 million tons of feedgrains and accounting for more than one-third of all the feedgrains imported in 1985. The EEC-9 along with the USSR, OWE, and Eastern Europe would comprise the top five markets in 1985.

The United States would be expected to play a major role in supplying this demand by exporting more than 55 million tons.

Soybeans

Historical Observations, 1970/71-1973/74

World trade in unprocessed soybeans has been steadily increasing since 1970. It has increased from a total of 12 million tons in 1970, to 14 million tons in 1973 (table 9).

Compared with wheat and feedgrains, fewer world regions import soybeans. Three regions—EEC-9, Japan, and OWE—import about 85 percent of the world soybean supplies available for export. The EEC-9, the largest importing region, imports about one-half of the total world soybeans traded.

In contrast to wheat and feedgrains, soybeans have not experienced the large fluctuations in demand. While the centrally planned countries of PRC and USSR have been in and out of the world market, their imports of soybeans have been on a smaller scale than in wheat and feedgrains.

U.S. Role in World Trade of Soybeans

The total U.S. soybean export volume has increased in every year except 1971 (table 10). It increased from 12 million tons in 1970 to 15 million tons in 1973.

U.S. soybeans have been exported to every major importing region in the world. The United States' largest customer has been the EEC-9, which has accounted for more than 45 percent of U.S. soybean sales since 1971. When the EEC-9 is combined with Japan and OWE, the second and third largest U.S. customers, these three regions account for more than 80 percent of U.S. soybean sales.

The United States supplies a larger share of the world soybean market than in

Table 9—World soybean importing countries, 1970/71-1973/74[1]

World region	1970/71		1971/72		1972/73	
	Total imports	Share of world imports	Total imports	Share of world imports	Total imports	Share of world imports
	1,000 MT	*Pct.*	*1,000 MT*	*Pct.*	*1,000 MT*	*Pct.*
EEC-9	5,789	47.3	6,532	48.2	7,117	49.9
Japan	3,212	26.3	3,396	25.1	3,635	25.5
OWE	1,540	12.6	1,751	12.9	1,186	8.3
Subtotal	10,541	86.2	11,679	86.2	11,938	83.7
Other	1,694	13.8	1,608	11.9	1,596	11.2
USSR	0	0	252	1.9	723	5.1
Total	12,235	100.0	13,539	100.0	14,257	100.0

[1]These figures are for soybeans only. They do not include oil or meal equivalents.
Source: Compiled from reports of the U.S. Department of Commerce and the Oilseeds and Products Division of the Foreign Agricultural Service, USDA.

Table 10—U.S. soybean export market, 1970/71-1973/74

World region	1970/71		1971/72		1972/73		1973/74	
	U.S. exports	Share of U.S. total	U.S. exports	Share of U.S. total	U.S. exports	Share of U.S. total	U.S. exports	Share of U.S. total
	1,000 MT	*Pct.*	*1,000 MT*	*Pct.*	*1,000 MT*	*Pct.*	*1,000 MT*	*Pct.*
EEC-9	5,584	47.3	5,049	44.5	5,944	45.5	7,400	50.2
Japan	2,944	24.9	3,103	27.3	3,406	26.1	2,824	19.1
OWE	1,495	12.7	1,584	14.0	1,141	8.7	1,575	10.7
Subtotal	10,023	84.9	9,736	85.8	10,491	80.3	11,799	80.0
Other	1,785	15.1	1,610	14.2	2,559	19.7	2,953	20.0
Total	11,808	100.0	11,346	100.0	13,050	100.0	14,752	100.0

Source: Compiled from reports of the U.S. Department of Commerce and the Oilseeds and Products Division of the Foreign Agricultural Service, USDA.

wheat or feedgrains. In the 3 most recent years, the United States has supplied the world with 90 percent of its total demand (appendix table 3).

All of the major importing regions depend heavily on the United States as a supplier of soybeans. Canada is the most dependent with more than 96 percent of its import demand from the United States since 1970. Of the three largest customers of U.S. soybeans—OWE and Japan obtain more than 90 percent and the EEC-9 more than 85 percent of their soybeans from the United States.

In noting the activities of the USSR in the 2 years in which that country imported soybeans, 95 percent of the total came from the United States.

Projections of World Trade in Soybeans to 1985

Low Level Projections. These projections show a world trade figure of 30 million tons by 1985, which is double the present demand figure (table 11). Market configuration is not expected to change from that of the present market. The major increases in demand will come from the present importers the EEC-9, Japan, and OWE. These three regions are expected to import about 90 percent of soybeans traded in 1985.

The United States is expected to be a major supplier of soybeans to the world, exporting about 25 million tons, which would account for 85 percent of the total demand in 1985.

High Level Projections. With this level of projection, world trade in soybeans would be about 33 million tons (table 12). Again, the configuration of the market is not expected to change, with the EEC-9 continuing to be the largest buyer of soybeans, along with Japan and OWE.

The United States is expected to supply the world with more than 80 percent of its demand by exporting about 28 million tons in 1985.

Table 11—Low level projections of world and U.S. soybean trade to 1985

World region	Total imports	Share of world imports	From United States[1]
	1,000 MT	*Pct.*	*1,000 MT*
EEC-9	16,082	52.9	13,259
Japan	6,779	22.3	5,782
OWE	4,438	14.6	3,652
Subtotal	27,299	89.8	22,693
East Asia	2,219	7.3	1,950
Canada	426	1.4	409
East Europe	456	1.5	371
USSR	- - -	- - -	- - -
Total	30,400	100.0	25,423

[1]Derived figures based on projected total imports and 1970/71-1972/73 average U.S. soybean share.

Implications for U.S. Grain

This analysis of the world trade in grain has determined that: (1) there will be an export market for the major grains and (2) except for soybeans, future markets for grain will be different from present markets. More specifically these points are made:

Wheat

—A possible return to pre-1972 U.S. export levels by 1985,
—Highest projected U.S. exports would set a new export record,
—Possible decline of EEC-9 market,
—United States' three largest customers—Japan, East Asia, and South Asia—should significantly increase their demand by 1985,
—USSR/East Europe will be a substantial net importer,

Feedgrains

—Possible return to 1973 U.S. export demand levels by 1985,
—Highest projected demand level would set a new U.S. export record in 1985,
—Possible loss of EEC-9 market—presently the United States' largest customer,
—USSR/East Europe will be a substantial net importer,
—Major increase in Japan's demand—presently United States' second largest customer,

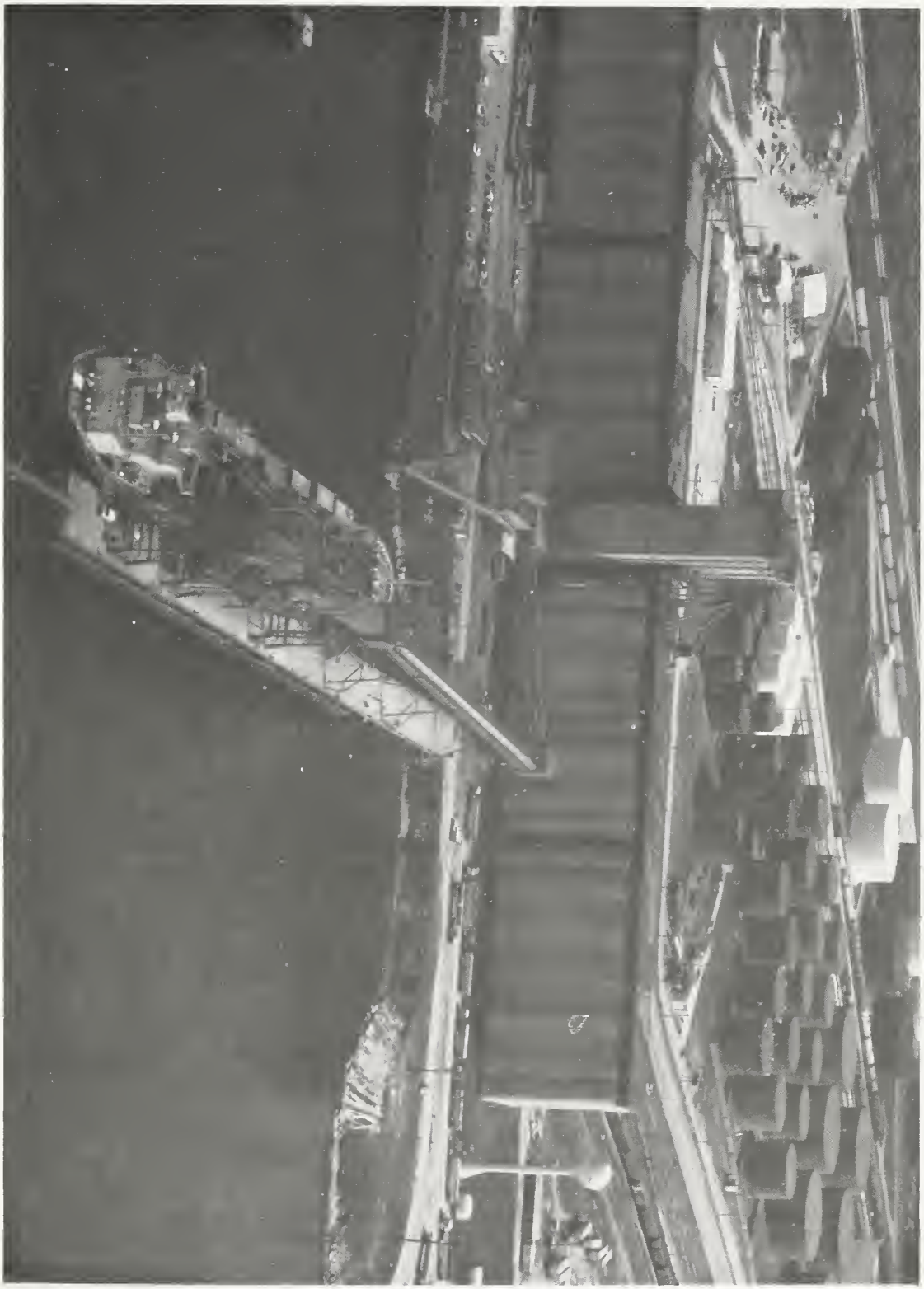
Soybeans

—Low and high level projections would set a new U.S. export record in 1985,
—No loss of present U.S. markets is expected, and
—Major increase expected in EEC-9 and OWE—two of the United States' largest customers.

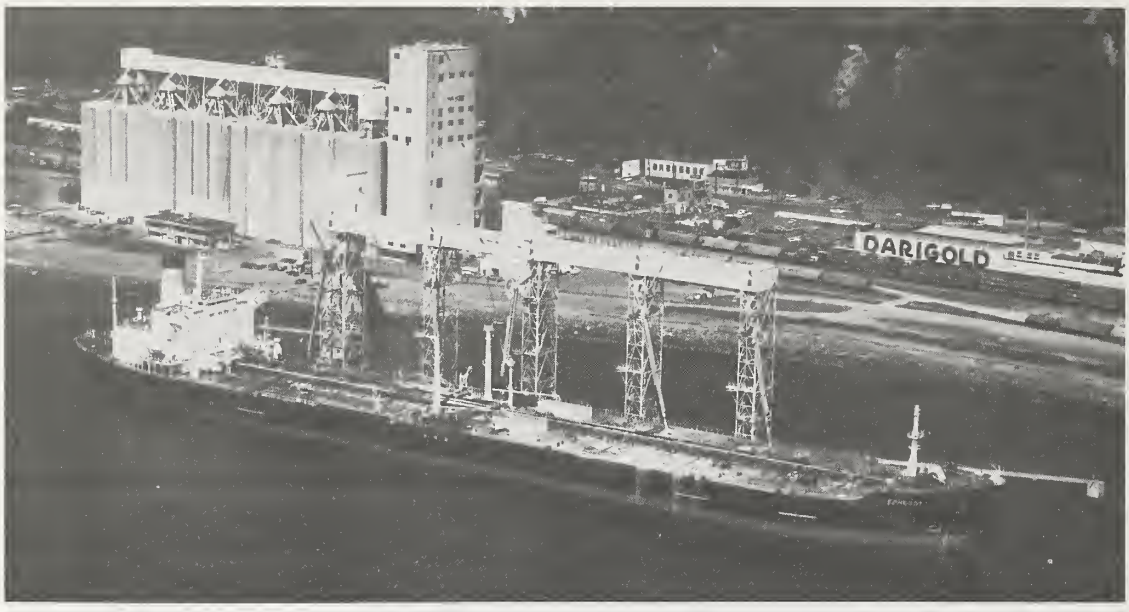
Table 12—High level projections of world and U.S. soybean trade to 1985

World region	Total imports	Share of world imports	From United States[1]
	1,000 MT	*Pct.*	*1,000 MT*
EEC-9	14,973	45.1	13,344
Japan	5,810	17.5	5,919
OWE	5,544	16.7	5,713
Subtotal	26,327	79.3	24,976
East Asia	1,627	4.9	1,430
Canada	332	1.0	319
East Europe	532	1.6	433
USSR	4,382	13.2	578
Total	33,200	100.0	27,736

[1]Derived figures based on projected total imports and 1970/71-1972/73 average U.S. soybean share.

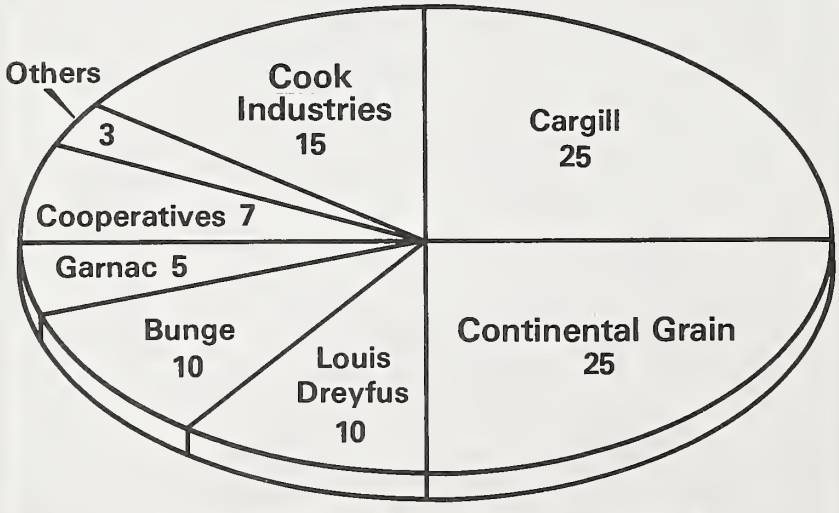


During 1975, the Houston export elevator of Union Equity Cooperative Exchange, Enid, Okla., handled 22 percent of the hard winter wheat exported from the U.S.



One of the more modern U.S. port elevators is the Pier 86 elevator in Seattle, leased by Cargill, Inc. Supertankers with a 70-foot loaded draft can be accommodated alongside.

Figure 1--Exporters of U.S. grain and respective market shares



Profile of U.S. Grain Export Marketing

Major Exporters

Many grain merchandising and processing firms do some overseas business, but the export grain industry in the United States is dominated by five firms that account for about 85 percent of U.S. grain exports (fig. 1). These five firms are Cargill, Inc., Continental Grain Co., Cook Industries, Inc., Bunge, Inc., and Louis Dreyfus, Inc. The remaining 15 percent of the market is divided among four regional grain cooperatives and others that include Garnac, Peavey, C. B. Fox, and Archer-Daniels-Midland.[4] However, a description of the industry is essentially a description of the major companies that export most of the grain. The following is a brief profile of each.[5]

Cargill The largest exporting company for the past century, it has become perhaps the Nation's largest privately held corporation, accounting for 25 percent of the U.S. grain export market. Cargill's sales reached $5.3 billion in fiscal 1973, yielding a profit of $107.8 million to the small group of owners. A multinational company, Cargill's overseas operations accounted for two-thirds of the company's 1973 profits. Cargill operates in 36 foreign countries and has more than a fourth of its invested capital abroad. By its own account, Cargill contributes as much as $1 billion in a single year to the U.S. balance of payments—the second largest corporate contributor.

Cargill is quite diversified. It is a major supplier of the protective coatings industry. An example is the polyesters used in telephone manufacture. It is the third largest rock salt producer. It produces molasses, operates a fishing fleet in Peru, and hauls 35 million tons annually on its inland waterways barges. It has a small but growing ocean fleet and another on the Great Lakes. Overall, Cargill's overseas operations claim 27 percent of total invested capital.

It has a complex corporate structure for its trading activities. For example, its Tradax group of companies headquartered in Geneva has offices around the globe. Cargill spokesmen are quoted as saying that Tradax is flexible enough to market a shipload of wine from Chile and precious metals from Africa.

It has a comprehensive financial and monetary intelligence network. All this is centered in headquarters situated in Wayzata, a Minneapolis suburb. It is linked to the international offices by a computer-controlled private wire system that reaches every major spot in the world except mainland China.

Cargill is a very closely held company. The Cargill and the MacMillan families control more than 85 percent of the company's stock; the rest is held by fewer than 100 stockholders among nonfamily executives.

Continental Grain Co. Continental handles about 25 percent of the world's international grain shipments, and about 25 percent of the U.S. grain exports. Its annual sales, conservatively estimated at about $2.5 billion, put it on par with Cargill as one of the Nation's largest privately held companies. A multinational company, Continental employs more than 14,000 people worldwide and maintains offices in more than 44 countries.

In 1966, Continental gained control of Allied Mills, a manufacturer of livestock feed. Allied Mills diversified Continental into pet food, leather goods, frozen foods, and vertical integration of broiler and hog production. In 1970, Continental formed Continental Commodity Services, a brokerage activity headquartered in Chicago. In 1971, Continental entered the baking industry by acquiring Oro-West Bakeries, a

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[4]Compiled from statistics furnished by the North American Export Grain Association, Inc.
[5]Sources of information were grain trade periodicals, *Business Week*, *Time*, and various other public sources.

West Coast operation dealing in specialty breads, "natural foods," flour, and cereal products.

Continental is also a very closely held company. It is reported that 90 percent of the entire outstanding capital stock is held by Michael Fribourg. The remaining capital stock is held by members of his family and key executives.

Cook Industries, Inc. Cook, the only publicly held major grain exporter, is an old-line cotton merchandiser that diversified into grain 10 years ago. Viewed in the industry as the third largest company, Cook accounts for about 15 percent of all U.S. grain exported.

Cook's sales for fiscal 1974 were $459.7 million, generating earnings of $46.2 million or $15 a share. Another multinational company, Cook maintains 11 offices in foreign countries, employs 5,500 people, maintains a fleet of 1,200 leased hopper cars for transporting grain by rail, and has 160 barges as well as many ships on charter.

Cook is as diversified in its operations as Cargill and Continental. Cook is in termite control, cotton merchandising, flooring, chemicals, insurance and apartment buildings. Even though Cook is operating in many other industries, fiscal year 1974 grain sales accounted for 58 percent of total revenues.

Bunge, Inc. Bunge Corporation, a Buenos Aires based firm with U.S. headquarters in New York, is a member of the so-called "Bunge Group" of companies with worldwide operations in finance and commerce. Bunge is generally regarded in the industry as being the fourth largest grain exporter, handling 15 percent of the world grain traded and about 10 percent of the U.S. grain exported.

Bunge's storage capacity is around 110 million bushels. The corporation maintains offices and agents in 80 foreign countries. Bunge has annual sales of at least $2 billion and has 1,200 employees.

Louis Dreyfus, Inc. Dreyfus' U.S. operation in New York is a member of the worldwide Louis Dreyfus Group, headquartered in Paris. It is considered the fifth largest grain exporter, accounting for about 10 percent of the world and U.S. grain traded for export.

Dreyfus' activities in the United States have been limited mostly to traditional grain trade business. Real estate is the only known diversification of the corporation. In Europe, Dreyfus owns a shipping fleet of more than a million tons under French and British flags, operates ships on a time charter basis, and charters ships for its own activities and for clients. In 1971, Dreyfus' U.S. sales volume was estimated at $1 billion.

Characteristics of Major Exporters

From the preceding discussion, the following characteristics of the five major grain exporters can be listed:

Diversification. These companies are in many other industries besides grain, ranging from leather goods to pet food to termite control to fishing fleets.

Multinational. They have sales offices and processing plants in major regions of the world. They have the ability to procure grain from any producing country in the world.

Cross-subsidize operations. By being diversified and multinational, these companies can financially cross-subsidize their operations. This is a tremendous advantage when dealing in the high risk grain industry. Also, by carrying a complete product mix of all grains, cross-subsidizing from one grain to another is possible.

Worldwide market intelligence systems. Each of the major companies is equipped with a sophisticated, computerized market intelligence system that provides them with valuable information for their grain marketing decisions.

Closely held corporations. Four of the five companies are privately held and thus

do not have to disclose any information on their operations. This creates a cloud of secrecy over the entire industry.

These characteristics of the grain export industry suggests that barriers are high to any exporter attempting to gain an increased market share at the expense of any one of these firms.

The Major Exporters' Markets

To better understand the importance of the major exporters in the grain trade, the following analyzes by commodity (1) their distribution of U.S. grain sales and (2) their world market share.

Distribution of U.S. Grain

Wheat. Of the 30 million tons of total U.S. wheat volume exported annually since 1972, the major exporters sold about 28 million tons per year.[6]

The distribution of wheat sales by these firms has been very diversified (fig. 2). Since 1972, 10 world regions have accounted for 85 percent of their wheat sales. The largest customer has been the USSR, accounting for more than 21 percent of their sales in this time period. East Asia and Japan have been the second and third largest customers, each accounting for 10 percent of sales.

Feedgrains. Since 1972, the total amount of U.S. feedgrains the major exporters sold varied from 31 million tons in 1973 to 40 million tons in 1974, representing 90 percent of all U.S. feedgrains exports in those respective years.

As with wheat the distribution of sales by these firms has been diversified (fig. 3). Since 1972, sales have been made in 16 regions of the world with 8 of those accounting for 88 percent of their sales. The largest customers have been EEC-9 and Japan, accounting for more than 50 percent of their sales.

Soybeans. The total volume of U.S. soybeans sold for export by the major exporters has ranged from 12 million to 13.5 million tons since 1972. This accounted for more than 86 percent of all soybeans sold for export from the United States.

As has been characteristic of these firms in wheat and feedgrains, these firms' markets are very diversified in soybeans (fig. 4). Since 1972, these firms have sold soybeans to 14 world regions with 7 of these regions accounting for more than 90 percent of all their sales. The largest customer has been EEC-9, accounting for more than 48 percent of their sales in the past 2 years. Japan is the second largest customer and with the EEC-9, these two regions have accounted for about 70 percent of their total sales.

World Market Share

In analyzing the importance of the major exporters in the world grain trade, the analysis is limited to only the grain these firms procured in the United States and sold for export. No comparable data are available on the grain these firms purchased from other countries and placed into the world grain trade. However, the analysis of grain procured in the United States gives an indication of the importance of these firms in the world market.

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[6]Sales data by commodity for these firms are not publicly available. The volume attributable to these firms was derived by subtracting the known cooperative direct export grain volume from the published U.S. export figures for each commodity, by region. Because the largest five companies export about 85 percent of the U.S. grain for export, it is the research team's opinion that the derived figures accurately reflect the combined volume sold by these firms within a 5-percent tolerance.

Figure 2--Major exporters' distribution of U.S. wheat sales, 1972/73 - 1973/74

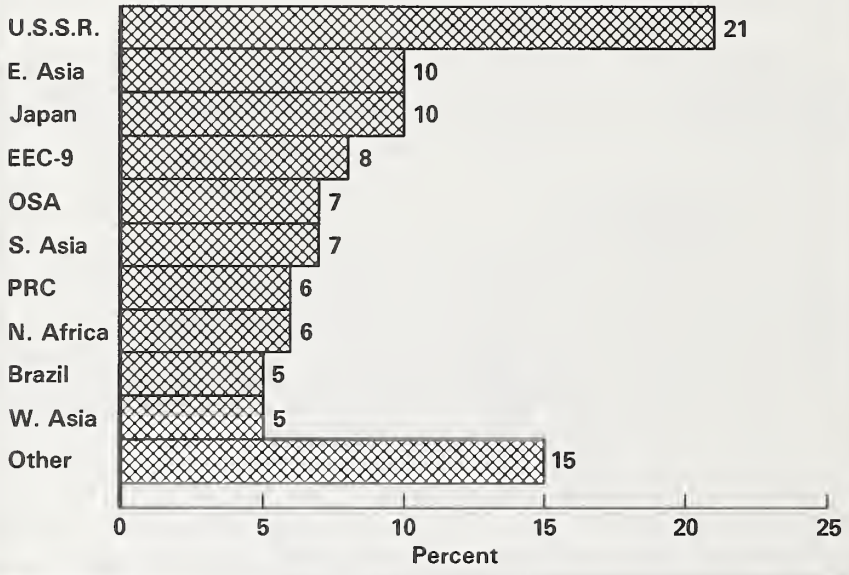


Figure 3--Major exporters' distribution of U.S. feed-grain sales, 1972/73 - 1973/74

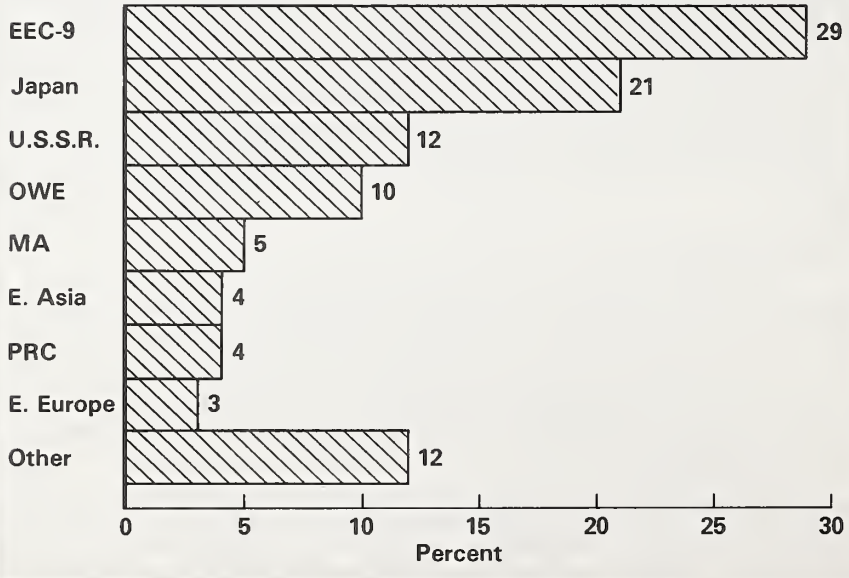


Figure 4-- Major exporters' distribution of U.S. soybean sales, 1972/73 - 1973/74

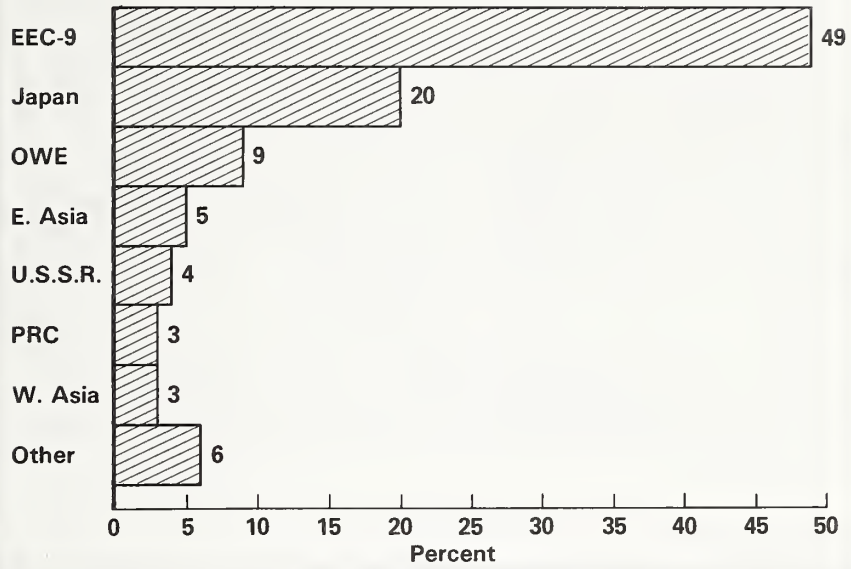
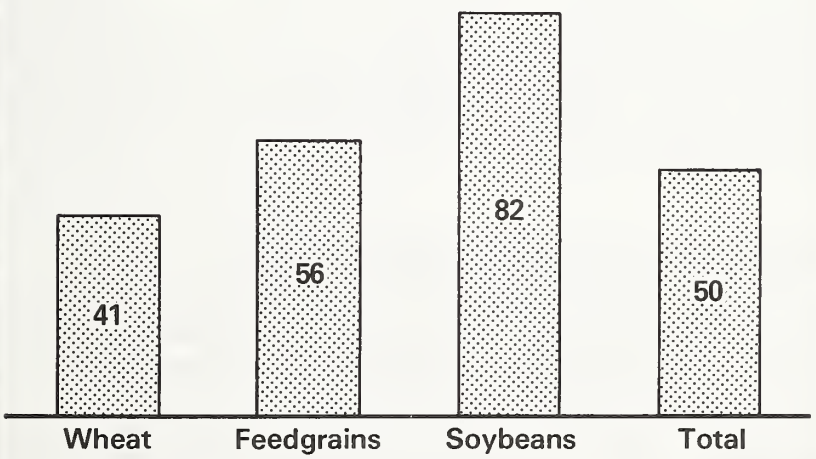


Figure 5-- Major exporters' share of world grain trade, 1972/73 - 1973/74 *

(Percent)



*Share of world trade with U.S. grain only.

Major exporters have a substantial share of world wheat, feedgrains, and soybean markets (fig. 5). These firms supply 41 percent of the total world demand for wheat from the United States. They supply 56 percent of the total world demand for feedgrains with U.S. feedgrains. They supply 82 percent of the total world demand for soybeans with U.S. soybeans. *A weighted average of these figures shows that the major exporters supply the world with 50 percent of the total world demand for grain.*

The analysis reveals a dominant position by these firms in certain markets.

Wheat. These firms have a substantial market share in many regions (appendix table 4). In six world regions, these firms' market share since 1972 has been more than 50 percent. The largest market share of 83 percent has been in Middle America. The lowest market share of 19 percent was in EEC-9.

Feedgrains. In terms of these firms' market share by region, they range from virtually 100 percent of a market to 42 percent since 1972 in the major importing regions (appendix table 5). In six world regions—Central and North Africa, Middle America, PRC, USSR, and Canada—these firms have more than 70 percent of each market.

Soybeans. The market share of the major exporters by region is substantial (appendix table 6). In any major soybean importing region, these six firms have a market share of no less than 76 percent and in many regions it approaches 100 percent. In the three expansion markets for 1985—East Asia, OWE and EEC-9, these six firms are well entrenched with more than 75 percent of the present market in each region.

Summary

In summarizing the major grain exporters' sales distribution of wheat, feedgrains, and soybeans, one characteristic stands out—diversification of markets. Taken together, these firms have penetrated every conceivable market for U.S. grains. There is no market in the world where these firms do not trade. By being market diversified, emphasis can easily be shifted to markets that are expected to expand in the next decade. No new markets need to be penetrated. It is simply a matter of deemphasizing sales in markets that are expected to decline and emphasizing sales in markets that are expected to expand.

These firms have a substantial share of the world market in wheat, feedgrains, and soybeans. Since 1972, these firms have had no less than 40 percent of the world trade in either wheat, feedgrains, or soybeans. They account for more than 50 percent of the world trade in major grains. These figures represent only the U.S. grain these firms export. The volume of grain they export from non-U.S. sources is not known. Therefore, the market share figures here understate the actual market share accountable to these firms.

Characteristics of U.S. Grain Export Sales

At the present time, very little public information is available on the characteristics of grain export sales from the United States. However, this section provides some information on export sales characteristics with reference to the types of markets, establishing connections, and terms of delivery.

Types of Markets

The types of markets in which the exporting firms operate can be categorized as: (1) the open market, (2) the public tender market, and (3) the private tender market.

The open market, which is exemplified by the Rotterdam, Hamburg, and London

markets, is one in which there is a continuous two-way flow of offers, bids, counter offers, and market information. Private traders and processors typically use this type of market. It essentially involves the exporter collecting information concerning quantities and qualities of grain available, shipping positions, ocean freight rates, etc., and then composing an offer. Then, depending on the nature of the export market, the offer is accepted or rejected. Depending on the market situation, there can be a counter offer, and room for negotiation, or the whole matter can be rejected and no more offers or bids are forthcoming.

The public tender market is characterized as one in which the buyers issue tenders ahead of the requested offering date. The terms of the tender are explicit and usually include reply deadlines. Sometimes buyers supply their own ocean freight and request offers basis f.o.b. (free on board) vessel, specified coasts and/or loading ports. Among buyers who operate in this manner are recipients under Public Law-480 agreements, Japanese firms that supply the Japanese Food Agency, and foreign governments that have centrally controlled buying such as Norway, Brazil, Columbia, Chile, Morocco, and Algeria. Frequently buyers other than PL-480 buyers request offers of c&f (cost and freight) and/or c.i.f. (cost, insurance, and freight) at specified ports of discharge.

The private tender market is that category in which private mills or processors request selected exporters to submit offers. The tenders are similar in form to the public tenders with shipments being standard in quality, quantity, and position. In wheat, this type of tender is most commonly used by the mills in Middle America, Africa, and Southern Asia.

The trend is for more foreign governments to become involved in centralized buying for their countries. In 1973, more than 75 percent of the wheat exported from the United States was on a tender basis to foreign governments. In feedgrains and soybeans, the trend is the same with more and more of these grains being sold to centralized buying agencies or governments on a tender basis. Thus, the open market is diminishing in importance. U.S. exporters are going to become more involved in the public and private tender markets in the next decade and it is likely that forward buying will involve longer term commitments.

Establishing Connections

In its broadest sense, connections with buyers of U.S. grain can be made by (1) establishing and staffing an overseas office, or (2) use of commissioned agents. The major exporters usually establish their own branch offices in the markets they serve. Cargill has offices in 36 countries, Continental in 44 countries, and Cook in 11 countries. These offices are staffed with their own people who work exclusively for that company. Importers need only contact the company's branch office in their country to make connections with the exporter.

The use of agents can be characterized by (1) an exclusive agent and (2) an agent in common. An exclusive agent is described as being on commission and representing only one company for the specific commodity being traded. For a given commodity, he may not represent any more than one firm. An agent in common is described as being on commission and representing more than one exporter of the same commodity. The exclusive agent is the most commonly used. Connections are established by the importer contacting the known agent for an exporter or the exporter instructing his agent to make contact with various importers. Commissions are usually based on the volume of grain sold.

The trend is to establish an office and staff it with company personnel. The concept in establishing connections is to give personalized service to the buyer. This can best be done by placing company people in the major world markets.

Terms of Delivery

The delivery terms of grain are defined as the terms by which the grain is to be delivered to the buyer. The most commonly used terms for grain are f.o.b. (free on board) ship in the United States and c.i.f. (cost, insurance, and freight) at a foreign port. The following is a breakdown of responsibilities and associated cost items under each type of delivery and implications these have on risk assumed by the seller.

Responsibilities of Exporter

F.O.B.. This term means that the exporter is responsible for the grain only until it is loaded on ship; the buyer arranges and pays for loading of ship, ocean transportation, and discharge at port. Thus, the associated cost items to the exporter are inland transportation to port, putting grain through the port facility, interest, and management overhead. The major cost item is the inland transportation, possibly 80 percent of the total cost.

C.I.F.. This term means the exporter is responsible for the same items included in f.o.b. delivery plus obtaining the shipping, scheduling it for delivery, and being responsible for the grain till it reaches the port of destination. Thus, the extra costs assumed by the exporter are ocean freight, insurance, and port discharge.[7] The major cost item is again transportation, which includes inland and ocean freight. These transportation costs account for about 80-85 percent of total delivery costs on c.i.f. terms.

Implications for risk. With the added responsibility and associated costs incurred in the c.i.f. terms goes higher degrees of risks. These risks include discharge problems at port, financial settlement at port, and ocean freight rates. Ocean freight can be the highest risk factor in c.i.f. sales.

Figure 6 illustrates the difference in rail and ocean freight rates since 1969. Because of regulated rail freight rates, there has been a slow, step-by-step increase in rail rates. This is opposed to a highly fluctuating ocean freight market where the forces of supply and demand for ships determines the rate. This volatile market requires exporters to have the expertise in knowing when to book freight for grain delivery. Without that expertise, exporters run the risk of entering the freight market when rates are too high and thus taking a loss on the sales or series of sales.

Capacity and Volume of U.S. Port Elevators

Port facilities for handling grain can be evaluated by storage capacity, handling flexibility, receiving and load out rates, and other facility factors affecting throughput rates, such as railcar trackage for loaded and empty cars, switching service, harbor and channel conditions, and ability to load larger ships.

Elevator Storage Capacity

Elevator storage capacity is one indicator of the ability of a port or port area to export grain. Other factors such as throughput are also important.

U.S. port elevator storage totals about 350 million bushels. Of this total, storage for 45 million bushels is on the Atlantic coast, 113 million on the Gulf coast, 51 million on the Pacific coast, and 141 million on the Great Lakes (fig. 7). Thus, about 73 percent of U.S. port capacity is located on the Lakes and Gulf coast. This is prin-

[7]Port discharge costs are optional depending on agreement between buyer and seller.

Figure 6--Comparison of rail freight rates to Gulf with ocean freight rates to Rotterdam for wheat, 1969-74

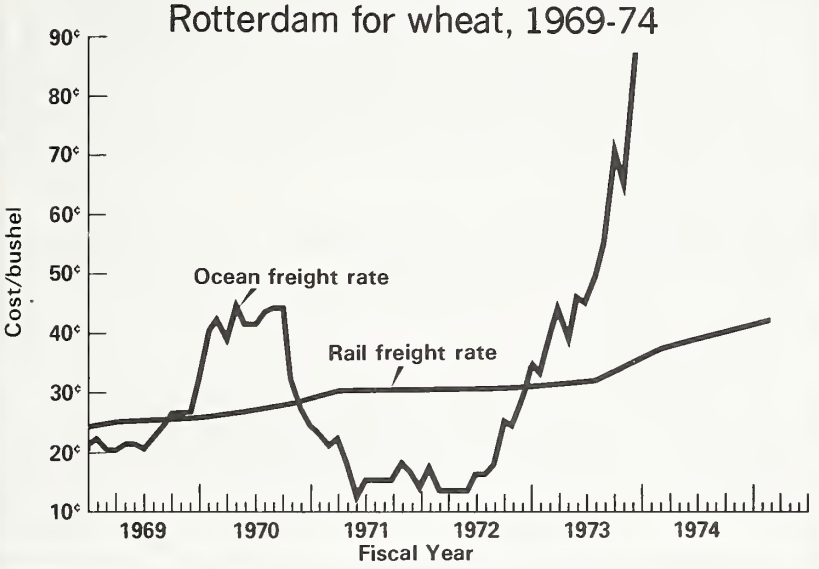
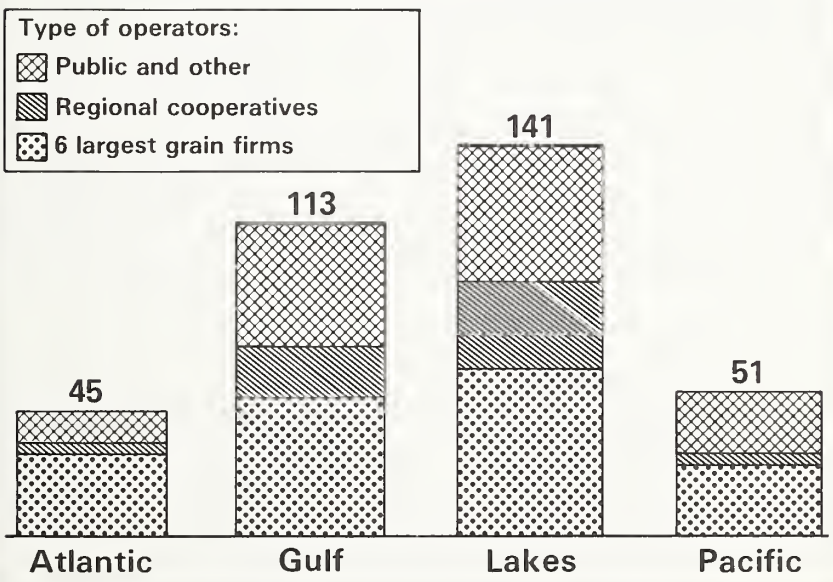


Figure 7--U.S. port elevator storage capacity by coastal areas, 1974 **(Million bushels)**



cipally because of the generally shorter distance from many of the important grain-production areas, the availability of river transportation, and the generally greater availability of ships to haul grain. On the Lakes, considerable capacity is used to store for processing and to store grain during the winter when Lakes are closed to navigation. The elevator capacity for important port areas is shown in table 13.

Pertinent observations concerning the composition of port elevator operators are:

(1) The six major exporters have 48 percent of U.S. port capacity. Cargill alone has 25 percent.

(2) Cargill and Continental operate at least one port elevator in each coastal area. Bunge and Dreyfus operate port elevators on all coasts except the Lakes. Cook has port elevators on the Gulf and Pacific coasts. Garnac does not operate a port elevator except the St. Charles Elevator Co. in Destrehan, La., in conjunction with Archer-Daniels-Midland.

(3) Six public elevators have 8 percent of U.S. port storage capacity. Of this total, five are on the Gulf.

Table 13—Summary of U.S. port elevator capacity, by port area, 1974

Coastal and port area	Port elevators	Storage capacity	Percent of U.S. total capacity
	Number	*1,000 bushels*	*Percent*
Atlantic			
North Atlantic	3	20,130	- - -
South Atlantic	6	24,418	- - -
Total Atlantic	9	44,548	12.8
Gulf			
Mississippi River	8	49,589	- - -
East Gulf	2	5,659	- - -
North Texas Gulf	8	42,127	- - -
South Texas Gulf	3	15,696	- - -
Total Gulf	21	113,071	32.3
Lakes			
Chicago	7	54,450	- - -
Superior-Duluth	11	73,137	- - -
Toledo	3	8,300	- - -
Saginaw	3	5,453	- - -
Total Lakes	24	141,340	40.4
Pacific			
Columbia River	7	29,752	- - -
Puget Sound	2	9,430	- - -
California	4	11,430	- - -
Total Pacific	13	50,612	14.5
Total United States	67	349,571	100.0

(4) Eight cooperatives have nine port elevators totaling 16 percent of total U.S. port capacity.

(5) The rest of the port elevator storage capacity accounts for 28 percent of the total.

Three new elevators are under construction: A 3.0-million-bushel elevator by Continental at Tacoma, Wash., a 1.75 million-bushel elevator by Cook at Galveston, Tex., and a 1.5-million-bushel elevator by Cook at Portland, Oreg. These elevators are expected to be operational in 1975 or 1976. Cargill plans a new 5.6-million-bushel elevator near Reserve, La., in conjunction with its grain, molasses, and meal complex that is expected to be operational in 1976 or 1977.

Volume of Grain Exported

During the past 8 years, total U.S. grain exports have varied from a low of 1.4 billion bushels in calendar year 1969 to a high of 3.5 billion bushels in calendar year 1973 (table 14). The large USSR and China sales were mostly in 1973.

The coastal areas of the United States are divided into 4 sections for purposes of reporting inspected grain exports: Great Lakes, Atlantic, Gulf, and Pacific. For the 8-year period, 14 percent of total U.S. grain exports was shipped through Great Lakes ports and 9 percent through Pacific ports.

The volume exported through the Great Lakes ports increased steadily from 1967 to 1973, but dropped in 1974, principally due to union strikes at the waterfronts on the Lakes.

Atlantic coast grain exports dropped during 1969-71, but rose to a relatively high level during 1972-74. It would appear that the Lakes gained volume at the expense of the movements to Atlantic ports during 1969-71. Since 1972, the situation appears to have reversed.

Gulf coast grain exports have made up more than 60 percent of total U.S. grain exports for the past 8 years. For the past 4 years, the share has been more than 64 percent. The 8-year growth for the Mississippi River, East Gulf ports was 88 percent, compared with 109 percent for the Texas Gulf ports. Mississippi River ports had large increases in corn and soybeans, whereas North Texas ports had large increases in wheat. Corpus Christi had a large increase in grain sorghum.

Pacific coast grain exports have been at a high level for the past 2 years, but its share of total exports has dropped slightly since 1970. For the past 2 years, wheat exports through Pacific ports have accounted for 25 percent and 34 percent, respectively, of U.S. total.

In calendar year 1974, the four leading port areas for each of the four major grains from the standpoint of export volume were: (appendix table 7).

Wheat	*Corn*	*Sorghum*	*Soybeans*
N. Texas Gulf	Mississippi R.	S. Texas Gulf	Mississippi R.
Columbia R.	S. Atlantic	N. Texas Gulf	S. Atlantic
Mississippi R.	N. Texas Gulf	California	E. Gulf
Duluth-Superior	N. Atlantic		Toledo Area

Barley exports were largest for the Columbia River area, followed by the Duluth-Superior area.

Table 14—Inspected grain exports from U.S. coastal areas, calendar years 1967-74

Coastal area	1967	1968	1969	1970	1971	1972	1973	1974
				Mil. bu.				
Great Lakes	198	250	248	320	304	337	475	272
Atlantic	150	151	88	102	94	226	389	362
Gulf.....	1,056	1,022	856	1,147	1,115	1,501	2,250	1,885
Pacific	288	211	210	257	193	254	398	361
Total	1,692	1,634	1,402	1,826	1,706	2,318	3,512	2,880
				Percent of total				
Great Lakes	11.7	15.3	17.7	17.5	17.9	14.5	13.5	9.4
Atlantic	8.9	9.2	6.2	5.6	5.5	9.7	11.1	12.6
Gulf.....	62.4	62.6	61.1	62.8	65.3	64.8	64.1	65.5
Pacific	17.0	12.9	15.0	14.1	11.3	11.0	11.3	12.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 15—Total U.S. volume of grain exports and port storage capacity, by coastal area, 1974

Coastal area	Volume of exports		Port storage capacity		Ratio of volume to storage capacity
	Total[1]	Percent of total	Total	Percent of total	
	1,000 bu.	*Pct.*	*1,000 bu.*	*(Ratio to 1)*	
Great Lakes	430,208	12.8	141,340	40.4	3.0
Atlantic	351,262	10.4	44,548	12.8	7.9
Gulf.....	2,206,275	65.7	113,071	32.3	19.5
Pacific	372,676	11.1	50,612	14.5	7.4
Total	3,360,421	100.0	349,571	100.0	9.6

[1]Inspections for export as reported for fiscal year ending June 30, 1974 by Agricultural Marketing Service, USDA.

Table 16—U.S. grain exports: Projections at low and high levels for 1985, and actual exports for fiscal 1974, by kind of grain[1]

Kind of grain	1985 low level	1985 high level	1974 actual
		Million bushels	
Wheat	1,101	1,721	1,096
Corn	937	1,937	1,355
Sorghum	132	277	241
Oats	9	22	54
Barley.....	17	36	81
Rye	5	8	27
Soybeans.....	934	1,019	506
Total	3,135	5,020	3,360

[1]Based on unpublished projections of the Foreign Demand and Competition Division, Economic Research Service, USDA.

Port Elevator Volume-to-Capacity Ratios

The ratio of volume to storage capacity is one indication of the utilization of port facilities and to some extent the ability to handle larger volumes (table 15). The ratio differs sharply between coastal areas for fiscal year 1974: Great Lakes 3:1, Atlantic 8:1, Gulf 20:1, and Pacific 7:1. The ratio is low for the Lakes, principally because navigation on the Lakes is closed from about December to April. The ratios for the Atlantic and Pacific are lower primarily because of the greater distance from grain supply areas and the lower demand for grain on these coasts. In comparison, Gulf ports at New Orleans and Houston are closer to areas of production and the Mississippi River offers low cost water transportation to New Orleans. Also, ocean vessels are more readily available in the Gulf area for shipping grain.

Adequacy of Port Elevators

The U.S. port grain elevator system as a whole was less than adequate to handle the unusually large flow of grain in 1972-73. However, it seems unlikely that such a seasonal bulge in exports will occur again to that extent. Generally, port elevators are adequate to handle the 1974 level of exports of about 3.4 billion bushels, but improvements and expansion will be needed in the years ahead as a result of obsolescence, expanding exports, and competitive forces.

Future Export Volume

Export projections for 1985 by Economic Research Service, USDA, indicate a possible high of 5.0 billion bushels and a possible low of 3.1 billion, only slightly below the fiscal year ending June 30, 1974 (table 16). The assumptions made under the high- and low-level export projections were explained in the overview section of this report.

The high level projection for total grain was 60 percent greater than the low level projection. For wheat it was 56 percent greater, feed grains 107 percent, and soybeans 9 percent.

Implications for Additional Port Facilities

If the *low projections* become a reality in 1985, the total export volume would be about 225 million bushels less than for 1974. There would be lower grain exports for the Lakes, Atlantic, and Gulf coasts and thus, there would be no need for additional port elevators. The increases over fiscal 1974 for the Pacific would be equivalent to the annual volume of one to two additional port elevators.

If the *high projections* are attained, it would mean a total increase of 1.7 billion bushels over fiscal 1974, or a 49-percent increase. Assuming an annual volume of 70 million bushels for a typical Atlantic and Pacific coast elevator and 150 million bushels for a Gulf coast elevator, these projections are equivalent to the annual volume of two to three additional port elevators on the Atlantic, seven on the gulf, and five on the Pacific. However, actual added requirements would probably be less if present facilities were expanded or utilized to a greater extent.

Already any needs for more port elevators are being met. As previously stated, three new port elevators will be operational in 1975 or 1976, and one in 1976 or 1977. Two of these will be on the Pacific Northwest coast and two on the Gulf coast.

Transportation and Grain Flow to Ports

Transportation cost is one of the most important factors in determining the route of grain movements to U.S. ports and to foreign destinations. Minimizing transportation charges by rail, truck, barge, and ocean vessel is a major challenge facing buyers and sellers of grain.

Importance of Transportation to U.S. Grain Exports

The importance of transportation can be demonstrated by determining the value added to grain as a result of transporting grain from farm to foreign destinations. Estimates of transportation costs for December 1974 show that transportation from midwestern U.S. farms to Rotterdam added 18 percent to the value of corn, 16 percent to value of wheat, and 9 percent to the value of soybeans (table 17). Changes in transportation costs have a greater effect on lower priced grains—i.e., feedgrains. More important, as grain prices decline, transportation will make up a greater portion of total grain value.

Ocean freight rates generally make up one-third to two-thirds of total transportation costs from U.S. farms to foreign ports and they fluctuate considerably more than rates for continental U.S. movements. Also, unequal changes in ocean rates for different U.S. coastal areas to a common destination can have an important effect on the directional flow of grain from inland elevators to port areas. For example, a sharp reduction in ocean freight rates from the west coast to Japan relative to those from the Gulf to Japan, could result in a significant grain movement from the Great Plains to the west coast.

Table 17—Illustration of estimated value added to grain by transportation from U.S. farms to Rotterdam, December 1974

Item	Kind of grain		
	Corn	Wheat	Soybeans
	Value per bushel		
Farm prices, Dec. 15, 1974			
Iowa average	$3.24		$7.13
Kansas		$4.36	
Value added by transportation			
Farm to elevator (estimated)	.04	.04	.04
Elevator to U.S. port	[1].30	[2].38	[1].32
U.S. port to Rotterdam[3]	.25	.27	.27
Total transportation costs	.59	.69	.63
Estimated percent that transportation adds to value	18	16	9

[1]50-car trainload rates from Des Moines, Iowa, to Gulf. [2]Single-car rates from Hutchinson, Kans., to Houston, Tex. [3]Source: International Wheat Council, Dec. 17, 1974 as reported by *Milling and Baking News*, February 4, 1975. Rate was $10 a metric ton for dry cargo vessels.

Unit-trains of 50 to 100 hopper cars move a major portion of the grain going to port elevators. The cars above are leased by Farmers Grain Dealers Association of Iowa, Des Moines.

Inland Transportation

Grain moves to port elevators by rail, barge, and truck. Each mode plays a significant role. A healthy, well-balanced transporation system involving all modes is essential for the efficient movement of grain to port elevators.

Rail. Railroad companies move the major portion of grain that flows to port elevators except for the New Orleans area. Railroads performed reasonably well during the transportation crises of 1972 and 1973, considering their physical condition. In recent years, many railroads have been unable to adequately maintain a satisfactory level of efficiency and service, due to: (1) deteriorated condition of tracks, roadbeds, bridges, and tunnels, (2) deteriorated equipment, and (3) lack of railcars and locomotives.

An increasing number of shippers are leasing or owning hopper cars. More than 26 percent are now privately owned and by 1983, it's projected that 38 percent will be privately owned. One of the larger grain firms now controls about 2,000 hopper cars and another has more than 1,500 hoppers.

Shipper control of hopper cars has been the only way many shippers could be reasonably sure of having an adequate number of cars. Shippers have had difficulty in getting approval from some railroads to operate private equipment (hoppers) over a particular rail line. They have conditional approval only. More recently railroads have been able to supply cars, and the question arises as to what will happen to the considerable investment by private fleet owners. Also, if grain exports decline sharply in the next few years, grain firms that have leased or purchased hopper cars may face serious car utilization problems.

Rail abandonments in the grain-producing States have made up a big portion of total abandonments and have had a significant effect on country grain elevators. Generally, country elevators on abandoned lines have trucked grain to the nearest elevator on a mainline railroad, and to processors and feeders. Others have closed

their doors, causing grain producers to haul their grain greater distances. Abandonments will tend to increase the construction or modification of elevators to have the capability of making multicar and unit-train shipments for export.

The efficiency of shipping grain in hopper cars is increased when a large number are shipped to a single destination. As a result, railroads instituted special multicar and unit-train rates for export movements from Corn Belt areas. A major portion of corn and soybeans destined for export moves to port elevators in unit trains of 25 to 115 hopper cars. The use of unit trains permits exporters to better control the flow of grain to port elevators.

Under the rate structure for several railroads, shippers of grain can take advantage of the progressively unit-train rates for an increasingly larger number of consecutive trainloads. For some railroads, the lowest rate is obtained by having 45 consecutive trainloads. These trainloads must either have one common destination or origin. Generally, it works best to have several origins and one port elevator. A shipper such as a relatively small regional cooperative with two or three inland terminals cannot easily achieve such consecutive movements.

In comparison, a large export firm can purchase grain for export from many inland elevators and thereby easily keep several trains fully utilized and receive the optimum low rail rate. These exporting firms perform the important function of coordinating and scheduling grain in an optimum manner to port elevators. Railroads generally prefer to place their cars in this type of service because it gives them a high level of utilization for their hopper cars.

In the wheat-producing areas, unit trains of grain move to ports at the single-car rate because unit-train rates have not been implemented. Subterminals in the major wheat areas are not likely to develop to any great extent unless multi-car or unit-train rates are implemented, except where rail abandonment forces the development of a subterminal on a main line.

Prospective developments in rail transportation related to export movements are:

(1) Additional unit-train rates on feedgrains and wheat to the west coast for export are expected. The amount of movement to the west coast for export will depend greatly on a reduction in ocean freight rates from west coast to Asia compared with rates from Gulf to Asia,

(2) an estimated 42 percent of all grain tonnage is expected to move by rail in 1983, compared with 40 percent at present,[8]

(3) an estimated 92 percent of grain rail tonnage is expected to be hauled in hopper cars by 1983, compared with 75 percent in 1975,

(4) considerable abandonment of secondary rail lines is expected to occur in the major grain producing areas,

(5) mergers of railroad companies are likely to occur gradually which should provide more viable companies and more favorable through rates to port areas,

(6) greater flexibility in rates and movements among railroads,

(7) further reduction in transit privileges, and

(8) Government loans and aid to insolvent and bankrupt railroads to improve trackage, rail yards, and equipment.

Trucks. The truck movement of grain from inland elevators for export occurs principally in movements to river points such as those on the Mississippi, Columbia, Illinois, and Ohio Rivers.

Trucks tend to haul longer distances to rivers when barge rates are low because the combination truck-barge rate can often beat the rail rate which is relatively constant. There are also important truck movements to Lake ports at Superior-Duluth

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[8]R. P. Roscoe, North American Car Corporation.

and Toledo. Trucks are playing an increasingly important role in moving grain from country elevators with little or no rail service to inland subterminals for rail shipment.

The movement of grain by truck is generally limited to the shorter hauls such as those under 150 miles. However, there are exceptions such as the truck movements from Montana and North Dakota to Lake ports.

Barge. In calendar year 1973, the barge receipts of grain as a percent of grain exports for the New Orleans and Portland port areas were 70 percent and 31 percent, respectively. The balance of grain for export was received primarily by rail.

Total exports of corn, soybean, wheat, and sorghum from the New Orleans area in calendar year 1973 were 33.6 million short tons. In comparison, barge receipts in the area were 23.4 million tons, or 70 percent of exports (table 18).

A breakdown by kind of grain shows that corn made up 68 percent of barge receipts and soybeans, 27 percent—a total of 95 percent of barge receipts for the two grains.

Total exports of wheat and barley from the port elevators at Portland and near the mouth of the Columbia River, in calendar year 1973, totaled 7.8 million short tons. Of this total, 2.5 million tons, or 31 percent, were received by barge (table 19). A breakdown by kind of grain shows that wheat accounted for 96 percent of barge receipts for the area. Preliminary data for calendar year 1974 show that barge receipts of grain as a percent of grain exports were 78 percent for the New Orleans area and 30 percent for the Portland area.

There are some 1,800 barge companies in the United States. The industry is relatively healthy. The number of barges and the volume they handle is trending upward. It is also a very competitive industry because rates on agricultural and unprocessed products are not regulated. No one barge company dominates. However, the smaller companies do often have difficulty competing. There is a backlog of new orders for barges, tugs, and towboats. It's expected the industry will have adequate equipment to handle future volume at a reasonable rate.

In contrast to the rail industry, the barge industry is expanding moderately. Channel improvements for navigation have recently been completed on the Arkansas River to the Tulsa port of Catoosa in Oklahoma. In the first 3 months of operation ending December 27, 1974, Garvey International put 2 million bushels of wheat through the 310,000 bushel elevator at Catoosa. The Snake River to Lewiston will soon be open to navigation and have the ability to make barge shipments of grain to the Portland area.

Table 18—Total inspections for export and barge receipts of corn, sorghum, wheat, and soybeans for the New Orleans area, calendar year 1973

Kind of grain	Total exports[1]	Barge receipts[2]	Barge receipts as a percent of exports
	1,000 short tons	*1,000 short tons*	*Percent*
Corn	22,041	16,006	73
Sorghum	18	41	- - -
Wheat	2,718	991	36
Soybeans	8,782	6,337	72
Total	33,559	23,375	70

[1] *Grain Market News,* January 11, 1974, Agricultural Marketing Service, USDA.

Source: *Water borne Commerce of the U.S.,* Part 2, Department of the Army, Corps of Engineers.

Barged grain comprises 70 percent and 31 percent, respectively, of grain receipts for export at the mouths of the Mississippi and Columbia rivers. The loading scene is from Farmers Union Grain Terminal's St. Paul elevator.

Table 19—Total exports and barge receipts of barley and wheat for the mouth of the Columbia River area, calendar year 1973

Kind of grain	Total exports[1]	Barge receipts[2]	Barge receipts as a percent of exports
	1,000 short tons	*1,000 short tons*	*Percent*
Barley	731	97	13
Wheat	7,116	2,361	33
Total	7,847	2,458	31

[1] *Grain Market News*, January 11, 1974, Agricultural Marketing Service, USDA.
[2] Source: Department of the Army, Corps of Engineers, Portland, Oreg.

Barge rates are historically less per ton-mile than rail and tend to force lower rail rates for closely parallel movements. Also, low barge rates to the Gulf from the Midwest tend to reduce rail movements of grain to the east and west coasts. It also adversely affects the grain volume flowing to Great Lakes ports.

One of the greatest concerns of the barge industry is that a waterway users' tax might be imposed. The resulting higher cost to shippers would have adverse effects on barge volume, depending on the amount of the tax.

Ocean transportation. Trip charter rates for ocean shipping vary greatly from season to season as shown in a previous section. In addition, costs per ton-mile vary considerably between coastal areas to common destinations. This is particularly noticeable when comparing Gulf coast and west coast rates to Asian areas. The rates per ton are often about the same, but when considering the cost per ton-mile, the cost from the west coast is considerably greater than from the Gulf. Greater availability of ships for hauling grain in the Gulf largely accounts for the relatively lower Gulf rate.

In the distant future, it's probable that there will be a greater availability of shipping space for grain on the west coast and that shipping will be in somewhat larger vessels than in the past. Increased fees through the Panama Canal and other canal problems could occur in the future to increase the cost of shipping to Asian areas from the Gulf. Greater use of large tankers to haul grain from the Pacific Northwest would serve to reduce ocean rates and increase grain exports from that area. The cost of ocean shipping of grain can often be reduced by the use of ship charters for periods of 6 months to several years. This causes the charterer to arrange for hauling other cargo on backhauls and to various destinations to minimize net cost of shipping. Some large grain export firms own ships or lease ships on a long-term basis to enhance their flexibility and control of grain movements.

Major Grain Flows to U.S. Ports

Physical flow patterns have been generally established for grain movements to U.S. ports. Such movements have some seasonal and yearly variations with respect to direction of flow, time, and mode of transportation.

Figures 8, 9, and 10 portray recent export movements for wheat, feedgrains, and soybeans. These figures provide the reader with a reasonable idea of the source and direction of recent major grain movements to ports and potential directional flows for the future.

Farmers assumed ownership of a barge line in 1974 through the formation of Agri-Trans Corporation, an interregional transportation cooperative formed by CF Industries, Chicago, and five regional grain cooperatives. Above is the M/V American Beauty traveling south on the Mississippi.

Figure 8 --Wheat: Major flows for export

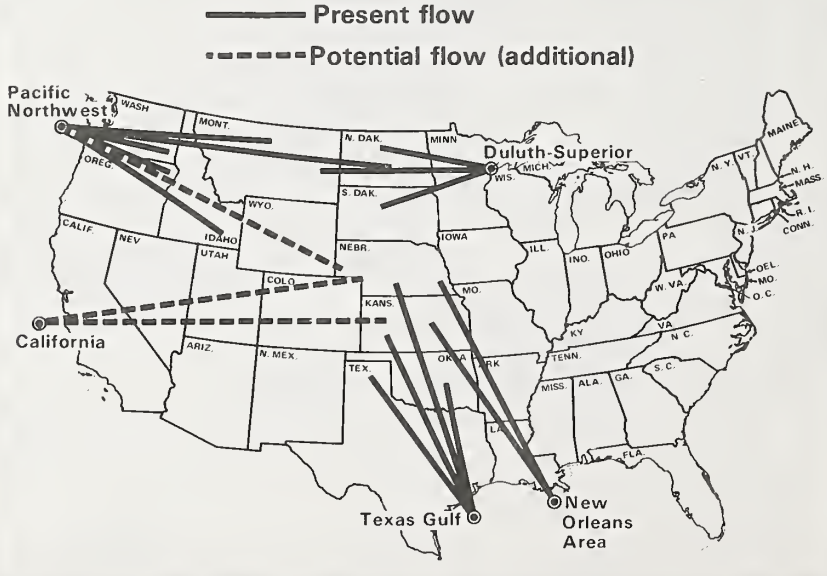


Figure 9--Feedgrains: Major flows for export

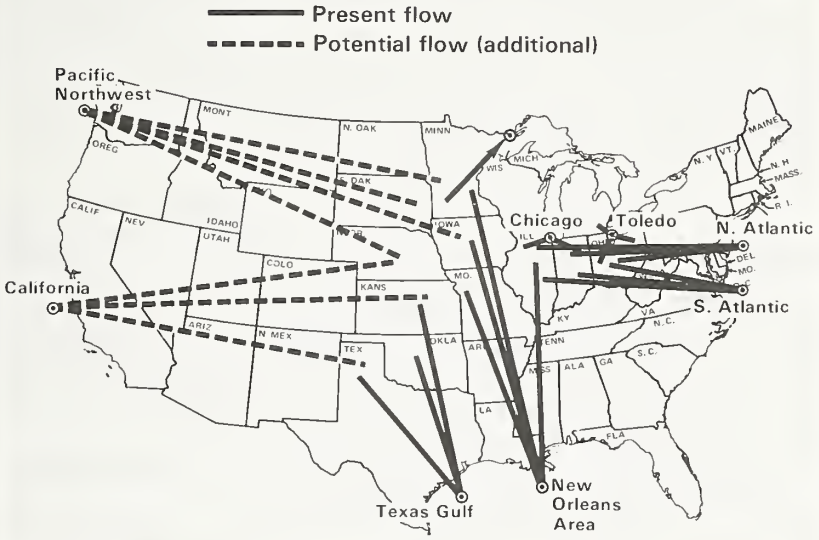


Figure 10--Soybeans: Major flows for export

Wheat Movements. Wheat movements to Duluth-Superior originate mostly in North Dakota, South Dakota, Montana, and Minnesota. Truck movements to Duluth-Superior were estimated to be about 30 to 35 percent of total receipts in 1974. Wheat movements to the Pacific Northwest largely originated in Washington, Oregon, Montana, North Dakota, and Idaho. Practically all export grain received in the Puget Sound area arrived by rail; whereas, in the Portland area (Columbia River), about 60-70 percent arrived by rail, 25 to 40 percent by barge, and about 5 percent by truck. Some recent truck receipts have been from as far away as Montana and Utah.

Wheat movements to Texas ports originate mostly in Texas, Oklahoma, Kansas, and Nebraska, whereas, movements to the New Orleans area largely originate from Kansas and Nebraska. Barge movements of wheat to New Orleans area originate mostly on the Missouri River and upper Mississippi River.

Significant wheat movements from Nebraska and Kansas to the Pacific coast may occur in the future if rail and ocean rates are lowered relative to rates for competitive routes through the Gulf ports to Asia.

Feedgrain Movements. Feedgrain movements to the New Orleans area consist mostly of corn that originates in Illinois, Iowa, Minnesota, and Missouri. The barge corn movement to New Orleans area makes up 70 to 80 percent of total exports of corn from that area. The feedgrain movement to Texas ports from Kansas, Oklahoma, and Texas consists mainly of grain sorghum.

Lake ports of Duluth-Superior and Chicago receive significant volumes of corn both by truck and rail. Toledo receives corn mainly by truck.

Atlantic ports receive corn largely from Illinois, Indiana, Ohio, and Michigan by rail. Relatively small amounts of local corn are received by barge and truck for export.

There is a possibility for future rail movements of feed grains in significant amounts to the Pacific coast for export. Corn may move from Minnesota, South Dakota, Iowa, and Nebraska. Grain sorghum may move from Kansas, Oklahoma, and Texas to the Pacific coast if rail and ocean rates are reduced relative to the alternative rates through the Gulf ports to Asia.

Soybean Movements. Soybean movements to Atlantic ports originate mostly in Ohio, Indiana, and Illinois. Soybeans exported from New Orleans originate primarily from Iowa, Illinois, Missouri, and Minnesota. Barge movements make up a major portion of this movement. Most soybeans exported from Chicago and Toledo are received by truck from within a 60-mile radius of each port.

There is a possibility that soybeans, like corn, may move on unit train rates to the Pacific Northwest ports for export.

Problems in Grain Flow

Some of the major problems in grain flow from originating inland elevator to vessel at port elevator are:

(1) An inadequate supply of hopper cars and locomotives,

(2) The poor condition of rail tracks and roadbed,

(3) Railroad companies often will not work together to implement unit-train or multicar rates,

(4) Inadequate switching and trackage to handle unit-trains at interchange points between railroad lines,

(5) Some railroad companies with a through haul to a port will not implement unit-train rates even though cost studies indicate it would be justified,

(6) Rail congestion at port occurs in times of heavy movements,

(7) Turnaround time for shipper-leased hopper cars is excessive,

(8) High cost of energy and higher trucking cost per ton-mile has made trucks less competitive with rail,

(9) River conditions caused by flooding, low water, sand bars, and channel obstructions reduce volume of grain barged to port elevators,

(10) Strikes by union laborers at ports stop loading of ships for long periods of time,

(11) Vessels are sometimes not available when needed for loading,

(12) The supply of vessels for a given port or coastal area may not be readily available except at excessive rates, and

(13) Port elevator congestion and inability to receive grain as a result of some of the above items, poor logistical planning, or inadequate coordination.

Procurement for Export

At planting time, U.S. grain producers rarely know whether their products will be exported. They still don't know at harvest; or even when they sell the grain. In fact, few producers ever find out where their grain was eventually consumed. The procurement and marketing system that purchases their grain at the local level and ultimately delivers it to a foreign buyer seems hopelessly confusing and complex. It might buy and sell a farmers' grain a dozen times or more before it reaches the final user. It features unfamiliar terms such as letters of credit, December straddles, and voyage charters. Most grain producers admittedly do not understand the intricacies of the system that depends on them for continued existence.

Some basic grain procurement questions might contribute to a better understanding of grain export practices. Considered here are: (1) where exporting firms obtain the grain, (2) how producers sell it, and (3) recent trends in grain procurement.

Sources of Grain for Export

Exporting firms purchase grain from many sources at various levels of the marketing system. While the grain producer is obviously the original source, most of the grain destined for export is procured from sources further in the marketing channel. In general, U.S. exporters purchase grain:

(1) Direct from farmers,

(2) From country elevators (cooperative or noncooperative) who bought the grain from farmers,

(3) From regional cooperatives who purchased grain from local cooperatives or farmers,

(4) From other firms,

(5) From Commodity Credit Corporation,

(6) From their own company, often a division of the parent company, and

(7) From other countries.

The choice among grain procurement sources is determined largely by economic factors. And in exporting grain the key factor is positioning. Exporting firms must weigh alternative procurement sources against the time deliveries are to be made, the port(s) of origin and destination, freight rate structures, and availability of all the handling and transportation facilities required to move the grain from present locations to the foreign customer.

In comparison with their competition, the range of procurement options open to cooperative exporters is limited. As a general rule, cooperative exporters procure grain only from farmers, local cooperatives, and regional cooperatives. They cannot buy grain from other countries and seldom venture out of the cooperative sector in this country for grain supplies. Intuitively, it would seem that cooperative export

marketing flexibility is severely constrained by lack of supply sources. Perhaps it is. But as later sections of this report will illustrate, the ability of cooperatives to better address the export market does not hinge on developing additional supply sources for grain.

How Producers Sell Grain

Most of the grain exported from this country is originally sold by producers on a cash basis. Farmers have traditionally sold their grain to the local buyer or country elevator and expect to get paid at time of delivery. The decision to sell rests entirely with the farmer. No commitment of any kind is involved prior to the farmer's marketing decision.

While "*cash-for-grain*" remains the dominant pricing form at the producer and first handler level, several other pricing arrangements are utilized to buy and sell grain. Each of these other arrangements involves some degree of formal commitment (a legally binding document) that obligates both the producer and the buyer to deliver and handle the grain. We briefly describe these other pricing arrangements as follows:

Forward contracting of grain by farmers to local elevators has emerged from the desire to assure a specific price for grain prior to harvest. In its most popular form, price is determined at the time the contract is made. The local elevator guarantees the farmer an exact dollar amount per bushel when the grain is delivered. The contract specifies either the number of bushels to be delivered or the number of acres from which all production is to be delivered. It also specifies the time period during which delivery must take place. Another, though less popular, alternative under contracting involves preharvest sales at a fixed basis on a harvest futures contract. Both types of contracting involve a transfer of title at the time the contract is made.

The *delayed price* or *price later* contract is a relatively new marketing technique that gives both producer and local elevator somewhat more flexibility than do forward contracts. Under this arrangement, the producer delivers grain to the elevator at which time he chooses the delayed price option. Title is transferred when the grain crosses the scales, but the producer retains the privilege of setting the actual price of the grain at a later date. Usually he pays for this privilege via a minimum service charge which may vary depending on the "cash basis" at time of purchase. In addition, storage fees are usually deducted from final selling price.

Another method by which producers commit grain to local elevators is through *pooling*. This method is unique to cooperatives. Under such an arrangement, each producer commits a specified volume or acreage to the cooperative. He receives a cash advance at harvest, progress payments as the grain is sold, and a final payment once the pool is liquidated. The total of all payments equals the average price received by the cooperative for grain sold out of the pool, less cost of pool operation. Adjustments are made for quality differences.

A variation of the seasonal pool concept is the *call pool* or *reservation price* arrangement. Here, each producer commits a specified volume of grain to the cooperative and names the minimum price he will accept for that grain. He can raise or lower his price at any time before the grain is sold. If the cooperative sells the grain at the producer's price, it must notify him immediately. Again, the cost of operation is deducted from final sales price.

The degree to which cooperatives utilize the various pricing methods will be examined later in this report.

Recent Developments in Export Procurement

A most significant development in procuring grain from farmers is the sudden expansion of subterminal facilities by the larger grain exporting companies. In the past year alone, construction of nine new subterminal elevators with unit-train capability has been announced by the grain companies. Most of the new subterminals are or will be situated in corn and soybean producing areas where unit-train rates are currently effective.

Expansion of subterminal capacity by the large grain firms goes further than construction of new facilities. They are also acquiring, by purchase or lease, large numbers of existing elevator facilities. Most of the recent acquisitions have unit-train capability or can be modernized to accommodate unit-trains for export.

The trend toward increased origination of grain at the local level by the large grain exporters carries implications not only for smaller inefficient country elevators but also for the cooperative sector as a whole. Until recently, the large grain companies seemed content to utilize the cooperative procurement structure to maximum advantage. Cooperatives would assemble about 40 percent of the Nation's off-farm sales of grain at the local level and move part of that to an export position. Then the large exporters would step in with their superior marketing expertise to buy the grain already in position for export. They did not have to get involved with purchasing grain from farmers. Now, with rapid expansion into export subterminals, the grain companies can effectively compete with cooperatives at the local and regional level in purchasing grain from farmers as well as continue to utilize the cooperative structure to best advantage.

New grain procurement developments are not entirely limited to the private exporters. In September 1975, a large regional cooperative announced a new program for wheat producers that encompasses marketing agreements and pooling. This far-reaching proposal contains significant export potentials for wheat producers in that area and could mark the beginning of increased coordination within the cooperative sector.

Grain Export Marketing in the Present Cooperative System

Cooperative Export Marketing

Grain export marketing by cooperatives is accomplished in one of two ways: (1) direct and (2) indirect. Direct export marketing is defined as selling direct to foreign buyers located and doing business in the consuming areas of the world. Such foreign buyers include foreign governments, processors, and traders, excluding the large international grain firms doing business in the United States. Indirect exports are defined as sales made to an exporter. Such sales may be made f.o.b. inland cooperative elevator or f.o.b. vessel. They are usually made to the major exporters who make the direct sale.

Since 1972, 14 regional grain cooperatives have marketed grain for export (appendix 3). The great proportion of these cooperatives' sales were indirect (fig. 11). By commodity, the largest proportion of indirect sales have been in wheat, with 85 percent. In feedgrains and soybeans, more than 60 percent of these sales have been indirect. In total, about three-quarters of all export sales by cooperatives are indirect and one quarter are direct.

Through a combination of direct and indirect exports, cooperatives have exported or originated for export a large percent of total U.S. export sales (appendix table 8). By commodity, 34 percent of U.S. wheat sales, 22 percent of U.S. feedgrain sales, and 21 percent of U.S. soybean sales were exported or originated for export by cooperatives in 1973. In total, cooperatives accounted for 26 percent of the 1973 U.S. grain export market. However, only a small proportion of the market was represented by cooperative direct export sales.

In 1973, cooperative direct export sales accounted for 7.5 percent of total U.S. grain exports. Indirect exports accounted for 18 percent. Thus, cooperatives are a major factor in the grain industry through origination. However they turn about 70 percent of their potential export volume over to other grain companies who make the direct sale.

Reason for Indirect Exports

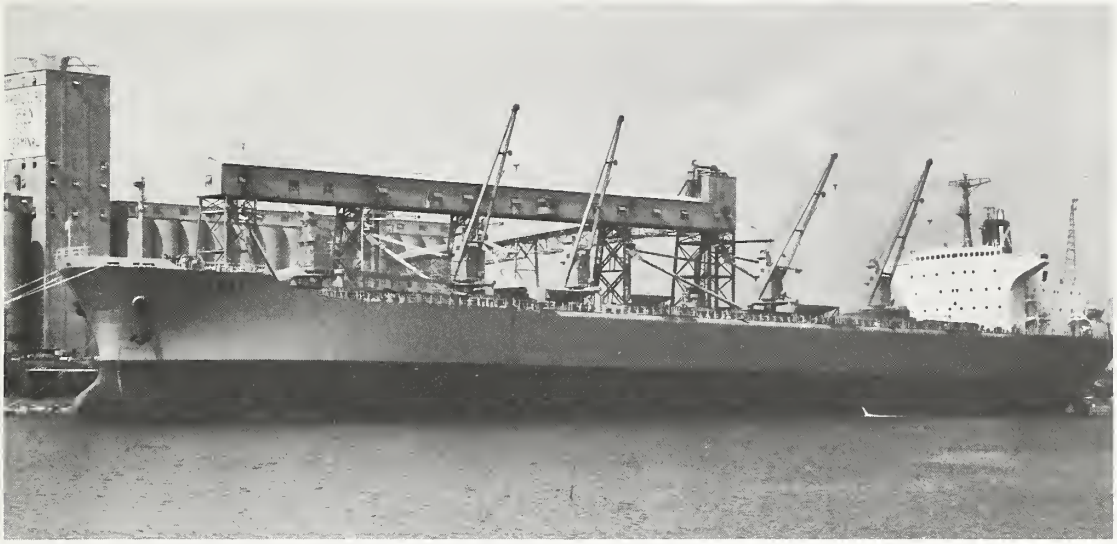
In view of such a large proportion of indirect export sales the logical question is: why? There are a number of reasons:

(1) *Lack of access to cooperative export facilities.* Presently, six regionals have no access to port facilities for the bulk of their grain volume. The lack of a port facility is a severe handicap when attempting to make direct sales. A minimum requirement for a cooperative selling direct is having control over a port facility by either buying or leasing it.

(2) *Less risk in indirect sales.* This is especially true for wheat cooperatives where most of the wheat is sold on a public tender. There is a large amount of risk to the seller who must stand open on his bid for 24-48 hours and not be able to effectively hedge his sale. The potential loss in selling grain this way can be very large.

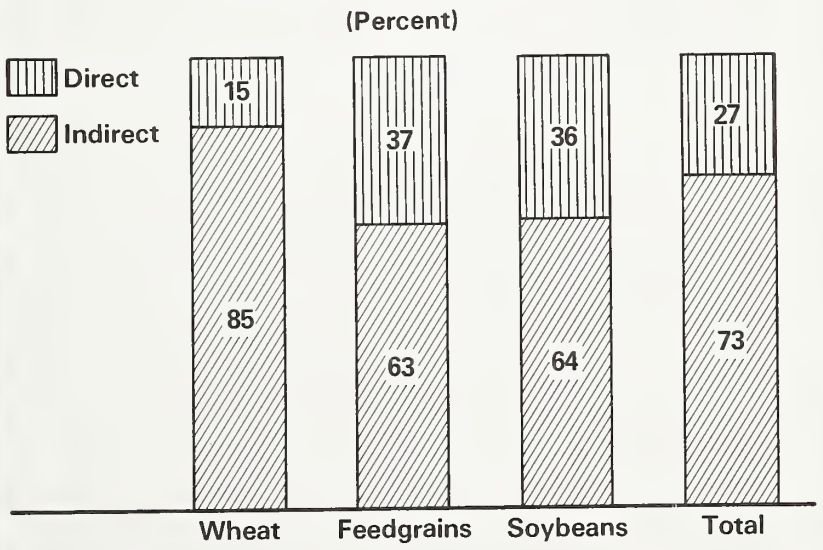
(3) *Better price.* There are instances when it is more profitable for the cooperative to sell grain indirect to an exporter than to the final buyer. This type of situation can exist because of at least two reasons: (a) the exporter has more complete market information on the buyer's price relative to the co-op or (b) if the sale is c.i.f. to port of destination, the exporter can afford the loss on the buying and selling of the grain and "make it up" in the transportation.

(4) *Economies of size.* To participate in more direct sales requires a substantial and continuous volume to sustain a more sophisticated sales operation. Many of the



Producers Grain Corporation, Amarillo, Tex., signed what is believed to be the first large cooperative-to-cooperative trade agreement between U.S. farmers and overseas buyers in 1968. The purchase was Zenkoren, now Zen-Noh, the national agricultural cooperative of Japan. The Japanese cooperative's grain ship is shown loading at PGC's Corpus Christi, Tex., port elevator.

Figure 11--Proportion of regional cooperatives' export sales, direct and indirect, 1972/73 - 1973/74



grain cooperatives that have the export facilities are presently not large enough to afford the personnel with the market expertise, and the information intelligence system necessary to do a competent job of selling to the various foreign buyers.

(5) *Lack of expertise.* To do an effective job of direct exporting requires the expertise of men who know how to market grain for export. One regional's solution to this problem is to sell much of its grain for export to a Montreal-based firm, which in turn sells direct. Having experienced personnel in export marketing is of high priority if cooperatives desire to participate in more direct sales.

(6) *Unwillingness to coordinate.* Cooperatives have shown a lack of willingness to coordinate their exporting activities with other cooperatives. This has resulted in duplication of effort and in some cases competition among cooperatives for sales to certain regions of the world. There has been an unwillingness also to coordinate on the use of physical facilities. In many cases, cooperatives without facilities have had no alternative but to sell indirect because of not being able to use existing cooperative port facilities. Increased coordination will be needed in sales as well as physical facilities if cooperatives desire to increase direct export sales.

(7) *Fear of the unknown.* Many cooperatives do not fully know what is involved in selling direct to foreign buyers and tend to withdraw from any consideration of selling grain direct. Fear of the unknown stems from not having an adequate information base on which to render a decision. It is hoped that this report will provide a portion of such an information base.

Cooperatives Making Direct Exports

Of the 14 regional cooperatives that export grain, four account for most of the direct sales. These are: Farmers Export Company, Kansas City, Mo.; North Pacific Grain Growers, Inc., Portland, Oreg.; Producers Grain Corporation, Amarillo, Tex.; and Union Equity Cooperative Exchange, Enid, Okla.

Farmers Export Company (FEC). This federation of regional grain cooperatives was formed in 1968 for the purpose of marketing grain for export. Most of the grain sold is corn and soybeans and to a very limited extent, wheat. The cooperative has a 5.3-million-bushel export house at Ama, La., which has a reputation in the grain trade of being very efficient in loading out ships and one of the best for uniform loading.

North Pacific Grain Growers, Inc. (NPGG). NPGG was formed in 1929 and is a regional cooperative serving Washington, Oregon, and Idaho. Most of the grain sold for export by NPGG is wheat. The cooperative has an export house at Kalama, Wash., on the Columbia River with a 4-million-bushel storage capacity.

Producers Grain Cooperative (PGC). This cooperative was formed in 1938 and began its export operations in 1958. PGC's main exports are grain sorghum and wheat. The cooperative has an export house at Corpus Christi with a storage capacity of 6.5 million bushels. PGC is the only one of the four cooperatives that is diversified. In 1971, PGC expanded into the feedlot cattle industry, opening a feedlot with a capacity of 15,000 head.

Union Equity Cooperative (UE). UE was formed in 1926 and is a regional serving grain farmers in Oklahoma, Kansas, Texas, Arkansas, and Colorado. The major grain sold for export by UE is wheat. The cooperative owns a port facility at Houston with a 6.5-million-bushel capacity. It has a reputation in the grain trade equal to that of the FEC facility for efficiency in loading out ships and for uniform loading.

These four cooperatives have a combination of direct and indirect sales. In 1974, 63 percent of the grain exported by these cooperatives was direct (appendix table 9). However, the proportion of direct varies by commodity. In wheat, 40 percent was

direct while 60 percent was indirect. In feedgrains and soybeans, 82 percent and 89 percent, respectively, were exported direct.

These four cooperatives accounted for 12 percent of total U.S. exports in 1974. However, their direct exports accounted for only 7.5 percent. Direct exports of wheat by the cooperatives were 5.5 percent of the U.S. total; those of feedgrains and soybeans were each 8.5 percent.

Comparison of Direct Cooperative Exporters with the Major Exporters

In comparing these four cooperatives with the major exporters, many differences are apparent. The main differences are: (1) lack of a market intelligence system, (2) lack of diversification, (3) lack of multiple grain sources, (4) lack of flexibility, (5) lack of overseas facilities, (6) lack of sales offices, (7) lack of secrecy in operations, and (8) reputation for quality grain and uniform ship loading.

1. *Market intelligence system.* The exporting companies have a vast intelligence gathering system unparalleled by any other industry. To analyze this information, a competent economic staff interprets the data and in turn makes recommendations to the decisionmakers. In contrast, the exporting cooperatives rely mainly on commission agents for their information and intelligence. All this information is fed directly to traders with no staff to evaluate it or analyze longer run market considerations.

2. *Diversification.* The large grain exporting companies are diversified into many other industries. Such diversification allows for internal financial cross-subsidizing from one diversified area to another. This is often a substantial advantage because the international grain and ocean freight markets are quite volatile. Losses can be more easily absorbed. In contrast, the four exporting cooperatives are not diversified except one cooperative in the beef feedlot business. There is no chance to spread some of the risk inherent in grain exporting by these cooperatives in their present structure.

3. *Multiple grain sources.* The major grain exporters can buy grain from any country in the world. In contrast, cooperatives buy mainly from their members in the United States. The multiple sources of grain available to the major exporters can be advantageous, especially when grain is in short supply in the United States.

4. *Flexibility.* The major exporters are characterized by flexibility. That flexibility is especially apparent in the following areas:

a. Product-mix—the major exporting companies handle a complete line of commodities for export including wheat, corn, sorghum, soybeans, oats, and barley. A foreign buyer has only to contact one of the major exporters to be furnished with a complete product mix. Cooperatives do not have that type of flexibility. A potential buyer of a complete line of commodities must go to four different cooperatives for his grain movements. This can be quite confusing and as a result cause loss of business for the cooperatives.

b. Terms of delivery—The major exporters can offer a potential buyer virtually any type of delivery terms. They can be competitive delivering f.o.b. as well as c.i.f. or c.&f. Cooperatives generally deliver f.o.b. only and usually are not competitive when bidding on c.i.f. sales. They are generally unwilling to risk delivering on any terms other than f.o.b.

c. Port location—the flexibility to deliver from a number of port locations in the United States or world is characteristic of the major exporters. This again is quite an advantage in being able to coordinate sales inland to the most economical port location for the foreign buyer. Under the present cooperative system, each cooperative has its own port location and transports grain only through the cooperative's own facility. Very little coordination exists in sharing cooperative port facilities to take advantage of lower transportation rates.

5. *Overseas facilities.* The major exporters have foreign subsidiaries and their own processing plants abroad to whom they sell. This creates another market for the major exporters. Cooperatives have no such facilities overseas, thus making it even more difficult to compete in the direct export market.

6. *Overseas sales offices.* The major exporters have offices around the world that represent each of their companies. This not only serves as a good contact point for a potential buyer but allows for the personal contact needed in establishing connections to potential customers. Cooperatives have no foreign offices and very little personal contact with foreign buyers. A potential buyer must seek out the cooperative's agent, or work through the USDA to make contact. Very seldom do cooperatives send representatives from their home offices to work with these agents overseas. Thus, little personal contact is established between buyer and seller.

7. *Secrecy of opeations.* Except for one company, major exporting companies are privately held. This can be quite an advantage when there are only a few top management people to satisfy in a company. Mistakes can be made in one year and made up the next year without fear of stockholder action. In the export business, with wide swings in profits and losses, this is indeed an advantage.

By contrast, cooperatives operate in a fishbowl. Everything a cooperative does is revealed sooner or later. Pressure is exerted on management to perform well every year. If they make a costly error in judgment, they may not be around next year to make it up. Because losses are not likely to be tolerated in a cooperative, it is quite difficult to consider expanding into direct export activities.

8. *Quality grain and uniform ship loading.* Cooperatives have a reputation among foreign grain buyers for selling quality grain aod for efficient and uniform ship loading at their port facilities. The major exporters do not enjoy as good a reputation. This can be turned into an advantage for cooperatives, if they desire to emphasize direct export sales.

Cooperative Direct Export Markets

To compare the cooperatives' role in the world grain trade with the major exporters, it is necessary to analyze, by commodity (1) cooperatives' distribution of direct export sales and (2) cooperatives' world market share.

Distribution of Cooperatives' Sales

Wheat. The total amount of U.S. wheat sold direct for export by these cooperatives has ranged from 1.4 to 2.0 million metric tons since 1972. This is from a total U.S. volume of about 30 million tons of wheat exported in that time period of which the cooperatives accounted for about 5.5 percent.

Distribution of cooperative wheat sales has been relatively concentrated (fig. 12). The largest customer has been South Asia, accounting for more than 35 percent of their sales since 1972. Japan and EEC-9 have been the second and third largest followed by West Asia since 1972. Taken together these four world regions account for 85 percent of the cooperative sales.

In terms of the next decade with respect to the markets which the cooperatives presently serve, the future of these markets is good. In the four regions that account for most of their sales, two markets—Japan and West Asia—are in the top five markets in the low level projections. All of their present markets are in the top five markets for the high level projections.

Feedgrains.—The cooperative total volume of direct feedgrain exports ranged from 3.2 million tons in 1973 to 3.5 million tons in 1974, representing 8.6 percent of U.S. feedgrain exports in those respective years.

Figure 12--Cooperatives' distribution of wheat export sales, 1972/73 - 1973/74

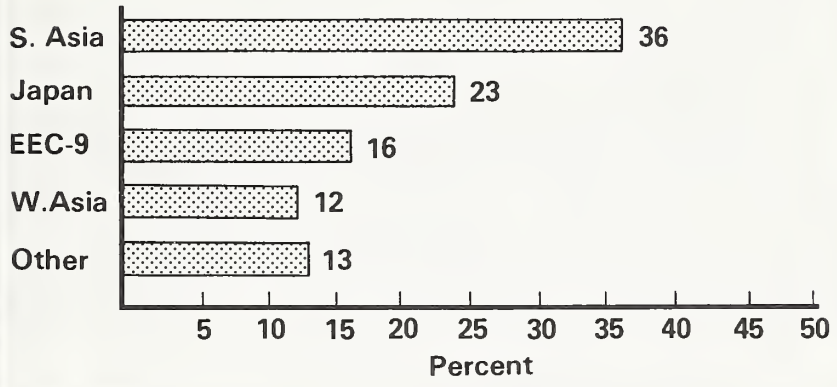
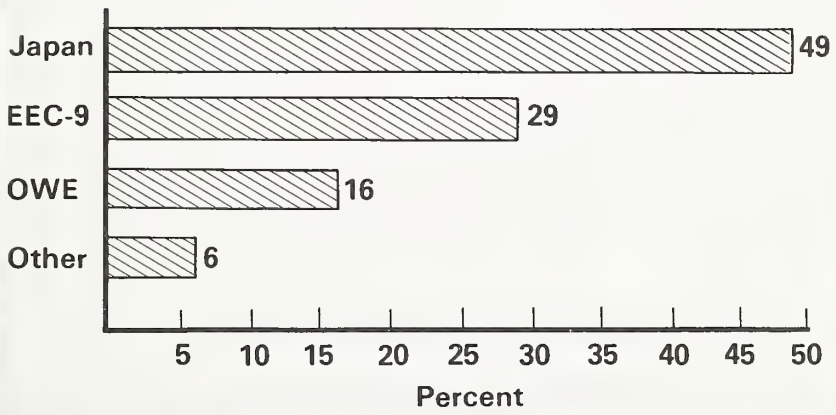


Figure 13--Cooperatives' distribution of feedgrain export sales, 1972/73 - 1973/74



As with wheat, the distribution of cooperative feedgrain sales has been concentrated (fig. 13). Since 1972, sales have been made in 6 of a possible 16 regions of the world, with 3 of those accounting for 94 percent of their sales. The three customers have been Japan, EEC-9, and OWE, with Japan accounting for about one-half of all sales made.

In analyzing these markets with the trends for each by 1985, two of the three cooperative customers—Japan and OWE—are in the top five markets in the low level projections. All three of the cooperatives' markets are in the top five markets in the high level projections.

Soybeans. The total volume of soybeans sold for direct exports by cooperatives has been about 1.2 million tons annually since 1972, which represented 8.5 percent of the U.S. soybean export market.

As with feedgrains, the number of markets served by cooperatives is small and sales are concentrated (fig. 14). Since 1972, cooperatives have served five markets with three of those—Japan, EEC-9 and OWE— accounting for 98 percent of total cooperative sales. The two largest customers have been Japan and EEC-9 each accounting for more than 40 percent of cooperative sales in the past 2 years.

In terms of the next decade, the cooperatives' present markets are good markets for the future. In both the low and high level projections, all three cooperative markets—Japan, EEC-9 and OWE—are the top three markets for 1985.

Cooperatives' World Market Share

Cooperatives have a very small share of the world market for wheat, feedgrains, and soybeans (fig. 15). In wheat, cooperatives supply 2 percent of the total world import demand. In feedgrains, they supply 5 percent of the world's import demand and in soybeans 8 percent. In total, cooperatives supply only 4 percent of total world demand for grains.

For the various regional world markets, cooperatives have the following market shares:

Wheat. Except for South Asia, cooperatives do not have a substantial share of any market (appendix table 10). In 10 world regions, cooperatives' market share has been less than 2.5 percent since 1972. Only in South Asia, with 10 percent, and West Asia and Japan, with 6 and 7 percent, respectively, do cooperatives have anything approaching a major market share.

Feedgrains. The largest cooperative market share is Japan with 13 percent (appendix table 11). In OWE and EEC-9, their next most important markets, cooperatives have 8 and 4 percent, respectively.

Soybeans. The greatest market share has been the cooperatives' three major markets (appendix table 12). In two of those markets—OWE and Japan—cooperatives have about 14 percent of the market. In the EEC-9, the market share is 7 percent.

Comparison of Major Exporters' and Cooperatives' Markets

Market analysis reveals significant differences between cooperatives and the major exporters. In terms of the U.S. grain export market, the major exporting companies' market share is 85 percent, compared with the cooperatives' share of 7.5 percent. In comparing world grain market shares, the major exporters have 50 percent of the world grain market (with U.S. grain only) versus 4 percent for cooperatives.

Major differences are also apparent in: (1) Diversification of markets; (2) market share by commodity and (3) participation in large one-time sales.

1. *Diversification of markets.* The major exporters are market diversified while

Figure 14--Cooperatives' distribution of soybean export sales, 1972/73 - 1973/74

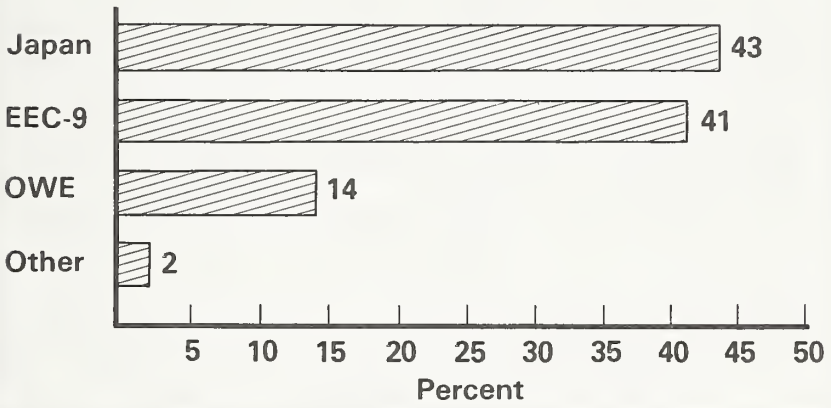
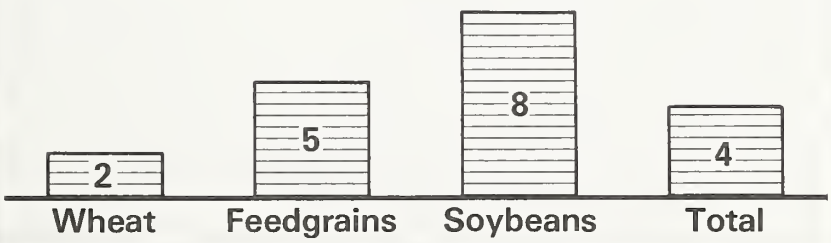


Figure 15--Cooperatives' share of world grain

(Percent)



cooperatives are market concentrated. In wheat, 10 world regions account for 86 percent of the exporting companies' sales; four world regions account for 85 percent of cooperatives' sales. The companies rely on eight regions to account for 88 percent of their feedgrain sales; cooperatives rely on three world regions for 94 percent of their feedgrain sales. In soybeans, seven regions account for 93 percent of the exporting companies' sales; for cooperatives, three regions account for 98 percent of their sales.

Given this situation, cooperatives are much more vulnerable to sudden shifts in demand than the exporting companies. Penetration of any new markets by cooperatives will be extremely difficult, given the nature of competition.

2. *Market share by commodity.* The dominance of the exporting companies in terms of U.S. and world market share by commodity is great. Further evidence is provided by looking at individual commodity areas.

(a) Wheat—The U.S. export market share of wheat by the major exporters is 92 percent; for cooperatives, 5.5 percent. In terms of the world market share, the exporting companies have 50 percent of the market; for cooperatives, 2 percent.

By region, the largest market share for cooperatives is 10 percent in South Asia. The exporting companies' lowest market share in any region is 19 percent. In six world regions, these companies have more than 50 percent of the wheat market. Cooperative's world market share is miniscule in comparison.

(b) Feedgrains—The U.S. export market share for the major exporters is 89 percent; for cooperatives, it is 8.6 percent. In terms of the world feedgrain market share, the major exporters have 56 percent while cooperatives have 5.2 percent.

The cooperatives' largest market share in any region is 13 percent. The major exporters lowest market share in any major importing region is 41 percent. In six world regions, the major exporters have more than 70 percent of market. Cooperatives are not a major factor in any world feedgrains market.

(c) Soybeans—Cooperatives have 8.6 percent of the export market versus 89 percent for the major exporters. In terms of the world soybean market, cooperatives have 8.1 percent while the exporting companies have 82 percent.

The major exporters have more than 75 percent of the market in every major soybean importing region. In contrast, the cooperatives' highest market share is 15 percent and ranges as low as 6 percent.

In contrast to wheat and feedgrains, cooperatives occupy a better market position in soybeans, but are not a major factor in any importing region of the world.

3. *Participation in Large One-Time Sales.* Participation in large sales to the USSR and the PRC in the past 2 years was by the major exporters, mainly Cargill, Continental, and Cook. In that 2-year period, these two countries bought 15.9 million tons of wheat and 11 million tons of feedgrains, accounting for 28 percent and 16 percent respectively of the exporters' sales. While the publicized profitability of the sales indicates that cooperative inaction may have been the best policy at that time, their inability to participate demonstrates serious weaknesses in addressing world grain markets.

The four exporting cooperatives did not participate in any of these sales. The failure to be able to participate in these large one-time sales again points out how insignificant a marketing force cooperatives are in the U.S. and world export market.

Characteristics of Cooperative Direct Grain Export Sales

Types of Markets

Cooperatives participate mainly in the open markets, selling mainly feedgrains and soybeans to private traders and processors in Western Europe. In the public

tender market, cooperatives participate in bidding to foreign governments, recipients under PL 480, and Japanese firms that supply the Japanese food agency but they have less involvement here than in the open market. A characteristic of public tender offers is that the seller must "stand open" on his bid for 24 to 48 hours. Cooperatives have been reluctant to take this type of risk because of fluctuations in grain prices and their inability to cover their position in the futures market until the sale is consummated. Cooperatives would participate on a larger scale if they could persuade the buyers to engage in exchange of futures. But up to this point only the Japanese engage in this type of transaction.

Cooperatives participate in the private tender market to a lesser degree. Reasons for limited use of this market include: (1) lack of throughput capacity, (2) inability to quote a price, and (3) inability to place grain in an export position. Cooperatives need to be in a position to at least place a bid when asked, if they have any hope for expanding their markets.

The trend is increasingly toward that of tender offers by large buyers—mainly governments and large food agencies sanctioned by governments. As the open market slowly disappears, cooperatives will have to turn more toward the tender markets if they continue in the direct export business. This would require cooperatives to assume more risk than in the past.

Establishing Connections

Cooperatives establish connections in foreign markets by use of commission agents. The most common types of agents used are the exclusive agent and to a lesser degree the agent in common.

Compared with the rest of the grain industry cooperatives lack major representation in world markets. This has made it very difficult for potential buyers of cooperative grain to buy from any firm other than the major exporters. Cooperatives presently have no overseas offices nor is there any type of major representation from their individual headquarters. To expand foreign markets, personal contact needs to be established and maintained similar to that of the rest of the industry or attempts to become more involved in world markets will be futile.

Terms of Delivery

Delivery terms utilized by cooperatives compared with major exporters are quite different. The major exporters sell an estimated 40 to 45 percent of their export sales on a c.i.f. or c.&f. basis, whereas, the cooperatives directly export only about 1 percent of their sales on that basis.

In most of the world markets, an exporter can deliver on an f.o.b. basis as well as a c.i.f. basis. As governments increasingly become more important as buyers of grain, they are expected to enter the ocean freight market when it is to their advantage to ship the grain themselves. Cooperatives need the same flexibility as foreign governments and the major exporters. When it is to their advantage to make c.i.f. and c.&f. sales, cooperatives should be prepared to make them.

Organizational Structure

This study is concerned largely with cooperative grain export movements from farm to port elevators, and hence to foreign buyers. Consequently, the cooperative organizational structure that performs such functions is of great importance.

The present organizational structure of grain cooperatives is designed to serve

grain producers by marketing their grain in domestic and export markets. This is done through their various local and regional grain cooperatives that operate grain facilities and market grain.

Organization of Local and Regional Grain Cooperatives

In 1970-71, about 2,616 cooperatives were handling grain in the United States. This included both local and regional cooperatives.

The distinction between a local and regional cooperative is not always clear. For purposes of this study, a local grain cooperative is a farmer cooperative that markets grain for its farmer members in an area equivalent to about three counties or less—generally less. It may have branch elevators in several locations. The producer members elect a board of directors whose duties include setting policy and hiring the manager.

In contrast, a regional grain cooperative serves a much larger area, commonly a State but in some instances several States. A few regional cooperatives directly own local elevator facilities known as line elevators.

Local cooperatives. About 75 to 80 percent of local grain cooperatives are members of a regional cooperative.[9] In effect, the local cooperatives and their producer members own and control the federated regionals. Local cooperatives have a board of directors composed of producer members. The locals perform the following functions related to grain: receiving, storing, purchasing, cleaning, conditioning, and selling. Most locals also handle farm supplies and perform other services for members.

The share of locals' out-of-area sales moving to their regional grain cooperative roughly varies among regionals from 20 to 85 percent. Thus, locals sell a significant volume of grain outside cooperative channels. This is partly attributable to the lack of commitment of member locals to sell grain to their regional that would market their grain through channels they consider to be the best alternative available at the time.

Regional grain cooperatives. Grain regionals are of diverse organizational types. Most are solely grain marketing cooperatives; however, some are grain divisions of large multifunction cooperative organizations. Grain regionals may be federated or centralized cooperatives, or a combination of the two. Grain regionals are largely of the federated type; that is, their members are cooperatives with independent boards of directors and management. Four regionals are jointly owned by two or more other regionals. Regionals of the centralized type own and operate local elevators or line elevators as well as terminal elvators.

The regional's board is generally elected by representatives or delegates from areas served by regionals. Directors are largely producer members but in some instances may be local managers. Control of all regionals lies ultimately with the producers.

Boards of directors of the 21 primary regional grain cooperatives vary in size from 5 to 35 members, according to fiscal 1973 data.[10] More than half the grain regional boards have from 9 to 15 board members. Producers make up 95 percent of total board members and managers 5 percent. The four jointly owned regional grain cooperatives had twice as many managers as producers serving as directors.

Jointly owned cooperatives. Four grain regionals have formed inter-regionals to operate terminal elevators that serve two or more regionals. These four cooperative

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[9]FCS Research Report 31. Grain Marketing Patterns of Local Cooperatives Charles A. Kraenzle and Francis P. Yager. October 1975.

[10]Service Report 144, "35th Annual Report of the Regional Grain Cooperatives," Stanley K. Thurston, p.3.

organizations are: Farmers Export Co., Kansas City; Mid-States Terminals, Toledo; St. Louis Grain Corp., St. Louis, and Kansas City Terminal Elevator Co., Kansas City. Of these four, two own port elevators: Farmers Export Co. at Ama, La., and Mid-States Terminals at Toledo.

Farmers Export Co. (FEC) is owned by Farmers Grain Dealers Assn., Des Moines, Iowa; Illinois Grain Corp., Bloomington, Ill.; Farmers Union Grain Terminal Assn., St. Paul; FAR-MAR-CO, Hutchinson, Kan.; Missouri Farmers Assn., Columbia, Mo.; and MFC Services (AAL) Jackson, Miss. FEC operates on a one-member, one-vote basis and has an adjustable capital plan whereby the regionals that sell the most grain through FEC will tend to have the most equity. Member regionals sell grain to FEC and deliver it to their port elevator at Ama, La., near New Orleans.

Mid-States Terminals is owned by Ohio Farmers Grain Corporation, Fostoria, Ohio; Landmark, Inc., Columbus, Ohio; Michigan Elevator Exchange, Lansing, Mich.; and Indiana Grain Cooperative, Indianapolis, Indiana. Control is based on the amount of stock held by the member regionals, which is fixed and does not vary with patronage from year to year. Member regionals sell grain to Mid-States and deliver to the Toledo port elevator for shipment through the Lakes.

Evaluation of organizational structure

Producer-cooperative relationships. A grain producer may be a member of a local cooperative, or in some instances, a direct member of a regional cooperative. As a member, he has a vote in the election of board members and other matters brought before the membership. Generally, each member of a grain cooperative has one vote. In some cooperatives, however, the producer vote is based on volume of business done with the cooperative. Producers' share in net proceeds of their local or regional is in proportion to the volume of business done with the cooperative.

The principal problems in producer-cooperative *organizational* relationships are:

(1) The high percent of producer members who do not participate in the election of directors and do not keep themselves informed about their cooperative,

(2) The difficulty in determining whether producers can be served more effectively through unification of adjacent cooperatives, and

(3) The unwillingness of producers to patronize their cooperative and to help finance needed facilities, i.e., the lack of commitment.

Other organizational problems exist but they generally do not seriously impair the effectiveness of the local in furnishing grain for the export market. Generally, the organizational relationships between producers and locals is satisfactory except for the problems mentioned above.

Local-regional relationships. The market position of regionals is weakened by the fact that many independent local cooperatives do not market all their members' grain through their own regional organization. What is the reason for such lack of support?

Two of the most common reasons given by local managers are:

(1) Lower prices, relative to competition, offered by regionals, and

(2) Lack of adequate service to locals by regionals, such as failure to provide adequate hopper cars at a time of need, and failure to exert enough effort to remedy a transportation or marketing problem.

Two of the most common reasons given by regional managers are:

(1) Failure of the local cooperative to understand and appreciate the problems, objectives, and abilities of regionals,

(2) Desire of management of local cooperatives to sell elsewhere for personal reasons without due regard for the welfare of their member producers.

As the large grain firms continue to expand their holdings in transportation, port

terminals, and subterminals, local cooperatives are likely to find it increasingly difficult to compete for producers' grain without a firm tie and commitment to their regional. Undue delay by cooperatives in improving organizational relationships can give other grain firms at the country and regional level a decisionmaking advantage that cannot be matched or overcome at a later date.

Inter-regional Relationships. The overall cooperative export marketing system shows a lack of flexibility and coordination in the movement of producers' grain through cooperatively owned port elevators. Regionals with port elevators are often able to handle additional quantities of grain, yet are unable, or unwilling, to obtain grain from other regionals who may not have access to a cooperatively owned port elevator. Considerable savings could accrue to the benefit of producers by eliminating unnecessary duplication of effort, and by providing a cooperative system that would permit producer's grain for export to move in an optimum manner to and through cooperatively owned port facilities.

Regional grain cooperatives have joined in several instances to organize new jointly owned regionals. Examples are the joint ownership of Farmers Export Co., St. Louis Grain Corporation, Kansas City Terminal Elevator, and Mid-States Terminals. These inter-regionals provide unique grain marketing services that individual regionals cannot readily perform alone for their members.

Farmers Export Company at Kansas City, owned jointly by seven regional grain cooperatives, is an example of what can be accomplished by joint planning and action relative to grain exports. The success of Soy-Cot Sales, Inc., at Des Plaines, Ill., a joint sales agency for 23 cooperative soybean and cottonseed processors and Agri-Trans Corp., Clayton, Mo., a barge company jointly owned by five regional grain cooperatives and CF Industries, Chicago, also illustrate what can be accomplished when cooperatives work together. These examples represent a beginning—much more can be done through joint action by regionals that will give them more capability in domestic and foreign markets.

Cooperative Elevators and Grain Movements to U.S. Ports

The inland cooperative elevators of regional grain cooperatives and those of member local cooperatives provide the physical storage, conditioning and handling facilities involved in the movement of grain from farm to port elevators. Port elevators of cooperatives receive and load out a major portion of the export grain originated by regional grain cooperatives. Cooperative port elevators are located in each of the four major coastal areas: Great Lakes, Atlantic, Gulf, and Pacific.

Inland Cooperative Elevators

Inland cooperative elevators consist of country elevators, subterminals, and terminals, but exclude port elevators.

The number of cooperatively owned country elevators in the United States is estimated to be more than 4,000, which is believed to be about 40 percent of the U.S. total. According to a recent FCS survey, it was found that 2,323 local cooperative associations that were members of one or more of 21 regional grain cooperatives had a total of 3,840 country elevators. In addition, regional grain cooperatives had 381 country line elevators for a total of 4,221 (table 20). Allowing 200 for duplicate membership of locals in regionals, local cooperatives and regionals own 4,021 country elevators. In addition, an unknown number of local cooperatives are not affiliated with any regional grain cooperative.

Many cooperative country elevators are multiple units, that is, a given cooperative may have elevators in two or more towns or locations. The average number of

Both regional and some local cooperatives own or lease covered hopper cars to help avoid shortages during peak demands at harvest. The cars above are among 15 leased by the Breckenridge and Wheeler Cooperative, Inc., Breckenridge, Mich.

elevator locations per cooperative association in 1974 was 1.7. The regional grain cooperatives have 71 terminals or subterminals. Of this total, 9 are port elevators and 62 are inland elevators. Among the inland elevators, 17 are river elevators that ship grain by barge to port elevators and other domestic points.

Overlapping trade areas present problems in three areas. In northwestern Ohio the trade areas of Landmark, Inc., and Ohio Farmers Grain Corporation overlap. A large portion of Kansas is served by both FAR-MAR-CO and Union Equity. A small part of the Texas Panhandle is served by both Union Equity and Producers Grain Corporation. This indicates that there is duplication of cooperative effort which if reduced could result in a more efficient grain marketing system for producers.

Cooperative Port Elevators

In 1974, there were 9 cooperative port elevators among the 67 for the entire United States These nine cooperative elevators were operated by eight different regional cooperatives.

Location and capacity. Four cooperative port elevators were situated on the Great Lakes, one on the Atlantic coast, three on the Gulf coast, and one on the Pacific coast (fig. 16). Specific locations were Superior, Chicago, Saginaw, Toledo, Baltimore, Ama (La.), Houston, Corpus Christi, and Kalama. (Wash.)

Port elevators are fairly well distributed among all coasts including the Great Lakes; however, all except two serve only one regional. The exceptions are Farmers Export Co. at Ama, La., and Mid-States Terminals at Toledo, that serve their several member regionals.

Comparison of cooperative and total U.S. port capacity. The total port capacity of the nine cooperative port elevators totaled 58 million bushels, or 17 percent of the U.S. total port elevator capacity (appendix table 13). It was distributed among the

coastal areas in the following proportions: Great Lakes, 55 percent; Atlantic, 7 percent; Gulf, 31 percent; and Pacific, 7 percent.

Cooperative port capacity as a percent of total U.S. port capacity was 23 percent for the Great Lakes, 9 percent for the Atlantic coast, 16 percent for the Gulf coast, and 8 percent for the Pacific coast (fig. 17).

Export Movements to Port Elevators

Regional cooperatives as a group moved 45 percent of their total grain sales to port positions in fiscal 1972, and 55 percent in fiscal 1973. They sold grain destined for export on various delivered bases: f.o.b. inland cooperative elevator, delivered to port elevator, f.o.b. vessel, and c.i.f. (or c.&f.) delivered to a foreign port. The total of such sales constituted the export movements by regionals.

Total export movement by regionals. In fiscal 1974, preliminary data[11] indicated that 14 regionals shipped 870 million bushels from inland elevators to port elevators.[12] Total fiscal year exports for the United States were 3.4 billion bushels (table 21). Thus, regionals originated close to 26 percent of the grain moving to all coastal areas except to the Pacific coast where regionals originated only 20 percent.

Export movement through regionals' port elevators. Regionals handled 536 million bushels of grain through their port elevators in fiscal 1974. This was 62 percent of the total export movement originated by regionals. The cooperative port elevators on the Great Lakes and Gulf coasts handled the greatest percent of regionals' export movement through their facilities. For the Great Lakes, they handled 88 percent, Gulf 63 percent, Atlantic, 51 percent; and Pacific coast, 27 percent (fig. 18).

The grain flow from regionals to cooperative port elevators followed the same general pattern as previously depicted for the total U.S. grain flow except for those areas where regionals did not have port elevators. Cooperatives have no port elevators in Philadelphia, Hampton Roads, Puget Sound, San Francisco, or Long Beach areas.

Regionals actually handled 16 percent of U.S. grain exports through their nine port elevators (table 21). The cooperative port elevators on the Lakes had a high proportion of Great Lakes port capacity and handled 22 percent of total U.S. grain exported through the Lakes, compared with seventeen percent for the Gulf, 14 percent for the Atlantic, and 6 percent for the Pacific. Farmers Union Grain Terminal Association had a relatively high export volume through the Pacific Northwest, but no export elevator.

Volume-capacity ratios. The ratio of elevator annual volume to the storage capacity for cooperative elevators was 9.2 to 1 for fiscal 1974 (table 22). This was not significantly different from the ratio for the total industry, which was 9.6 to 1. Cooperative port elevators had a higher ratio on the Atlantic than the industry, which reflects the aggressive putthrough for Indiana Grain's Baltimore elevator and the greater use of some non-cooperative elevators for storage such as Cargill's port elevator in the Hampton Roads area where it has a soybean processing plant. The Kalama elevator's ratio was lower than for the industry; however, the Kalama elevator had an unusually low volume in fiscal 1974. The volume-capacity ratio is one indicator of efficiency. It can be expected to differ between coasts and individual port elevators, depending on the utilization for storage and other factors such as the winter season when the Lakes are closed to shipping.

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[11]All data for regional cooperatives for fiscal 1974 in this report are preliminary and subject to small changes.

[12]Excludes export grain originated by local cooperatives and sold to non-cooperative exporters.

Table 20—Member local associations and elevator locations, line country elevators, and terminal and subterminal elevators for regional grain cooperatives, fiscal 1973

Regional grain cooperative	Member local associations		Line country elevators	Terminals or subterminals[1]
	Associations	Elevator locations		
		Number		
Agway Inc.	60	60	0	0
FCX, Inc.	0	0	13	1
FAR-MAR-CO	580	1,200	0	10
Farmers Grain Cooperative	13	22	3	1
Farmers Grain Dealers Ass'n	354	400	0	6
Farmers Union Grain Terminal Ass'n	428	460	157	7
Gold Kist, Inc.	8	8	23	1
Illinois Grain Corporation	230	400	0	6
Indiana Grain Cooperative	77	237	0	6
Inland Empire Pea Growers	0	0	7	1
Landmark, Inc.	64	144	0	5
Michigan Elevator Exchange	50	57	21	3
Missouri Farmers Association	24	24	85	7
North Pacific Grain Growers	48	254	0	3
Ohio Farmers Grain Corporation	99	120	3	1
Producers Grain Corporation	113	162	0	6
Riceland Foods, Inc.	0	0	27	2
South Dakota Wheat Growers	0	0	13	1
Southern States Cooperative	0	0	7	0
Tennessee Farmers Cooperative[2]	1	1	21	0
Union Equity	174	291	1	4
Total	2,323	3,840	381	71

[1]Includes storage facilities for grain merchandising and soybean processing and excludes storage for other processing facilities. It also includes 9 port elevators.

[2]Grain operations were purchased by Gold Kist in 1974.

Source: FCS Service Report 144, 35th Annual Report of Grain Cooperatives. Stanley K. Thurston. 1975.

Table 21—Total U.S. grain exports and export movements by 14 regional grain cooperatives, by coastal area, fiscal 1974

Coastal area	Total U.S. grain exports fiscal year 1974	Export movement by regionals		Volume through regionals' port elevators		
		Total volume[1]	Share of U.S. exports	Total volume	Share of U.S. exports	Share of regionals' export movement
	1,000 bu.	*1,000 bu.*	*Pct.*	*1,000 bu.*	*Pct.*	*Pct.*
Great Lakes	430,208	110,159	25.6	96,592	22.5	87.7
Atlantic	351,262	92,251	26.3	47,345	13.5	51.3
Gulf	2,206,275	591,871	26.8	371,190	16.8	62.7
Pacific	372,676	75,490	20.3	20,850	5.6	27.3
Total	3,360,421	869,771	25.9	535,977	15.9	61.6

[1]Includes f.o.b. track sales at inland elevators of grain destined for port locations as well as f.o.b. port elevator sales and c.i.f. sales. Duplicate volume has been eliminated.

Figure 16--Major port areas for U.S. grain exports and cooperative port elevators

Figure 17--Cooperative port terminal capacity as percent of U.S. total, 1974

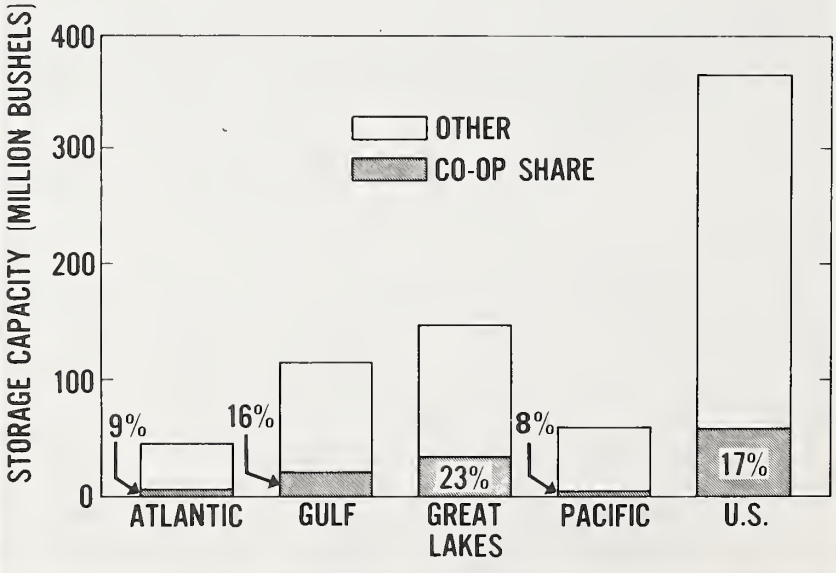


Table 22—Total U.S. port elevator capacity and grain volume handled compared with totals for cooperative port elevators, by coastal areas, fiscal 1974

Coastal area	Total for U.S. port elevators			Total for co-op port elevators			Co-op capacity as percent of total
	Port capacity	Grain volume	Turnover	Port capacity	Grain volume	Turnover	
	1,000 bu.	*1,000 bu.*	*Times*	*1,000 bu.*	*1,000 bu.*	*Times*	*Percent*
Great Lakes	141,300	430,208	3.0	32,100	96,592	3.0	23
Atlantic	44,500	351,262	7.9	4,000	47,345	11.8	9
Gulf	113,100	2,206,275	19.5	18,200	371,190	20.4	16
Pacific	50,600	372,676	7.4	4,100	20,850	5.1	8
Total	349,500	3,360,421	9.6	58,400	535,977	9.2	17

Direct exports by regionals. "Direct exports" by regionals as previously defined in this study represent grain handled through cooperative port elevators, or through other elevators in the account of the regional, and sold directly to foreign buyers located and doing business in the consuming areas of the world. Such foreign buyers include foreign governments, processors, and traders, and excludes the large international grain firms and other exporters doing business in the United States.

In fiscal 1974, regionals had direct exports of 255 million bushels, or 7.5 percent of total U.S. grain exports (table 23). Direct exports from the cooperative port elevators at the Gulf represented about 96 percent of regionals' direct exports from all coastal areas, and 11 percent of the total Gulf grain exports.

To provide a better perspective of the volume of data for regionals' exports, it's useful to compare such data with total U.S. exports of 3.4 billion bushels (fig. 19).

Direct export sales by regionals were 29 percent of the total grain movement by regionals to port positions (fig. 20). *Nearly one-half (48 percent) of the volume handled through cooperative port elevators represented direct export sales.* The remainder was sold to exporters such as Cargill, Continental, Bunge, Dreyfus, Cook, and Garnac.

Indirect export sales by regionals made up 71 percent of their total grain movements for export. This volume represented grain sold to exporters at cooperative port

Table 23—Direct exports of regional grain cooperatives and percent of U.S. grain exports, by coastal area, fiscal 1974

Coastal area	Direct exports by regionals	Percent of U.S. grain exports
	1,000 bu.	*Pct.*
Great Lakes	938	0.2
Atlantic	- - -	- - -
Gulf	246,126	11.2
Pacific	8,266	2.2
Total	255,330	7.5

Figure 18--Percent of total cooperative export movement that cooperatives put through their port elevators, fiscal 1974

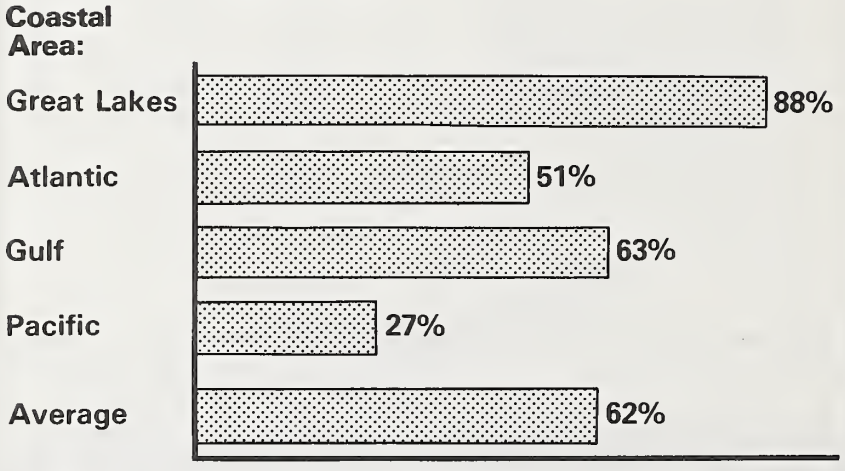


Figure 19--Regional cooperatives' share of U.S. grain exports, fiscal 1974

(Percent of U.S. exports and million bushels)

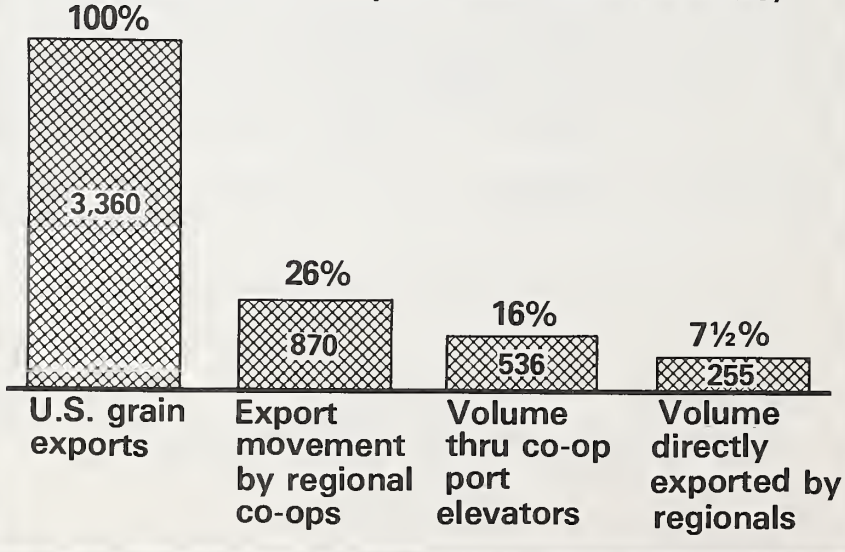
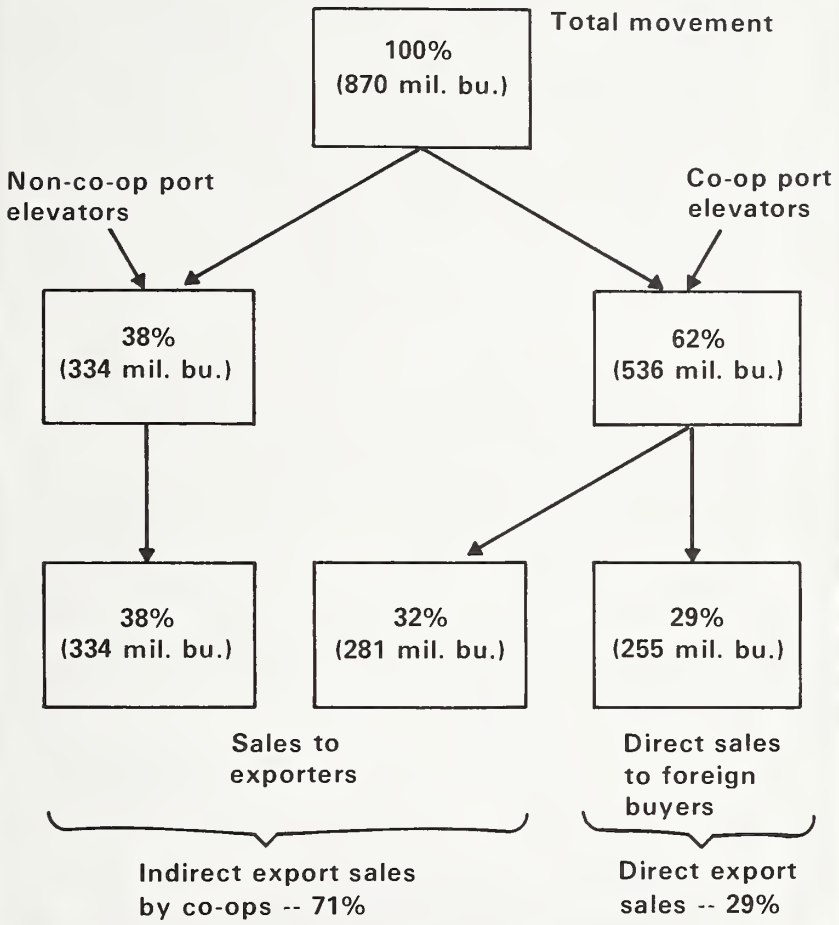


Figure 20--Grain movements from regional grain cooperatives to export elevators, Fiscal 1974



elevators and other cooperative sales estimated to have been shipped to non-cooperative port elevators from inland elevators of regionals.

Cooperative exports by kind of grain. Direct exports of regionals by kind of grain offers further insight as to the nature of their exports. For fiscal 1974, corn made up 38 percent of direct exports by regionals, followed by wheat (28 percent), soybeans (18 percent), and sorghum (16 percent). Direct exports of regionals as a percent of U.S. grain exports were 7 percent for corn, 17 percent for sorghum, 9 percent for soybeans, and 7 percent for wheat (appendix table 14).

Total export movements of regionals provide another indication of cooperatives' participation in exports. Of the total export movement by regionals, wheat made up 43 percent; corn, 34 percent; soybeans, 13 percent; and sorghum, 9 percent (appendix table 15).

Regionals' share of, or participation in, grain export movements varied by kind of grain. Regionals participated in moving 34 percent of U.S. wheat exports to port elevators (cooperative and non-cooperative). For sorghum, it was 32 percent; soybeans, 23 percent; corn, 22 percent; and barley, 9 percent.

Evaluation

The present export marketing system for cooperatives as reflected in its physical facilities and grain movement patterns to U.S. port elevators appears significant when viewed as a whole. However, when parts or components are viewed, it becomes apparent there are many weaknesses. The following evaluation will set out the strengths, weaknesses, and potential relating to the facilities and export grain movement patterns of regional grain cooperatives.

Local grain cooperatives. Cooperatives have about 40 percent of the country grain elevator capacity and volume. As first receivers of grain, these country elevators are in a potentially strong position because they handle a major portion of grain that will eventually move to port elevators for export. Local cooperative country elevators generally have been aggressive in building and modernizing facilities, and are strongly competitive. However, in many instances, they have not been able to fully realize their potential.

Principal reasons for this inability are:

(1) poor location in relation to a mainline railroad that can provide reliable multicar shipping services,

(2) errors in decisions regarding facility improvement and expansion, and

(3) lack of expertise in buying and selling grain.

A large portion of these difficulties can generally be overcome by (1) self-improvement by cooperative management; (2) more reliance on the services of a regional grain cooperative; (3) stronger producer commitment; and (4) unification or joint effort with adjacent local cooperatives.

Inland elevators of regionals. Regionals have been reasonably aggressive in locating river terminals that serve nearby producers and local cooperative elevators. However, most regionals have been slow to provide guidance in subterminal development and slow to build new subterminals to serve producers and member elevators. In the Corn Belt, member locals have scrambled to modernize and develop the capability to ship multicar units, often without consulting or cooperating with adjacent cooperatives before building. As a result, some communities are overbuilt or mistakenly built with cooperative elevator facilities.

The inland terminal elevators of regionals are generally well located and in good condition. Direct movements from country elevators to market destinations have tended to minimize the need to expand many terminal facilities, however, most ter-

Two ways grain begins its journey to overseas buyers are shown above. In the top picture, Indiana Farm Bureau Cooperative Association's Red Key inland subterminal can load 100-car unit-trains for shipment overseas through the regional's port elevator in Baltimore. In the bottom picture is the new Winona, Minn., river terminal of Farmers Union Grain Terminal Association, St. Paul, loading grain on barges headed for New Orleans.

minal facilities provide the much needed ability to make unit-train shipments to ports. Further, inland terminals continue to provide necessary storage to permit producers to maintain possession and market in an optimum manner through their cooperatives.

Port elevators of regionals. Regionals have significant port capacity—17 percent of U.S. total. However, cooperative port capacity totaling 58 million bushels in nine port elevators is dispersed among eight regionals. Only two of the nine port elevators serve more than one regional, leaving seven that are used by different single regionals. The port elevators at Houston, Baltimore, Chicago, and Kalama are so located that they could serve other regionals. Regionals have been unable to agree on joint use that could provide greater utilization of these elevators and benefit grain producers. Any joint use could be associated with a coordinated export marketing program involving all regionals jointly using such port facilities.

On the *Great Lakes*, cooperatives have nearly adequate port capacity, however, if cooperatives are to be in a position to effectively make direct export sales of Lake-originated grain, they may need to have joint access to a port elevator at the mouth of the St. Lawrence River, east of Montreal, to load larger ships, to top off larger ships, and to have a grain supply more readily available.

On the *Atlantic coast*, the only cooperative port elevator is at Baltimore. If satisfactory rail movements from various regionals can be coordinated at unit-train rates to a common port location, it may be feasible for regionals to acquire or build another port elevator on the Atlantic coast.

On the *Pacific coast*, North Pacific Grain Growers have a port elevator at Kalama, Wash. This elevator handles primarily white wheat and some hard red winter wheat. Future new movements of feed-grains, soybeans, and wheat from the Great Plains to the Pacific may materialize if unit-train rates are broadened to include more origin areas and if ocean freight rates from the Pacific to Asia are lowered relative to rates from the Gulf. The present Kalama elevator has a relatively low turnover or utilization and it could handle greater volumes especially with improvements to handle feed grains, and additional wheat varieties and protein levels. Even so, future volume from regionals may be large enough to justify an additional port elevator in the Pacific Northwest for the joint use of regionals.

On the *Gulf coast*, regionals have three port elevators—Ama, Houston, and Corpus Christi. The Ama elevator with its seven member regionals has prospective volume of primarily corn and soybeans to keep utilization at a high level. In the future, the Houston and Corpus Christi elevators may be able to handle significant volumes of grain from sources other than their present members. In fiscal 1974, significant quantities of grain—principally wheat and corn—were shipped by regionals to non-cooperative port elevators in the Houston-Galveston area. Regionals also shipped relatively large volumes of corn and soybeans to non-cooperative port elevators in the New Orleans port area. The lack of cooperative port capacity severely restricts the ability of cooperatives to have a greater volume of direct export sales.

Commitment for Export

A comprehensive examination of grain exports by cooperatives would be incomplete without an understanding of how that grain was initially procured and carried through the system. Previous sections of this report focused on cooperative

organization and physical facilities utilized to move grain from farm to port. But equally important to an overview of present cooperative activity is the linkage, in terms of market commitment, between producers and their cooperatives; and between cooperatives.

Producer-Local Commitment

Most grain producers view local cooperatives as "just another market" for sale of their product. Despite widespread producer acceptance of marketing agreements and resulting commitment in other agricultural commodities such as fruits and vegetables, rice, and cotton, grain producers have been reluctant to commit their crops to the cooperative system.

However, due to various types of economic pressure on both farmers and their local cooperatives, several degrees of commitment have surfaced (and resurfaced) over the years. They were previously described in a discussion of forward contracting, delayed price, pooling, and reservation price.

From a coordination standpoint, it is useful to visualize how each type of commitment relates to marketing questions considered important by producers and their cooperatives. The following chart subjectively rates each pricing arrangement in terms of flexibility, income generating potential, and pressure for cooperative performance:

	Cooperative marketing flexibility	*Producer marketing flexibility*	*Income generating potential*	*Pressure for cooperative performance*
Seasonal pool	high	low	high	high
Reservation price	high	medium	high	medium
Price later	medium	medium	low	medium
Forward contract..	low	low	low	low
Cash	low	high	low	low

The seasonal pool rates higher than any other pricing arrangement although reservation price is a close second. Only in producer marketing flexibility does pooling receive a low rating—the producer turns the marketing decision over to the cooperative. The reservation price arrangement allows producers somewhat more marketing flexibility.

Forward contracting and cash for grain do not compare favorably with the other methods. Neither gives the cooperative flexibility in marketing nor puts pressure on the cooperative for performance. Likewise, neither has the potential for generating additional income—a direct result of lack of cooperative marketing flexibility. The cash method does give the producer marketing flexibility because he makes the marketing decision.

Few attempts have been made to measure the use of these pricing arrangements in the present cooperative grain system. Schwartz[13] concluded that cash sales, in one form or another, dominate methods of purchase by cooperative grain elevators. The

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[13]Donald Richard Schwartz. Vertical Coordination in Cooperative Grain Marketing Systems, (Unpublished Ph.D. dissertation) Purdue University. May 1974. Data for this analysis were taken from a sample of cooperative grain elevators in Illinois, Indiana, Iowa, Ohio, and Kansas.

following tabulation summarizes his findings with respect to the percent of total grain purchased from farmers:

Method of purchase	*Corn*	*Soybeans*	*Wheat*
		Percent	
Forward contract	11	17	3
Delayed price	3	5	2
Pooling	0	0	0
Cash sale[1]	86	79	95
Total	100	100	100

[1]Includes farm stored grain for later sale, elevator stored grain for later sale, and cash sales at harvest.

Although these figures were derived from a sample and included only five States, they do serve to illustrate the lack of formal commitment by farmers to their cooperative. There was no pooling of grain, and other noncash pricing methods were infrequently used. Delayed pricing accounted for about 25 percent of the corn, soybeans, and wheat sold in Ohio, but was lightly regarded elsewhere. Most of the forward contracting occurred in corn and soybean producing States.

As was pointed out previously, about 40 percent of all off-farm sales of grain is purchased by local cooperatives. It seems rather clear that nearly all of that 40 percent is purchased for cash: Few formal ties exist between the local cooperative and its members.

Local-Regional

Local elevators usually protect themselves from unfavorable price changes through "back to back" contracting. In other words, when the elevator purchases grain for cash or signs forward contracts with producers, they in turn sell this grain to regional cooperatives or private firms. As an alternative to selling physical grain immediately, some locals elect to hedge cash purchases by selling futures. The latter alternative is used to protect inventories until such time as the physical grain can be sold.

Local cooperatives can sell grain to anyone they please—regional cooperatives, feeders, processors, itinerant truckers, or independent grain firms. One might expect that most out-of-area sales would move to the regionals because about 80 percent of the local grain cooperatives are affiliated with a regional cooperative, and the locals and their producer members own and control the federated regionals.

But this is not the case. The share of locals' out-of-area sales moving to regional cooperatives vary from 0 to 100 percent, with an estimated average of less than 50 percent. Again, there is no formal commitment on the part of the local to sell or even give first refusal to the regional. Whether the reason be price, service, or personality, nearly one-half the grain entering cooperative channels at the local level never reaches the regional cooperative.

An obvious form of market commitment in local-regional relationships is through line elevator ownership by regional cooperatives. Thirteen regionals own 381 country line elevators or 9 percent of the total. These line elevators market nearly all their grain through the regional; not because they are linked to the cooperative system through marketing agreements, but rather because they are controlled by the regional.

Lack of formal commitment does not always mean lack of dedication, however. Some local cooperatives market all their grain through a regional even though there is no written agreement. This might be explained in terms of price, convenience, service, or financing arrangements.

On the other hand, some locals market little or no grain through the regional cooperative. This can sometimes be explained by lower prices offered by the regional relative to alternative buyers. Also, it may be due to the failure of the regional to offer acceptable marketing programs and pricing arrangements. Or perhaps the local manager feels he can do a better job of marketing than the regional.

Regional-Export Organizations

The absence of firm commitment also extends beyond the regional cooperative. As noted previously, several grain regionals are actually federated cooperatives with other regionals as members. These organizations were formed to serve member regionals in domestic and export marketing efforts. One, Farmers Export Company, was organized solely for exporting grain. But all suffer from the same problem as regional and local cooperatives—lack of commitment by members of known grain supplies.

It's extremely difficult, if not impossible, to measure the damage inflicted on export marketing efforts by uncertain supplies. In some cases, the damage may be minor or nonexistent. For example, in 1974 Farmers Export had little trouble obtaining grain from members. Perhaps this can be attributed to a good margin (and dividend) performance in 1973. But in other cases the damage can be substantial.

Regional cooperatives cannot take all the blame for failure to fully support their export organizations. They don't know in advance how much grain they're going to receive either. Similarly, local cooperatives find it difficult to commit grain to the regionals because they also have insufficient supply information from their producer members.

While formal agreements between regionals and export cooperatives do not exist, informal oral commitments are common. Daily information exchange on grain position and demand prospects frequently results in regional decisions to deliver grain now or sometime in the future. This arrangement works reasonably well in normal years even though price and cost precision is sacrificed. But serious problems can and do emerge in times of tight supplies, transportation or facility shortages, or shifts in world demand patterns.

Evaluation

It's obvious that binding supply commitments are almost totally absent from the cooperative export marketing system. Also apparent is the continual movement of grain out of the cooperative system as it moves toward the ultimate consumer. Cooperatives handle 40 percent of the off-farm sales at the local level, 19 percent at the regional level, and export directly only 7.5 percent of U.S. exports.

There are many reasons why cooperatives lose control of substantial quantities of grain prior to export. One might be traced to the lack of market commitment at all points along the marketing channel. Absence of formal commitment results in numerous problems for grain marketing cooperatives. Most relate to the fact that the cooperative cannot determine in advance how much or what kind of grain it will have to merchandise. This lack of commitment:

(1) Reduces ability to enter into increasingly common long-term contractual arrangements with both domestic and foreign customers,

(2) Limits ability to participate in large, one-time sales,

(3) Limits information on which to base price decisons,
(4) Hampers long-term corporate planning, and
(5) Causes inefficient use of transportation equipment and physical facilities.

It is important to recognize, however, that formal commitment by itself cannot ensure successful export effort. It must be combined with the correct organization, physical facilities, and a well-conceived marketing program. Having a known supply of grain to sell without knowing how to sell it could present more of a problem than cooperatives have now.

The final section of this report will present some alternatives for improving the cooperative export system. Market commitment will play a vital role in the final recommendations.

Financing

A comparison of the financial status of the seven regionals with three important noncooperative grain exporting firms for which comparable information is available shows that the seven regionals as a group are in about the same financial ball park as the three private grain firms taken together (table 24).[14]

The seven regionals had aggregate assets of $824.2 million of which $131.1 million, or 16 percent, represented the net book value of their fixed assets; $642.9 million or 78 percent, in current assets; and $50.1 million, or 6 percent in other assets.

All seven regionals financed their receivables and inventories by seasonal and commodity loans from the banks for cooperatives, supplemented in some instances by short-term loans from individuals as well as deferred payments to patron and trade creditors All seven regionals' current assets exceeded their current liabilities.

Financial management policies of the seven regionals is indicated also by their "owned working capital" position. This is the amount that current assets exceed both

Table 24—Comparative balance sheet for 7 regional grain cooperatives for fiscal 1973, and 3 noncooperative grain firms for fiscal 1972

Item	Total—7 regionals	Total—3 grain firms
	Million dollars	
Current assets	643.0	608.4
Net fixed assets	131.1	126.7
Other assets	50.1	89.4
Total assets	824.2	824.5
Current liabilities	582.6	509.1
Term debts	54.1	133.2
Net worth	187.5	182.2
Total liabilities and net worth	824.2	824.5
Net working capital	60.4	99.3
Own working capital	6.3	(33.9)

[14]It shoul be noted that previous analysis showed that collectively these 7 regionals and 3 noncooperative grain firms represented 7.5 percent and 50 percent of U.S. grain exports, respectively.

current and term liabilities. It is a figure that illustrates, for example, the ability of a firm to pay off all debt—both current and term—if the current assets were liquidated and the proceds used to pay off such indebtedness. The seven regionals had $6.3 million of owned working capital.

A comparison between the regionals and the noncooperative firms shows that the regionals' net fixed assets amount to $131.1 million; the grain firms', $126.7 million. Equity capital of the regionals amounts to $187.5 million; the grain firms', $182.2 million. The regionals' net working capital position amounts to $60.4 million; the grain firms are in a better position with $99.3 million. Thus, we see that ownership capital and fixed assets are of about the same magnitude; the grain firms however, have a greater net working capital position.

Cooperatives' Strong Financial Base

A couple of significant contrasts exist between the financial structure of the cooperatives and that of the noncooperative grain export corporations. One is the tremendous amount of term debt leverage used by the grain export firms. They have long-term loans outstanding of $133.2 million; the regionals, $54.1 million.

In the case of the grain export firms, liquidity would be seriously and adversely affected without the term loan undergirding. For example, the three grain firms together have a $34 million deficit in owned working capital; the seven regionals have $6.3 million of owned working capital.

Another contrast stems from the greater diversification of the grain firms' operations. This is indicated by the amounts each group has invested in other firms. The grain regionals have $30.6 million so invested, most of which represents investments in a district bank for cooperatives. On the other hand, the grain firms have $62.9 million invested in other firms that not only facilitates their export operations but also broadens their risks in other segments of the food industry.

The implications of this situation are interesting. For example, as a group, the seven regionals have the potential for handling substantially increased term loan borrowings. This potential can be further improved if the regionals continue to build net worth through capital contributions derived from patronage refunds and per unit capital retains. This potential is borne out by informal discussions with bank for cooperatives officials, who affirm their willingness to extend substantal term loans to grain cooperatives that have a sound earnings base.

Ratio of Total Revenues to Total Assets

Total revenues of the seven regionals amounted to 2.7 billion dollars. The ratio of total revenues to total assets for the seven regionals as a group is 3.3 to 1. It is a credible figure compared with L. L. Boger's computation of 3.4 to 1 for 14 cooperatives he classified as "grains, soybeans and products."[15] Boger in turn compared his computation with those made by the Central Bank for Cooperatives. He cites the Central Bank's findings as follows: "Grain cooperative ratios were 3.3 and 3.4."[16]

Currently, the ratios for a new export cooperative are likely to differ from those above because of (1) the different nature of a strictly export cooperative, and (2) the recent increases in port elevator construction costs in relation to increases in grain prices. Nevertheless, such an updated ratio could be useful in projecting total assets for a proposed export cooperative.

The projected total asset figure can then be converted to equity capital, borrowed capital, and other liabilities based on industry balance sheet configurations in major

[15]Source: L. L. Boger. *Furrows on the Street.* September 1974. Report to Central Bank for Cooperative, pp. 80, 82.
[16]See footnote 13.

cooperative commodity groups (figure 21). At this point, you will be in a position to compute equity capital requirements for the members supplying such capital presumably on the basis of the anticipated grain volume to be marketed through the proposed grain marketing cooperative.

Recommendations

Analysis of cooperatives' position in exporting grain revealed many deficiencies in the way cooperatives presently market grain for export. In arriving at recommendations for improving the present system, many alternatives were considered. The following is a listing and evaluation of each of these alternatives:

1. *Coordinate grain marketing by commodity.* This alternative suggests coordination along commodity lines. For example, all the wheat cooperatives would coordinate their marketing activities as would cooperatives marketing feedgrains, soybeans, and grain. This piecemeal approach could be an intermediate solution, but would not be feasible in the long run. It would not take advantage of the potential benefits that could be derived if all regionals worked together in a coordinated system. It would not provide the economies of scale in merchandising, information and intelligence gathering, economic and sales research, and port facilities. Furthermore, it would not provide the product mix of grain needed to satisfactorily serve foreign buyers.

2. *Make all export sales indirect.* This implies all the major grain regionals coordinate their sales with the objective of selling grain to the major exporters. The appeal of this alternative is that cooperatives would specialize in what they presently do best—which is procuring the grain—and the major exporters specialize in what they do best—which is marketing the grain. However, the problem with making only indirect export sales is that it limits flexibility in marketing. Cooperatives already have 7.5 percent of the direct export market. To give that up would reduce market access, place cooperatives in a vulnerable price-taking position, and permit major exporters to discount grain below the going price.

3. *Make all export sales direct.* This alternative would put the coordinating cooperatives in direct competition with the major exporters. It would not include selling grain to them but, instead, direct to the final user. From the analysis made of the major exporters in this study, it is our judgment that to treat them solely as competitors would result in disastrous consequences. Again, cooperatives would not have the marketing flexibility they need. To limit that flexibility—by selling only on a direct basis—would not be in the best interests of grain cooperatives in the long run.

4. *Increase marketing emphasis on indirect grain exports.* This is a hybrid of the two previous alternatives. Here, the major exporters would be treated both as customers and competitors. Cooperatives would attempt to keep their share of the direct export market but place increased emphasis on doing a better job of coordinating indirect sales to the major exporters. This alternative has merit if cooperatives do not want to be more aggressive in the direct export market and do not want to assume the challenge, risk, and responsibilities inherent in such an expanded endeavor.

5. *Increase marketing emphasis on direct grain exports.* This is similar to the previous alternative except the major emphasis is on expanding direct export sales. Again, the major exporters are treated as customers as well as competitors. However, while continuing to make indirect exports, the emphasis is on expanding the cooperative share of the direct export market.

The final alternative was considered to be the most viable. It provides the needed

flexibility in marketing grain as well as the potential to become more involved in world grain markets. The recommendations that follow pertain to this alternative.

Recommendations for increasing marketing emphasis on direct grain exports are made in five major decision areas: (1) Sales strategy, (2) organizational structure, (3) facilities and transportation, (4) commitment, and (5) financing.

Sales Strategy

The overall sales strategy by cooperatives would be to involve themselves in all direct and indirect exports with emphasis on strengthening and expanding relationships and contacts with countries that want to buy direct.

General Sales Policy

—As a part of the overall sales strategy, a board of directors should establish a general sales policy for management to follow. This policy should include the following areas:

1. *Emphasize cooperatives' strengths.* Cooperatives presently have an advantage over the competition in (a) selling quality grain and (b) uniform and efficient loading at port. These strengths should be emphasized when merchandising grain direct to foreign buyers. It is a way of differentiating cooperatives from the competition and is quite appealing to foreign buyers.

2. *Strengthen cooperative-to-cooperative sales.* It seems quite natural for one cooperative to want to sell to another. There is a universal desire among cooperatives to eliminate middlemen and their profits to benefit their patrons. This feeling of common purpose and understanding should help U.S. grain cooperatives compete with other exporters in making grain sales. This is being done presently to some extent with the Japanese cooperative, Zen-noh, but needs to be expanded to the Western European countries.

3. *Provide flexible terms of delivery.* Cooperatives need the additional flexibility of c.i.f. sales to be competitive in the export business. They need to ease into c.i.f. sales by gaining expertise in foreign ship chartering and foreign merchandising. The responsibilities, risk, and financing requirements are increased considerably, compared with f.o.b. sales. Thus, the move into c.i.f. sales should be made with caution.

4. *Give personalized service to foreign buyers.* This policy requires management to go beyond its present "arm's length approach" to buyers and personalize the service. This includes personal buyer contact by high level management, closer working relationship with agents, and immediate remedy to any problems that arise between buyer and seller.

Sales Strategy Requirements

To successfully meet the sales strategy objective, cooperatives need to establish an aggressive, worldwide market intelligence system. It should include:

1. *Information.* The function of intelligence gathering should include information on crop conditions around the world, grain demand conditions around the world, transportation, competitors, and U.S. and foreign government policies and programs as they relate to grain.

2. *Economic analysis.* The staff would interpret data gathered by the information system. Some types of analysis would include projections on new market potentials, transportation analysis for f.o.b. and c.i.f. delivery terms, the impact of competitors' actions on cooperatives, and the effects of Government policies on grain exports.

3. *Sales.* The staff would carry out sales decisions. It is recommended that U.S. and foreign sales offices be gradually established and staffed. Exclusive commissioned agents should be used where there are no sales offices. Suggested sales office locations are: East Asia, Japan, West Asia, Western Europe, South America, New York City, and Portland, Oregon.

The reason for including New York and Portland is that many foreign governments and other buyers of grain have procurement offices in the United States. New York and Portland are two of the largest areas of foreign buyer concentration.

To summarize sales strategy requirements, figure 22 depicts the coordination required for a worldwide market intelligence system. The information system would gather its data from exclusive agents, foreign and U.S. sales offices, U.S. and foreign governments, and data internally generated within the cooperative. Data are analyzed and interpreted by the economic analysis staff, which then presents the results to management and the sales staff for a decision.

Careful thought needs to be given to implementing a market intelligence system of this magnitude. More detailed study is needed with regard to computerizing the system, the size and structure of the economic analysis group, and further structuring of the management and sales staff.

Organizational Structure

Fragmentation and lack of coordination within the cooperative sector can best be overcome by establishing a single grain export organization for all cooperative grain exports. Such an export cooperative would be a federation with all exporting regionals as members. It would be a joint venture—not a merger.

Justification for One Export Cooperative

Many reasons exist for having one export cooperative instead of two or more. Some of the more important reasons are: (1) economies of scale in management, grain procurement, grain handling, sales offices, economic reasearch, and information gathering, (2) a larger and complete line of grain to sell—all kinds, classes, and grades, (3) greater flexibility in moving grain to optional port facilities on all coasts, and (4) more appeal to foreign buyers who prefer to buy from one source that represents the U.S. grain producer.

Major functions of the export cooperative

The export cooperative would make all export sales decisions—both direct and indirect. Each regional (and local) cooperative would retain its individual identity. Also, it would continue its domestic marketing efforts individually.

It would be necessary for the export cooperative to own or lease all present and future cooperative port facilities. The export cooperative would control and coordinate the movement of grain from inland cooperative elevators to and through port facilities direct to foreign customers.

Facilities and Transportation

Before contemplating additional port facilities, regional grain cooperatives need to fully utilize present facilities. Modernization and expansion of throughput capacity can contribute significantly in meeting needs of cooperatives. However, additional facilities will be needed for the future to assure regionals that they can

Figure 21--Financing

Significance of revenue-to-asset ratio – can be used as a guideline in projecting a balance sheet for any proposed grain marketing cooperative

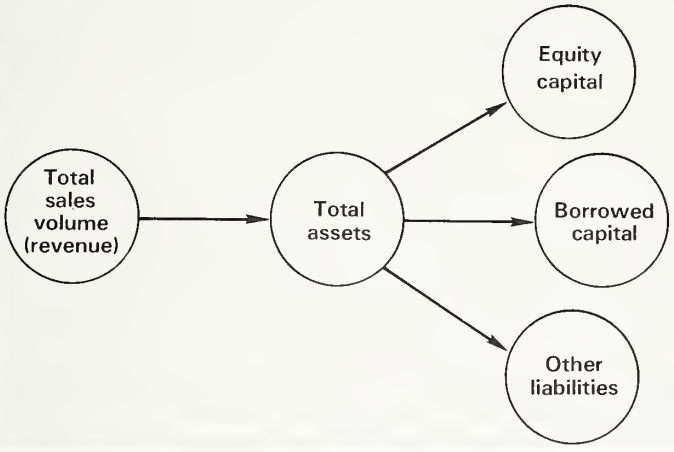
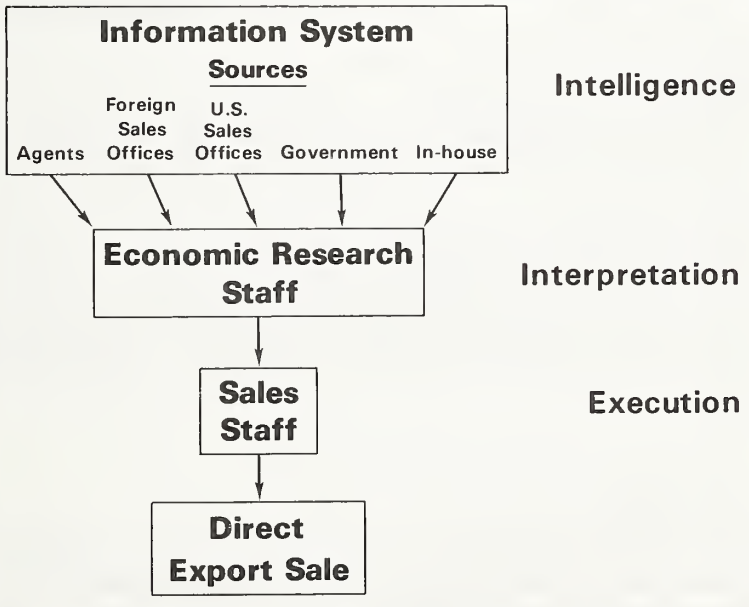


Figure 22--Recommended sales strategy requirements



move grain to export positions. Greater emphasis on direct sales implies less dependence on major exporters and their port facilites.

Port Elevation Facilities

Based on estimated future U.S. export sales for 1985 and the expected grain volume that cooperatives will ship to export positions, we estimate that regional grain cooperatives under a coordinated system will need one additional port elevator on the east coast, one on the Pacific coast, and two on the Gulf coast. We recommend that such additional needs be obtained from among existing elevators if possible. If not, and if building new facilities becomes necessary, comprehensive feasibility studies should be conducted to determine the size, number, and location of such facilities.

Changes in Transportation

Regional grain cooperatives and farm supply regionals should work together to coordinate hopper car movements and increase utilization. This requires increased cooperation between farm supply and grain regionals. Possibilities for greater efficiencies exist in two-way hauls of fertilizer and grain, and in creating a central coordinating agency for subleasing and seasonal shifting of hopper cars between regions. Ownership and leasing of hopper cars and tank cars by a new leasing cooperative should be examined. Such a transportation cooperative could serve all U.S. regional cooperatives requiring cars.

A central export cooperative should control and coordinate movement of hopper cars hauling grain to cooperative port elevators.

To become effective in c.i.f. sales, the central export cooperative should achieve expertise in ocean shipping. Knowledge and experience in ship chartering is a must.

Commitment

Cooperatives and their producer members must develop stronger commitment to the system to keep grain in cooperative marketing channels and to increase returns to producers.

To "tie" export grain from regionals to a central export cooperative requires increased levels of commitment by present regional cooperatives. Ideally, market linkage should exist throughout the cooperative system—from producer to local to regional to central export cooperative. Regional cooperatives should formally commit grain to the export cooperative with respect to kind, class, quantity, period of time, and port destination.

Seasonal Export Pool

The most effective form of commitment could be realized through a seasonal export pool and marketing agreements between the regionals and the export cooperative. Establishing a seasonal export pool:

(1) Increases the export cooperative's ability to enter into long-term marketing arrangements if it knows in advance how much and what kind of grain it has to sell.

(2) Assures regional support through a binding market agreement.

(3) Makes the cooperative price oriented rather than profit oriented.

(4) Moves decisionmaking to the most knowledgeable level.

(5) Improves corporate planning in physical, financial, and management efficiencies.

(6) Makes costs (and therefore price decisions) more predictable.

A seasonal export pool operated by the export cooperative would have the following general characteristics:

(1) Preseason determination of expected export sales.

(2) Allocation of expected export sales among the regionals.

(3) Execution of a marketing agreement between each regional and the export cooperative.

(4) Provisions for overestimate or underestimate of export requirements.

(5) Separate annual pools for each type of grain.

(6) Progress payments to regionals as grain is exported.

(7) Final payment when pool is liquidated.

(8) Price adjustments for quality differences and location.

(9) Total payments equaling weighted average selling price less cost of doing business and capital retains.

(10) Individual regionals choosing own methods of supplying export pool shares.

Other Commitment Methods

While formal commitment other than the seasonal pool concept could be adopted, it is most important to recognize that the key element is formal commitment itself; not its type. A formal commitment program involving reservation prices or delayed pricing might accomplish the same purpose as pooling. Pooling was judged superior for a grain export cooperative primarily for the marketing flexibility it would give to the system.

Capital Requirements

We recommend that the export cooperative be initially financed by its regional grain marketing cooperative members through their investments of equity capital in an amount proportional to the physical volume of grain each has consistently exported—either direct or indirect—in recent years.

As suggested in a previous section of this report, we estimated the total assets to be financed by using a 3.4-to-1 ratio of grain sales to total assets. Assuming all cooperative export functions were turned over to an export cooperative, based on the 3-year average movement of around 757 million bushels, we estimate its total annual dollar volume at around $2.3 billion. Using the 3.4-to-1 ratio, we estimate total assets required to handle that volume at $670 million and interpolate the following balance sheet configuration:[17]

Assets:	*Pct. of total*	Liabilities and net worth:	*Pct. of total*
Current assets	75	Current liabilities	65
Fixed assets	15	Term liabilities	12
Other assets	10	Net worth	23
Total assets	100		100

[17]Adapted from industry figures estimated in the study "Furrows in the Street," by Boger, as adjusted by comparable balance sheet configurations of 7 grain regionals portrayed in this study. If the actual ratio for an export cooperative were higher the capital requirements would be reduced proportionately.

Translating the foregoing percentage figures into a gross dollar configuration provides the following pro forma balance sheet based on total assets of $670 million:

Assets:	*Million dollars*	Liabilities and net worth:	*Million dollars*
Current assets	503	Current liabilities	436
Fixed assets	100	Term liabilities	80
Other assets	67	Net worth	154
Total assets	670	Total liabilities and net worth ..	670

Using a proportional equity financing percentage based on physical volume expected to be exported, the share of the total $154 million equity capital commitment for each regional cooperative can be determined. If the assets cost more than assumed, then the offsetting liabilities and net worth will increase accordingly. It's conceivable that with the higher cost of port facilities, the equity requirements would be proportionately greater.

Member cooperatives can provide equity capital by paying cash or property equivalent to cash such as a port elevator. If payment is made in property, we suggest each regional's net book values, adjusted for differences in depreciation, obsolescence, and capitalization policies, be accepted as a basis for valuation of equities the export cooperative exchanges with the regional members for such properties. If, however, the regionals insist that an appraisal of fixed assets be made as a basis for equity valuation, we suggest that all such properties be appraised by the same independent appraisal firm to assure the objectivity of the values arrived at. For a more detailed discussion of attendant problems associated with appraising fixed assets see appendix 4.

The projected $154 million or more of net worth of the export corporation can create mental reservations about the financial ability of the grain regionals to meet their share of the required capital. An obvious alternative will be to increase the term debt concurrently with decreasing the equity capital requirement. For pro forma balance sheet purposes, one can "play around" with any combination of debt-equity ratios. An important consideration, however, is that the *total* amount of debt capital—both seasonal and term—that can be borrowed by one cooperative from the Farm Credit System approaches that System's current lending limit at a level slightly in excess of $200 million.

If, for example, the regionals wanted to reduce their equity requirements by increasing the term loans from the bank for cooperatives from $80 to $100 million (which amount in our example bumps up against the total Farm Credit System's limit on term loans to one credit risk), thus reducing the equity capital requirement from $154 million to $134 million, the total amount then available from the Banks for Cooperatives' System for seasonal and commodity loans would be limited to $100 million. One regional had a $140 million seasonal and commodity line of credit in 1973 from its bank for cooperatives.

At least two implications flow from this discussion:

1. Unless financing outside the Farm Credit System is sought, regionals should consider constraints placed on their ability to borrow seasonal money if they are desirous of increasing the debt-equity ratio.

2. Because the total credit requirements of the export cooperative can exceed the Farm Credit System's lending limits, officials of the System have the opportunity of assuming the leadership in "putting together a financial package" with commercial banks or other financial institutions interested in this type of business opportunity.

Reactions by Competitors

Regional cooperatives planning for improvements in their export system should be aware of the potential reaction of competitors. Increasingly, pressure is being placed on cooperatives by anti-cooperative forces. That pressure would intensify if cooperatives launch a stronger grain export program emphasizing direct exports. This pressure will be in four areas: (1) procurement of grain, (2) grain marketing, (3) legal and governmental, and (4) business cooperation.

Procurement Pressure

This will occur primarily in pricing grain at the local level. Large grain firms have been increasing subterminal capacity to buy grain from producers and local elevators. Strong action by cooperatives to improve their export marketing system may be met with accelerated subterminal programs. Large grain firms can be expected to attempt to undermine procurement efforts of cooperatives to obtain a larger share of the grain at the local level.

Strong pressure would be placed on both locals and regionals to sell outside cooperative channels. For example, incentives such as supplying hopper cars or long-term marketing contracts might be offered by private grain firms.

Merchandising Pressure

The large grain firms, due to their size and diversification, are in a position to sell grain at less than market prices in specific countries that cooperatives are trying to penetrate. Also, they are in a position to exert pressure on ship availability and therefore make it difficult for the export cooperative to coordinate sales with charter vessels.

Legal and Government Pressure

When cooperatives launch a strong program emphasizing direct exports, anti-cooperative groups will increase their efforts to adversely influence, directly or indirectly, the legislative and administrative support for cooperatives in an effort to restrict their operations.

Business Cooperation

Amicable business relationships between regional cooperatives and grain exporters can be expected to deteriorate rapidly if regionals have a central export cooperative that emphasizes direct exports. It's likely there would be fewer grain transactions at favorable terms for cooperatives.

Appendix 1—World Grain Economy Regions

I. Developed	*Regions*
1. USA United States	United States of America
2. CAN Canada	Canada
3. EEC-9 Enlarged European Community	
a. EC 6 (original members)	Belgium, Luxembourg, Netherlands, France, West Germany, Italy
b. EC 3 (new members)	Denmark, Ireland, United Kingdom
4. OWE Other Western Europe	Austria, Finland, Greece, Iceland, Malta, Norway, Portugal, Spain Sweden, Switzerland
5. SAF South Africa	Rep. of South Africa, Botswana, Lesotho, Namibia, Swaziland
6. JAP Japan	Japan
7. ANZ Australia and New Zealand	Australia, New Zealand
II. Centrally Planned	
8. EEU East Europe	Albania, Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, Romania, Yugoslavia
9. RUS Soviet Union	Soviet Union
10. PRC People's Republic of China	China
III. Less Developed	
11. East Asia	
a. Indonesia	Indonesia
b. High income East Asia	Hong Kong, Singapore, South Korea, Taiwan, Brunei
c. Low income East Asia	Philippines, Malaysia
12. SEA South East Asia	
a. Thailand	Thailand
b. Other South East Asia	Burma, Khmer, Laos, South Vietnam
13. SAS South Asia	
a. India	India
b. Other South Asia	Afghanistan, Bangladesh, Bhutan, Nepal, Pakistan, Sri Lanka
14. North Africa-Middle East	
a. High income	Algeria, Bahrain, Cyprus, Iran, Iraq, Israel, Kuwait, Libya, Oman, Qatar, Saudi Arabia, United Arab Emirates
b. Low income	Egypt, Jordan, Lebanon, Morocco, Sudan, Syria, Tunisia, Turkey, Yemen (Sana), Yemen (Aden)

15. CAF Central Africa	Angola, Burundi, Cameroon, Central Africa Republic, Chad, Congo, Dohomey, Equatorial Guines, Ethiopia, French Terr. of Afars and Issas, Gabon, Gambia, Ghana, Guinea, Ivory Coast, Liberia, Malagasy, Mauritius, Niger, Nigeria, Portuguese Guinea, Reunion, Rwanda, Senegal, Sierra Leone, Somalia, Spanish Sahara, Togo, Upper Volta, Zaire, Mauritania, Mali
16. EAF East Africa	Kenya, Uganda, Tanzania, Zambia, Rhodesia, Malawi, Mozambique
17. MCA Middle America	
a. Mexico	Mexico
b. Central America	Honduras, British Honduras, Guatemala, El Salvador, Nicaragua, Costa Rica, Panama, Dominican Republic, Haiti, Jamaica, Trinidad and Tobago, other Caribbean Islands, Bahamas, Bermuda
18. VEN Venezuela	Venezuela
19. BRZ Brazil	Brazil
20. ARG Argentina	Argentina
21. OSA Other South America	Bolivia, Chile, Colombia, Ecuador, French Guiana, Guyana, Paraguay, Peru, Surinam, Uruguay
22. Rest of world	North Korea, North Vietnam, Mongolia, Cuba, Pacific Islands, Papua-New Guinea

Appendix 2—Assumptions For 1985—Low and High Level Demand Projections For Grain

Low Level Projection:

The European Community is successful in its effort toward achieving self-sufficiency in grains and continues limiting meat.

Eastern Europe will continue its progress toward self-sufficiency and reduce levels of imports.

USSR would be close to self-sufficiency, even though there are now substantial imports of feedgrains.

The developing nations would demand only moderate amounts of grains.

Substantial increases in food production in the LDC's.

Fishmeal production recovers but not enough to keep pace with growth in demand.

Continued low level of P.L. 480.

High Level Projections:

USSR and Eastern Europe follow a policy of significantly increasing livestock consumption even if it means importing grain.

The Peoples Republic of China becomes more trade oriented and imports more grain to improve city diets.

Income growth in less developed countries increases by 1 to 2 percent per year above growth rate in the low projection levels thus increasing consumption of wheat.

The livestock economies in the developing world grow faster than projected under the low projection due to a more rapid economic growth.

The enlarged European Community finds it advantageous not to pursue as strongly its self-sufficiency policy by setting lower target prices for production. In addition, it is assumed the U.K. grain producers respond slowly to high EC prices.

Fishmeal production stagnates.

The energy crisis will certainly raise the cost of production and tend to dampen output increases.

Due largely to the energy shortage, fertilizer will be short at least in the near term and much higher in price which will hold down agricultural production, particularly in the LDC's until production adjustments are made.

Major importing countries have indicated an interest in building domestic stocks. This could have significant impact on U.S. export demand during the next 2 to 5 years.

FAO has proposed a plan for building food security stocks for LDC's. Implementing this plan would add to demand during the period when the stockpile was being established.

Maintenance of P.L. 480 volume with increased expenditures to offset high price levels.

Significant aid from the developed world.

Appendix 3—Regional Grain Cooperatives That Ship Grain To Port Elevators For Export

Name of regional	Kind of grain shipped
FAR-MAR-CO, Inc. Hutchinson, Kans.	Wheat—hard red winter, grain sorghum
Farmers Grain Dealers Ass'n. Des Moines, Iowa	Corn, soybeans
Farmers Union Grain Terminal Ass'n. St. Paul, Minn.	Soybeans, barley, wheat—dark northern spring, durum, hard red winter
Kansas City Terminal Elevator Kansas City, Mo.	Grain sorghum, wheat, corn, soybeans
Illinois Grain Corporation Bloomington, Ill.	Corn, soybeans
Indiana Grain Cooperative Indianapolis, Ind.	Corn, soybeans, wheat—soft red winter
Landmark, Inc. Columbus, Ohio	Corn, soybeans
Michigan Elevator Exchange Saginaw, Mich.	Corn, soybeans, dried edible beans
Missouri Farmers Assciation Columbia, Mo.	Corn, soybeans
North Pacific Grain Growers Portland, Oreg.	Wheat—soft white, barley
Ohio Farmers Grain Corp. Fostoria, Ohio	Corn, soybeans
Producers Grain Corp. Amarillo, Tex.	Grain sorghum, wheat—hard red winter
St. Louis Grain Corp. St. Louis, Mo.	Corn, soybeans
Union Equity Cooperative Exchange	Wheat—hard red winter, grain sorghum

Appendix 4—Problems Associated With Appraising Fixed Assets

If fixed assets are revalued as a result of an appraisal, regionals' equity holders' equities may be changed with the attendant problem of distribution to them of any decrease or increase in the equity.

The significance to members of a realignment of their equities as a result of an appraisal lies in essentially two areas:

1) Changes in interest or dividends received if, indeed, such payments are made by the regional cooperative. Obviously, such payments can be a burden to the regional by affecting its ability to pay producers and to build its own capital structure.

2) The financial interest of the regionals' equity holders in fixed assets transferred to the export cooperative that may ultimately be sold at an amount in excess of their book values would appear to be preserved. If, however, the export corporation wanted to maintain a Section 521 (so-called "tax exempt") status, it would have to conform with Federal income tax regulations (Section 1382-3 (c) (3)) quoted in part as follows:

". . . if capital gains are realized by the association from the sale or exchange of capital assets held for a period extending into more than one taxable year, income realized from such gains must be paid, insofar as practicable, to the persons who were patrons during the taxable years in which the asset was owned by the association in proportion to the amount of business done by such patrons during such taxable year."

Notwithstanding the proposed export cooperative's tax status, the assurance to its regional members for such treatment of potential capital gains can be incorporated into the formal agreement documenting the mutual commitments between the export cooperative and its regional members. For more details on alternative methods of handling capital gains, see the article bearing the title "Distributing Gains from Selling Capital Assets" in the August 1974 issue of *News for Farmer Cooperatives* published by Farmer Cooperative Service.

Appendix Tables

Appendix table 1—U.S. share of world trade in wheat, 1970/71-1973/74

World region	1970/71	1971/72	1972/73	1973/74	1970/71-1973/74 average
	U.S. share	U.S. share	U.S. share	U.S. share	
			Percent		
Middle America	80.2	75.5	86.6	80.2	80.9
OSA	67.8	63.2	59.4	69.8	65.0
East Asia[1]	63.4	61.8	65.9	66.7	64.5
Central Africa	30.5	53.0	68.6	78.9	54.7
Japan[1]	59.5	44.2	61.6	54.3	55.0
South Asia[1]	49.6	48.9	55.2	40.1	47.2
OWE	50.1	35.9	46.1	42.7	44.1
S.E. Asia	33.3	50.3	44.3	37.6	41.4
West Asia	39.8	29.6	46.1	50.3	40.3
Brazil	45.7	25.0	39.8	51.7	41.8
North Africa	22.2	22.4	14.3	41.6	26.2
EEC-9	26.2	15.8	21.7	21.1	21.4
East Europe	13.0	.7	25.1	18.1	13.8
USSR	- - -	- - -	63.6	66.5	[2]64.2
PRC	- - -	- - -	11.2	49.1	[2]32.1
Rest of world	2.1	1.0	- - -	- - -	.8
Total	33.9	27.8	42.3	44.8	37.9

[1]These regions are among the 4 largest customers for U.S. wheat.

[2]Average market share for this region was calculated only for those years in which the U.S. exported wheat to this region.

Source: Computed from reports of the U.S. Department of Commerce and the Grain and Feed Division of the Foreign Agricultural Service, USDA.

Appendix table 2—U.S. share of world trade in feedgrains, 1970/71-1973/74

World region	1970/71	1971/72	1972/73	1973/74	1970/71-1973/74 average
	U.S. share	U.S. share	U.S. share	U.S. share	
			Percent		
Central Africa	74.9	(1)	100.0	(1)	(1)
North Africa	(1)	(1)	(1)	(1)	(1)
Middle America	(1)	89.6	53.3	(1)	90.3
Southeast Asia	(1)	98.9	88.9	50.0	83.4
Canada	(1)	89.3	57.9	79.7	77.1
South Asia	(1)	(1)	76.3	43.8	61.6
OSA	59.2	74.5	(1)	69.0	80.4
West Asia	78.5	54.1	71.3	59.9	64.3
Japan[2]	56.4	37.3	69.3	74.5	60.9
EEC-9[2]	34.6	36.5	49.1	40.7	42.8
East Asia	32.7	35.5	50.9	46.4	43.1
OWE[2]	16.6	25.3	55.1	56.6	41.6
Eastern Europe	41.4	16.7	38.8	45.4	32.3
Brazil	- - -	- - -	13.2	5.0	8.8
Rep. of South Africa	- - -	- - -	- - -	- - -	- - -
PRC	- - -	0	(1)	72.2	[3]79.8
USSR[2]	- - -	68.2	62.2	86.4	[3]72.2
Rest of world	- - -	- - -	- - -	- - -	- - -
Total	40.5	38.2	58.3	63.5	51.4

[1]Because total imports are reported on a calendar or fiscal year basis and U.S. export figures are reported on the July-June marketing year, U.S. figures are sometimes greater than total import figures. In these cases, no percent of U.S. share is calculated.

[2]Therse regions are among the 4 largest U.S. feedgrain customers.

[3]Average market share for this region was calculated for years in which the U.S. exported feedgrain to this region.

Source: Computed from reports of the U.S. Department of Commerce and the Grain and Feed Division of the Foregin Agricultural Service, USDA.

Appendix table 3—U.S. share of world trade in soybeans, 1970/71-1972/73

World region[1]	1970/71	1971/72	1972/73	1972/73-1973/74 average
	U.S. share	U.S. share	U.S. share	
		Percent		
Canada	85.6	94.8	(2)	96.3
OWE	97.1	87.9	95.3	93.0
Japan	91.6	91.4	93.7	92.3
East Asia	97.6	84.5	83.2	87.9
EEC-9	96.4	77.3	83.8	85.4
Eastern Europe	84.3	78.1	81.0	81.3
West Asia	83.2	(2)	(2)	(2)
USSR	- - -	3.2	(2)	95.0
Total	94.3	87.0	89.8	90.3

[1]Because data on total soybean imports are available on only selected countries, only data on comparable countries for U.S. exports are used.

[2]Because total imports are reported on a calendar year basis and U.S. exports figures are reported on the September-August marketing year, U.S. figures are sometimes higher than total imports. In these cases, no percent of U.S. share is calculated.

Source: Computed from reports of the U.S. Department of Commerce and the Oilseeds and Products Division of the Foreign Agricultural Service, USDA.

Appendix table 4—Major grain exporters (ME) share of world trade in U.S. wheat, 1972/73-1973/74

World region	1972/73			1973/74			1972/73-1973/74 average
	Total imports	From ME	ME share	Total imports	From ME	ME share	
	1,000 MT	*1,000 MT*	*Pct.*	*1,000 MT*	*1,000 MT*	*Pct.*	*Pct*
Middle America	1,391	1,197	86.1	1,558	1,250	80.2	83.0
Central Africa	1,265	868	68.6	725	572	78.9	72.4
USSR[1]	14,900	9,469	63.6	4,100	2,725	66.5	64.2
East Asia[1]	4,495	2,955	65.7	4,839	3,024	62.5	64.1
OSA[1]	3,040	1,804	59.3	3,351	2,280	68.0	63.9
Japan[1]	5,486	2,871	52.3	5,650	2,819	49.9	51.1
Brazil	3,011	1,197	39.8	3,000	1,485	49.5	44.6
OWE	1,074	467	43.5	1,580	645	40.8	41.9
West Asia	2,135	770	36.1	4,087	1,885	46.1	42.7
S.E. Asia	494	219	44.3	410	154	37.6	41.3
S. Asia	4,196	2,051	48.9	7,200	1,961	27.2	35.2
PRC	5,289	520	9.8	6,500	3,190	49.1	31.5
North Africa	4,991	714	14.3	6,240	2,590	41.5	29.4
East Europe	4,618	1,160	25.1	4,690	851	18.1	21.6
EEC-9	12,572	2,460	19.6	11,682	2,221	19.0	19.3
Rest of world	2,253	- - -	- - -	1,590	502	31.6	13.1
Total	71,210	28,722	40.3	67,202	28,154	41.9	41.1

[1]These regions comprise the five largest customers for these firms.

Appendix table 5—Major grain exporters (ME) share of world trade in feedgrains, by regions, 1972/73-1973/74

World region	1972/73			1973/74			1972/73-1973/74 average
	Total imports	From ME	ME share	Total imports	From ME	ME share	
	1,000 MT	*1,000 MT*	*Pct.*	*1,000 MT*	*1,000 MT*	*Pct.*	*Pct.*
Central Africa	252	252	100.0	288	627	(1)	(1)
North Africa	106	156	(1)	190	537	(1)	(1)
Middle America[2]	1,953	1,041	53.3	1,810	2,264	(1)	87.8
OSA	1,203	1,256	(1)	1,444	921	63.8	41.1
PRC	800	827	- - -	2,500	1,806	72.2	79.8
USSR[2]	6,001	3,735	62.2	5,425	4,688	86.4	73.7
Canada	783	453	57.9	1,400	1,116	79.7	71.8
S.E. Asia	90	80	88.9	90	45	50.0	69.4
West Asia	1,261	875	69.4	1,967	1,153	58.6	62.8
Japan[2]	12,131	6,840	56.4	13,750	8,523	62.0	59.4
East Asia	3,168	1,613	50.9	3,150	1,462	46.4	48.7
South Asia	899	600	66.7	1,346	486	36.1	48.4
OWE[2]	5,891	2,736	46.4	8,116	4,039	49.8	48.4
EEC-9[2]	21,550	9,693	45.0	24,420	11,377	46.6	45.8
Eastern Europe	3,066	1,190	38.8	2,717	1,234	45.4	41.9
Brazil	53	7	13.2	60	3	5.0	8.8
Rep. of South Africa	23	- - -	- - -	- - -	- - -	- - -	- - -
Rest of world	110	- - -	- - -	228	- - -	- - -	- - -
Total	59,340	31,354	52.8	68,901	40,281	58.5	55.9

[1]These regions comprise the five largest customers for these firms.

[2]Because total imports are reported on a calendar or fiscal year basis and U.S. export figures are reported on the July-June marketing year, U.S. figures are sometimes greater than the total import figures. In these cases, no percent of share is calculated.

Appendix table 6—Major grain exporters (ME) share of world trade in soybeans by regions, 1972/73

World region	ME Share
	Pct.
Canada	(1)
USSR	(1)
West Asia	(1)
East Asia	83.2
Eastern Europe	92.1
OWE	82.0
Japan	79.9
EEC-9	76.9
PRC	16.7
Total	82.1

[1]Because total imports are reported on a calendar or fiscal year basis and U.S. export figures are reported on the July-June marketing year, U.S. figures are sometimes greater than the total import figures. In these cases, no percent of share is calculated.

Appendix table 7—Grains: Inspections for export by ports and areas, calendar year 1974

Ports[1]	Wheat	Oats	Barley	Rye	Flaxseed	Corn	Sorghum	Soybeans	Total
					1,000 bu.				
Lakes[2]									
Chicago area	1,088	111	- - -	- - -	- - -	50,562	- - -	16,035	67,796
Duluth-Superior	55,032	24,724	15,947	9,089	- - -	36,910	- - -	2,167	143,869
Toledo area	1,673	- - -	- - -	- - -	- - -	21,004	- - -	30,088	52,765
Saginaw area	1,140	- - -	- - -	- - -	- - -	4,150	- - -	2,197	7,487
Subtotal	58,933	24,835	15,947	9,089	0	112,626	0	50,487	271,917
Atlantic									
North	17,408	980	- - -	- - -	- - -	69,166	- - -	13,173	100,727
South	47,181	118	1,134	- - -	- - -	171,236	- - -	42,014	261,683
Subtotal	64,589	1,098	1,134	0	0	240,402	0	55,187	362,410
Gulf									
Mississippi River	99,776	- - -	- - -	130	- - -	705,060	- - -	330,847	1,135,813
East Gulf	28,047	154	- - -	- - -	- - -	15,491	- - -	38,179	81,871
North Texas Gulf	324,464	- - -	- - -	- - -	- - -	74,223	96,814	30,066	525,567
South Texas Gulf	34,615	- - -	- - -	- - -	47	896	106,048	76	141,682
Subtotal	486,902	154	0	130	47	795,670	202,862	399,168	1,884,933
Pacific									
Columbia River	232,644	199	29,976	- - -	- - -	- - -	- - -	- - -	262,819
Puget Sound	50,473	293	- - -	- - -	- - -	882	- - -	63	51,711
California	31,619	5	- - -	- - -	16	3,000	11,699	- - -	46,339
Subtotal	314,736	497	29,976	0	16	3,882	11,699	63	360,869
Totals									
Jan.-Dec. 1974	925,160	26,584	47,057	9,219	63	1,152,580	214,561	504,905	2,880,129
Jan.-Dec. 1973	1,377,432	48,981	88,202	31,312	161	1,269,694	217,549	478,551	3,511,882
Jan.-Dec. 1972	783,693	22,063	57,283	152	10,342	858,837	146,307	440,136	2,318,813

[1]Ports included in the general areas are:

LAKES
Chicago Area: *Chicago and Milwaukee*
Toledo Area: *Toledo, Huron, Ohio, Erie, Pa. and Buffalo, N.Y.*
Saginaw Area: *Saginaw, Carrollton and Milwaukee, Mich.*

ATLANTIC
North: *Portland, Albany, and Philadelphia*
South: *Baltimore, Norfolk, and North Charleston*

GULF
Mississippi River: *New Orleans, Destrehan, Port Allen, Myrtle Grove, Ama, and Reserve*
East Gulf: *Mobile and Pascagoula*
North Texas Gulf: *Beaumont, Port Arthur, Houston, and Galveston*
South Texas Gulf: *Corpus Christi and Brownsville—Includes some rail shipments to Mexico*

PACIFIC
Columbia River: *Portland, Kalama, Astoria, Longview, and Vancouver*
Puget Sound: *Seattle and Tacoma*
California: *Long Beach, Stockton, San Francisco, and Sacramento*

[2]Includes waterway shipments to Canada.
Source: Inspections for export under the U.S. Grain Standards Act.

Appendix table 8—Regional grain cooperatives' volume direct and indirect, by commodity, 1972/73-1973/74

Item	Wheat	Share of co-op total	Share of U.S. exports	Feed-grains	Share of co-op total	Share of U.S. exports	Soybeans	Share of co-op total	Share of U.S. exports	Total grains	Share of co-op total	Share of U.S. exports
	Mil. bu.	*Pct.*	*Pct.*	*Mil. bu.*	*Pct.*	*Pct.*	*Mil. bu.*	*Pct.*	*Pct.*	*Mil. bu.*	*Pct.*	*Pct.*
						1972/73						
Direct	50.8	12.0	4.6	126.7	37.5	9.3	42.8	33.4	8.9	220.3	24.8	7.5
Indirect	372.6	88.0	33.7	211.4	62.5	15.5	85.2	66.6	17.7	669.2	75.2	22.7
Total cooperative	423.4	100.0		338.1	100.0		128.0	100.0		889.5	100.0	
Total U.S. exports	1,105.9		38.3	1,362.2		24.8	481.3		26.6	2,949.4		30.2
						1973/74						
Direct	71.8	19.3	6.5	137.2	35.7	8.0	44.6	38.9	8.2	253.6	29.2	7.5
Indirect	299.5	80.7	27.1	246.6	64.3	14.3	70.1	61.1	12.9	616.2	70.8	18.3
Total cooperative	371.3	100.0		383.8	100.0		114.7	100.0		869.8	100.0	
Total U.S. exports	1,106.6		33.6	1,724.4		22.3	543.8		21.1	3,374.8		25.8

Appendix table 9—Direct export grain cooperatives' volume, direct and indirect, 1972/73-1973/74

Item	Wheat	Share of co-op total	Share of U.S. exports	Feed-grains	Share of co-op total	Share of U.S. exports	Soybeans	Share of co-op total	Share of U.S. exports	Total grains	Share of co-op total	Share of U.S. exports
	Mil. bu.	*Pct.*	*Pct.*	*Mil. bu.*	*Pct.*	*Pct.*	*Mil. bu.*	*Pct.*	*Pct.*	*Mil. bu.*	*Pct.*	*Pct.*
						1972/73						
Direct	50.8	25.8	4.6	126.7	83.5	9.3	42.8	90.1	8.9	220.3	55.6	7.5
Indirect	146.0	74.2	13.2	25.0	16.5	1.2	4.7	9.9	1.0	175.7	44.4	5.9
Total	196.8	100.0	17.8	151.7	100.0	10.5	47.5	100.0	9.9	396.0	100.0	13.4
						1973/74						
Direct	71.8	39.5	6.5	137.2	80.1	8.0	44.6	87.6	8.2	253.6	62.8	7.5
Indirect	109.8	60.5	9.9	34.0	19.9	2.0	6.3	12.4	1.2	150.1	37.2	4.4
Total	181.6	100.0	16.4	171.2	100.0	10.0	50.9	100.0	9.4	403.7	100.0	11.9

Appendix table 10—Grain cooperatives' share of world trade in U.S. wheat, by regions, 1972/73-1973/74

World region	1972-73	1973-74	1972/73-1973/74 average
	Cooperatives' share	Cooperatives' share	
		Percent	
South Asia[1]	6.3	12.8	10.4
West Asia[1]	10.1	4.2	6.2
Japan[1]	9.2	4.4	6.8
OWE	2.6	1.8	2.1
East Asia	.1	4.2	2.2
EEC-9[1]	2.2	2.1	2.1
Brazil	- - -	2.2	1.1
OSA	.1	1.7	1.0
PRC	1.3	- - -	.6
Middle America	.6	- - -	.3
North Africa	- - -	.1	.1
Central Africa	.5	- - -	.3
USSR	- - -	- - -	- - -
S.E. Asia	- - -	- - -	- - -
East Europe	- - -	- - -	- - -
Rest of world	- - -	- - -	- - -
Total	1.9	2.9	2.4

[1]These regions comprise the 4 largest customers for the cooperatives.

Appendix table 11—Grain cooperatives' share of world trade in U.S. feedgrains, by regions, 1972/73-1973/74

World region	1972-73	1973-74	1972/73-1973/74 average
	Cooperatives' share	Cooperatives' share	
		Percent	
Japan[1]	12.9	12.5	12.7
South Asia	9.6	7.7	8.4
OWE[1]	8.7	6.8	7.6
OSA	5.6	5.2	5.4
EEC-9[1]	4.5	4.1	4.3
West Asia	1.9	1.3	1.5
Central Africa	- - -	- - -	- - -
North Africa	- - -	- - -	- - -
Middle America	- - -	- - -	- - -
PRC	- - -	- - -	- - -
USSR	- - -	- - -	- - -
Canada	- - -	- - -	- - -
S.E. Asia	- - -	- - -	- - -
East Asia	- - -	- - -	- - -
Eastern Europe	- - -	- - -	- - -
Brazil	- - -	- - -	- - -
Rep. of South Africa	- - -	- - -	- - -
Rest of world	- - -	- - -	- - -
Total	5.4	5.1	5.2

[1]These regions comprise the 3 largest cooperative customers.

Appendix table 12—Grain cooperatives' share of world trade in U.S. soybeans, by regions, 1972/73

World region	Cooperatives' share
	Percent
OWE[1]	14.2
Japan[1]	13.8
EEC-9[1]	6.7
West Asia	6.0
Canada	- - -
USSR	- - -
East Asia	- - -
Eastern Europe	- - -
PRC	- - -
Total	8.1

[1]These regions comprise the 3 largest cooperative customers.

Appendix table 13—Port elevator capacity of regional grain cooperatives compared to total for United States, by coastal areas, fiscal year 1974

Coastal area	Cooperative port elevators			All U.S. port elevators			Co-op port capacity as a percent of U.S. capacity
	Number	Capacity		Number	Capacity		
		Mil. bu.	*Pct. of total*		*Mil. bu.*	*Pct. of total*	*Pct.*
Great Lakes	4	32	55	24	141	40	23
Atlantic	1	4	7	9	45	13	9
Gulf	3	18	31	21	113	32	16
Pacific	1	4	7	13	51	15	8
Total	9	58	100	67	350	100	17

Appendix table 14—Direct exports of regional grain co-ops and total U.S. exports of grain, fiscal year 1974[1]

Kind of grain	Direct exports of regional co-ops		Total U.S. exports of grain		Co-ops as a percent of total U.S.
	1,000 bu.	*Percent*	*1,000 bu.*	*Percent*	*Percent*
Corn	97,520	38	1,355,165	40	7.2
Sorghum	40,505	16	241,271	7	16.8
Soybeans	44,731	18	506,134	15	8.8
Wheat	71,810	28	1,095,797	33	6.6
Barley	764	- - -	80,703	2	0.9
Oats	- - -	- - -	54,304	2	- - -
Flaxseed	- - -	- - -	208	- - -	- - -
Rye	- - -	- - -	26,839	1	- - -
Total	255,330	.100	3,360,421	100	7.6

[1]Fiscal year ending 6-30-74 for U.S. exports, and fiscal years ending at various dates for regional co-ops.

Appendix table 15—Total export movements of regional grain co-ops and total U.S. exports of grain, fiscal year 1974

Kind of grain	Total export move- regional co-ops		Total U.S. exports of grain		Co-ops as a percent of total U.S.
	1,000 bu.	*Percent*	*1,000 bu.*	*Percent*	*Percent*
Corn	299,934	34	1,355,165	40	22.1
Sorghum	76,187	9	241,271	7	31.6
Soybeans	114,715	13	506,134	15	22.7
Wheat	371,257	43	1,095,797	33	33.9
Barley	7,533	1	80,703	2	9.3
Oats	145	- - -	54,304	2	0.3
Flaxseed	- - -	- - -	208	- - -	- - -
Rye	- - -	- - -	26,839	1	- - -
Total	869,771	100	3,360,421	100	25.9

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FARMER COOPERATIVE SERVICE
U.S. DEPARTMENT OF AGRICULTURE

Farmer Cooperative Service provides research, management, and educational assistance to cooperatives to strengthen the economic position of farmers and other rural residents. It works directly with cooperative leaders and Federal and State agencies to improve organization, leadership, and operation of cooperatives and to give guidance to further development.

The Service (1) helps farmers and other rural residents obtain supplies and services at lower cost and to get better prices for products they sell; (2) advises rural residents on developing existing resources through cooperative action to enhance rural living; (3) helps cooperatives improve services and operating efficiency; (4) informs members, directors, employees, and the public on how cooperatives work and benefit their members and their communities; and (5) encourages international cooperative programs.

The Service publishes research and educational materials and issues *Farmer Cooperatives*. All programs and activities are conducted on a nondiscriminatory basis, without regard to race, creed, color, sex, or national origin.