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Report 153

Response of Cooperative Elevators to Changes in Government Policies



Abstract

Response of Cooperative Elevators to Changes in Government Policies

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The reduction in Government storage payments had a great effect on cooperative elevator structure and operations during the late 1980s and early 1990s. Other Government programs such as payment-in-kind (PIK), grain sales (Commodity Credit Corporation (CCC) catalog and auction sales), and the Conservation Reserve Program (CRP) also affected cooperative elevators in terms of excess storage capacity and other factors. In 1988 and 1992, managers of 71 cooperatives in 7 States were surveyed about their structure and operations. This report discusses the effect of Government program changes and other factors between 1988 and 1992 on the structure and operations of the surveyed cooperatives.

Keywords: Farmer cooperatives, grain, marketing, structure, operations, Government policy

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Executive Summary

In the late 1980s and early **1990s**, managers of cooperative country elevators saw changes in management strategies as they adapted to excess capacity, the rise and fall of Federal Government programs, and other factors. While the reduction of Government storage payments had the greatest effect on elevators, the introduction of and changes in other programs also affected elevator operations and management strategies. These programs included payment-in-kind (PIK), Government grain sales (Commodity Credit Corporation (CCC) catalog and auction sales), and the acreage reduction from the Conservation Reserve Program (CRP).

In 1988, North Dakota State University (NDSU) surveyed 87 cooperative elevator managers (Gunn and Cobia) concerning the structure and operations of their cooperatives and possible management strategies to offset income loss from changes in Government programs.

A **followup** study, conducted in the fall of 1992, surveyed 71 of the initial 87 cooperative elevator managers. This report analyzes the responses from these 71 managers, concentrating on the structural and operational changes that occurred between 1988 and 1992 and their effect on the financial condition of the participating cooperatives. A companion report (Strategies for Survival by Cooperative Country Elevators Revisited, RBS Research Report 158) analyzes managerial strategies implemented, their degree of success, and their importance in keeping the cooperative elevator viable.

In the 1988 study, participating cooperatives were classified by production region, progressiveness, and size. In this study, all cooperatives were kept in the same classification grouping to allow comparison of the changes that have occurred since 1988. Only cooperatives responding to both surveys are used in this analysis.

Highlights

Between 1988 and 1992, participating cooperatives increased total storage capacity by an average of 42,326 bushels, increased number of facilities by a third per cooperative, and decreased storage capacity per facility by 299,463 bushels. Each cooperative increased rail **loadout** capacity by 13 cars/day with an average of nearly three cars/day per facility.

Ten of the responding cooperatives (14 percent) were involved in mergers, 24 (34 percent) acquired additional facilities, while another 10 eliminated some of their storage facilities.

Cooperatives added an average of three full-time and three part-time employees. Participating cooperatives added an average 76 farmer patrons and 7 elevator patrons (other elevators using the cooperative's services).

Cooperatives decreased levels of cash purchases of grain and used more **no-price-established/delayed-pricing** contract (**NPE/DPC**) purchases. They marketed less grain on the spot market and to-arrive, while basis trading increased.

Use of commission firms for short-term financing, Government program trading, and accounting services declined, particularly in the spring wheat growing area.

Services to patrons such as storage, brokerage, feed grinding, and fertilizer application remained important to the success of cooperative operations. During the 1988-1992

period, the 71 cooperatives offered more brokerage and grain drying services while feed grinding declined.

Competition dropped slightly in the cooperatives' marketing area but competition intensified including that between other cooperatives. The financial picture of the cooperatives remained mixed. While total assets and net worth increased, the current ratio, return on assets, and return on equity declined.

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Introduction

Various events and structural changes in the U.S. grain marketing system during the past 20 years had a tremendous effect on farmer-owned cooperatives. Mergers, acquisitions, and bankruptcies prompted consolidation among cooperatives. Changes in Government policies and in trading practices have forced the entire grain industry, including cooperatives, to alter operating practices. Adjustments are still occurring.

The reduction of Federal storage income had the greatest effect on the grain marketing system and once this activity was no longer an assured source of income, the entire grain handling system faced severe storage overcapacity. Competition intensified in the merchandising end of the grain business (Warman 1993). To compete, cooperative elevator managers implemented new management strategies, merged with nearby elevators, and diversified services.

In 1988, North Dakota State University (NDSU) surveyed 87 cooperative elevator managers (Gunn and Cobia) for information about their structure and operations. Managers were also asked to discuss strategies to compensate for Government income lost.

In a 1992 followup survey, 71 of the original 87 cooperatives provided new information on structure, operations, and management strategies. Of the rest, 4 elevators were sold to another company, 2 went out of business, and 10 managers chose not to participate in this survey (table 1). (For a copy of the survey, contact The Quintin N. Burdick Center for Cooperatives, North Dakota State University, Fargo, ND 58105.)

This report analyzes the responses of the 71 managers who participated in both surveys. It concentrates on the structural and operational changes that have occurred since 1988. A companion report analyzes what proposed managerial strategies have been tried, their degree of success, and their importance in keeping the cooperative elevator viable. (See *Strategies for Survival by Cooperative Country Elevators*, RBS Research Report 158)

Classification Scheme

In the 1988 study, participating cooperatives were classified by production region, progressiveness, and size. Cooperatives were sorted into three production regions based on the primary commodity produced in the area—spring wheat (23 elevators), corn (26 elevators), and winter wheat (22 elevators). The cooperatives were located in Iowa (11), Kansas (13), Minnesota (16), Nebraska (4), North Dakota (13), Oklahoma (8), and South Dakota (6).

The progressiveness of a cooperative was judged by its financial strength and innovative techniques. Return on equity, return on assets, percent of noncash grain purchases in 1991, and Government grain purchases from the cooperative by others were factors in determining financial strength. Innovative techniques included the use of a FAX machine, a computerized accounting system, and maintaining the quality of stored grain. There were 25 progressive, 29 intermediate, and 17 conservative elevators.

Cooperatives in each production region were further classified by size based on storage capacity of elevators—small (21), medium (24), and large (26)—to

Table 1—Number of Respondents, Reasons for Nonparticipation In 1992 Survey

Group	Number of respondents	Non-participation		
		Sold to another elevator	Liquidated	Refusal
All	71	4	2	10
Production Region				
Spring Wheat	23	4	1	4
Corn	26	0	1	1
Winter Wheat	22	0	0	5
Progressiveness				
Progressive	25	0	1	4
Intermediate	29	2	0	1
Conservative	17	2	1	5
Size (Storage Capacity)				
Small	21	1	1	6
Medium	24	1	0	4
Large	26	2	1	0

eliminate size-production intercorrelation. In this study, all cooperatives were kept in the same classification grouping for sake of comparing with 1988.

Structural Characteristics of Elevators

The 71 participating cooperatives have made a number of structural and operational changes since 1988. The specific elements analyzed were storage capacity, facilities, rail loadout capacity, management, employees, and patrons.

Storage Capacity

The average storage capacity in 1992 for the participating cooperatives was slightly more than 3 million bushels, up 42,316 bushels per cooperative since 1988 (table 2). Average storage capacity increased significantly among cooperatives in the winter wheat production area. Progressive and medium- sized cooperatives also increased in their average storage capacities. Using tables, readers can compare groups in each classification category. In table 2, for example, the average storage capacity in the spring wheat production area can be compared with capacity in the corn production area. Any statistically significant difference between two groups is denoted by the first letter of the other group with which a specific group is compared. Thus, in table 2, the storage capacity in the spring wheat production area is statistically different from that of the Corn Belt. This is measured at the 0.05 level

of significance. When differences between 1988 and 1992 are presented, an asterisk (*) indicates that the change is statistically significant at the 0.05 level. In table 2, the change in the average storage capacity between 1988 and 1992 in the winter wheat production area was statistically significant.

Average storage capacity declined for Corn Belt cooperatives. Managers reported that a number of temporary storage bunkers and permanent facilities were dismantled during the 4-year period. Average storage capacity also declined for conservative and large-sized cooperatives.

Facilities

The average cooperative among the 71 surveyed in 1992 had about three facilities (table 3), up slightly since 1988. Progressive cooperatives added nearly one elevator per cooperative while large cooperatives increased facilities slightly, and conservative cooperatives remained unchanged.

The average storage capacity per facility has dropped 300,000 bushels since 1988. So any additional capacity per cooperative came from acquisitions. The largest drop in average capacity occurred among the large cooperatives. Only small cooperatives and those in the winter wheat production area increased their average storage capacity.

Rail Loadout Capacity

Rail loadout capacity is the number of cars a cooperative can load during a 24-hour period. That

Table Z-Average Storage Capacity of the 71 Cooperatives, and Changes from 1988 to 1992^a

Group	Number	Average storage capacity	Average change
		<i>bushels</i>	<i>bushels</i>
All	71	3,018,837	42,318
Production region			
Spring wheat	23	1,268,047 c	83,813
Corn	28	4,631,692 s	-259,731
Winter wheat	22	2,943,107	377,015”
Progressiveness			
Progressive	25	5,279,938 ic	803,818
Intermediate	29	1,792,517 p	8,310
Conservative	17	1,785,647 p	-725,118
Size (storage capacity)			
Small	21	899,904 ml	133,048
Medium	24	1,994,875 s	244,583”
Large	28	5,675,478 s	-217,875

. Statistical significance between groups in a particular category is indicated by the first letter of the other group to which a specific group is compared. A .05 level of significance is used.

. For changes between 1988 and 1992, an asterisk (*) represents a .05 level of statistical significance.

Table 3—Average Number of Facilities per Cooperative, Storage Capacity per Facility, and Changes from 1988 to 1992^a

Group	Number	Change	Average storage capacity	Change
			<i>bushels</i>	<i>bushels</i>
All	2.82	0.33”	1,073,417	-299,463*
Production Region				
Spring wheat	2.58	0.17	589,638 c	-187,823
Corn	2.73	0.42	1,512,641 s	-852,489
Winter Wheat	3.18	0.41 .	1,060,102	801
Progressiveness				
Progressive	3.44	0.84	1,521 ,019 ic	-565,944
Intermediate	2.88	0.10	813,391 p	-117,394
Conservative	2.18	0.00	858,750 p	-218,187
Size (storage capacity)				
Small	1.33 ml	0.10	737,079 l	85,659
Medium	2.50 sl	0.88	934,490	-38,881
Large	4.31 sm	0.50	1,473,313 s	-851,079*

^a Statistical significance between groups in a particular category is indicated by the first letter of the other group to which a specific group is compared. A .05 level of significance is used.

* For changes between 1988 and 1992, an asterisk (*) represents a .05 level of statistical significance.

average capacity for the participating cooperatives increased 13 cars per day from 1988 (table 4). There were significant increases in nearly every classification.

On a facility basis, cooperatives increased their average loadout capacity by nearly three cars. Cooperatives serving the winter wheat production area and conservative cooperatives had the largest increases per facility. Only progressive cooperatives showed a decrease.

Increased loadout capacity since 1988 indicates that cooperatives are continuing to respond to the lower unit-train freight rates offered by railroads on shipments of 25, 50, 75, and 100 cars. This has encouraged elevators to expand loadout capacity to handle unit trains. In some cases, excess capacity has developed such as in the spring wheat production area (Cobia, Wilson, Gunn, and Coon, 1986) and, in turn, has squeezed grain merchandising margins (Dahl, 1991).

Organizational Changes

Fifty-two of the 71 responding cooperatives (73 percent) had the same manager as in 1988 (table 5). The largest management change was among cooperatives in the winter wheat production area. Nearly one-

half have new general managers. Nearly 90 percent of the conservative and 85 percent of the small-sized cooperatives were under the same management.

Ten of the responding cooperatives (14.3 percent) were involved in mergers and another 24 (34.3 percent) had acquired additional facilities since 1988. Some managers said these activities were attempts to replace lost income from reduced Government storage payments. Eight mergers were with other cooperative elevators, one with an oil company, and one with a non-cooperative firm to increase railcar loadout capacity.

Acquisitions were more varied. Nine cooperatives purchased another elevator, two purchased two elevators each, and three each purchased three elevators. Other acquisitions included a bulk fuel plant, a fertilizer plant and spreading equipment, a propane and plumbing company, a livestock buying station, and a railcar loading facility.

Ten cooperatives divested storage facilities between 1988 and 1992, mostly larger cooperatives disposing of both temporary (bunkers) and permanent storage facilities. Four cooperatives—mainly the larger and progressive types—changed affiliation with regional cooperatives.

Table 4—Average Loadout Capacity per Cooperative and Facility and Changes from 1988 to 1992 ^a

Group	Cooperative			Facility		
	Number	Average loadout capacity	Change	Number	Average loadout capacity	Change
		<i>cars/day</i>			<i>cars/day</i>	
All	71	63.6	13.3'	200	25.6	2.9*
Production Region						
Spring Wheat	23	51.9	13.7*	59	26.5	6.2*
Corn	26	63.6	12.6	71	32.6 w	0.1
Winter Wheat	22	52.0	13.5	70	16.0 c	2.7
Progressiveness						
Progressive	25	67.6 i	21.6*	86	25.5	-1.6
Intermediate	29	47.3 p	8.6'	77	24.7	3.4
Conservative	17	55.8	9.1"	37	27.0	8.7
Size (storage capacity)						
Small	21	22.8 l	5.4'	28	18.0 l	3.7*
Medium	24	50.2 l	10.2"	60	21.3	1.8
Large	26	109.0 sm	22.5*	112	22.0 s	3.2

^a Statistical significance between groups in a particular category is indicated by the first letter of the other group to which a specific group is compared. A .05 level of significance is used.

• For changes between 1988 and 1992, an asterisk (*) represents a .05 level of statistical significance.

Employees

In 1992, the 71 cooperatives averaged 23 full-time employees (table 6). Large, progressive, and Corn Belt cooperatives had the largest average number of full-time employees with 38, 34, and 30, respectively. The 71 cooperatives also averaged 7 part-time employees. Most cooperatives employed a facility manager and a general manager.

Cooperatives added an average of three full-time and three part-time employees since 1988 (table 7). Corn Belt elevators added five full-time and five part-time employees, while the progressive elevators added six full-time employees. Increases were due mainly to additional facilities.

Patrons

The cooperatives average 1,072 farmer patrons, up 76 since 1988 (tables 8 and 9). Twenty percent were non-members. Cooperatives averaged 7 elevator patrons (other elevators using the cooperative's services). By contrast, Corn Belt elevators added 91 new farmer patrons, while reducing the number of non-farmer patrons by 10. Cooperatives in the spring wheat region added nearly 143, the highest number of new farmer members. Small-sized cooperatives added 137 new patrons while conservative cooperatives

reported the lowest net increase in farmer patrons at 16. Total patronage (member and non-member) only decreased in the winter wheat production area.

This phenomena appears to contradict the national trend of fewer cooperative patrons due to the exodus of producers from farming (Dahl). Managers attributed the patron increase to additional facilities or mergers expanding the trade territory. Managers also noted that patrons increasingly shop for the best price and services resulting in an increase in the number of elevators each member patronizes.

Operations

The 71 participating cooperatives have made operational and structural changes since 1988. When the Federal Government reduced storage payments, the success of local cooperatives depended on their ability to merchandise grain (Warman). Managers were asked about their grain acquisition and merchandising (selling) methods.

Acquisition methods included cash purchases, forward contracts, no-price-established/delayed-pricing contracts (NPE/DPC), minimum-price contracts (MPC), basis contracts, and other. Merchandising methods listed were spot market, sell-to-arrive, FOB

Table 5—Changes in Organizational Structure for 71 Selected Grain Marketing Cooperatives, 1992^a

			Same manager		Participated in mergers		Participated in acquisitions		Change in co-op affiliation		Disposal	
Group	N	#	%	#	%	#	%	#	%	#	%	
All	71	52	73.2	10	14.3	24	34.3	4	5.7	10	14.3	
Production Region												
Spring Wheat	23	18	78.3	3	13.0	5	21.7	1	4.4	3	13.0	
Corn	28	22	84.8 w	4	16.0	11	44.0	1	4.0	5	20.0	
Winter Wheat	22	12	54.8 c	3	13.6	8	38.7	2	9.1	2	9.1	
Progressiveness												
Progressive	25	17	68.0	5	7.1	13	18.6 i	3	4.3	4	5.7	
Intermediate	28	20	69.0	2	2.7	4	5.7 p	1	1.4	4	5.7	
Conservative	17	15	88.2	3	4.3	7	10.0	0	0.0	2	2.9	
Size (storage capacity)												
Small	21	18	85.7	2	9.5	7	33.3	1	4.8	2	9.5	
Medium	24	17	70.8	2	8.7	8	26.1	0	0.0	1	4.8 l	
Large	28	17	85.4	8	23.1	11	42.3	3	11.5	7	28.9 m	

^a . Statistical significance between groups in a particular category is indicated by the first letter of the other group to which a specific group is compared. A .05 level of significance is used.

Table 6—Average Number of Employees, 71 Selected Grain Marketing Cooperatives, 1992 ^a

Group	Managers	Assistant managers	Clerical staff	Other full-time	Total full-time	Part-time
All	2.21	0.98	3.58	18.40	23.15	7.19
Production Region						
Spring Wheat	1.30	1.30	2.28 c	8.17 w	13.04 c	2.52 cw
Corn	3.38	1.00	3.72 s	22.00	30.08 s	9.04 s
Winter Wheat	1.88	0.83	4.73	18.84 s	25.88	9.98 s
Progressiveness						
Progressive	2.88	1.80	4.84 i	24.44 ic	33.78 ic	10.08
Intermediate	1.88	0.64	2.46 p	11.68 p	16.46 p	5.29
Conservative	2.11	0.65	3.47	12.35 p	18.59 p	6.06
Size (storage capacity)						
Small	1.52	0.48	1.86 l	6.57 l	10.43 l	4.71 l
Medium	1.52	0.96	3.04 l	12.09 l	17.81 l	4.78 l
Large	3.38	1.42	5.28 sm	28.15 sm	38.35 sm	11.30 sm

^a Statistical significance between groups in a particular category is indicated by the first letter of the other group to which a specific group is compared. A .05 level of significance is used.

country, and basis trading. Some changes made since 1988 reflect the national trends in grain acquisition and merchandising, while others are contrary.

Grain Acquisition

Cash purchases (66 percent) and forward contracting (18.2 percent) were the primary methods used in buying grain (table 10). However, cash purchases declined 10.4 percentage points from 1988, most of it offset by an increase in NPE/DPC of 6.4 percentage points. Other acquisition alternatives also increased, but to a lesser extent.

Conservative and small cooperatives and those serving winter wheat producers were the biggest users of cash purchases. Corn Belt cooperatives relied on cash purchases the least. Progressive and large cooperatives and those serving the Corn Belt favored forward contracts. Use of basis contracts was limited. It was not an alternative in the 1988 survey.

The use of cash purchases to acquire grain has declined in all categories of cooperatives since 1988. Use of forward contracts also declined in a number of categories. Corn Belt cooperatives were the only ones to reduce their use of minimum-price contracts.

Table -r-Change In the Average Number of Employees from 1999 to 1992, 71 Selected Grain Marketing Cooperatives

Group	Full-time	Part-time
All	2.91 .	3.07*
Production Region		
Spring Wheat	1.61	0.00
Corn	5.40'	4.72*
Winter Wheat	1.45	4.41
Progressiveness		
Progressive	6.24*	4.48
Intermediate	0.39	2.53*
Conservative	2.18	1.88
Size (storage capacity)		
Small	1.62	1.00*
Medium	1.56	0.96
Large	5.15	6.61'

* For changes between 1988 and 1992, an asterisk(*) represents a .05 level of statistical significance.

Table 8—Average Number of Patrons, 71 Selected Grain Marketing Cooperatives, 1992 *

Group	Farmers			Other elevators		
	Member	Non-member	Total	coops	IOF	Total
All	868	209	1,072	4.0	3.4	7.4
Production Region						
Spring Wheat	702	131	833	6.0	5.2	11.2
Corn	934	192	1,126	2.5	1.9	4.4
Winter Wheat	971	267	1,238	3.7	3.3	7.0
Progressiveness						
Progressive	1,025	210	1,235	6.8	4.3	11.1
intermediate	760	188	948	1.2	3.0	4.2
Conservative	828	241	1,069	4.3	0.7	7.0
Size (storage capacity)						
Small	547	174	721	0.5	0.0	0.5
Medium	676	203	879	6.0	4.1	10.1
Large	1,313	242	1,555	4.1	5.1	9.2

. Statistical significance between groups in a particular category is indicated by the first letter of the other group to which a specific group is compared. A .05 level of significance is used.

Table 9—Change In the Average Number of Patrons from 1988 to 1992, 71 Selected Grain Marketing Cooperatives

Group	Farmers			Other elevators		
	Member	Non-member	Total	Co-ops	IOF	Total
All	50.0	25.8	75.8	0.9	1.8	2.7
Production Region						
Spring Wheat	79.7	63.1	142.8	0.6	3.1	3.7
Corn	90.9*	-10.2	80.7	-0.1	0.6	0.5
Winter Wheat	-29.4	27.9	-1.5	2.6	1.9	4.5
Progressiveness						
Progressive	109.8'	-26.2	83.6	2.4	2.1	4.5
Intermediate	40.8	61.4	102.2	-0.9	2.2	1.3
Conservative	-22.2	38.6	16.4	1.8	0.6	2.4
Size (storage capacity)						
Small	68.7	68.4	137.1	-0.3	-0.2	-0.5
Medium	35.1	48.6	83.7	2.1	1.5	3.6
Large	48.6	-31.7	16.9	0.4	3.6	4.0

* For changes between 1988 and 1992, an asterisk (*) represents a .05 level of statistical significance.

Table 10—**Percent of 71 Selected Grain Marketing Cooperatives Employing Specific Grain Acquisition Methods and the Change in Percent from 1999 to 1992** ^{a b}

Group	Grain acquisition method, 1992 ^c						Change in percentage from 1988				
	Cash	Forward	NPE/ DPC	MPC	Basis	Other	Cash	Forward	NPE/ DPC	MPC	Other
All	66.0	18.2	12.4	1.4	1.0	1.0	-10.4*	1.3	6.4*	0.7	1.0
Production Region											
Spring Wheat	63.3 w	18.2	15.8 w	1.1	1.6	0.0	-10.8	1.0	7.3	1.0	0.0
Corn	56.2 w	24.3 w	17.3 w	0.6	0.8	0.8	-10.8	-0.1	9.9*	-0.5	0.8
Winter Wheat	60.5 sc	11.1 c	2.9 sc	2.7	0.5	2.3	-9.3	3.4	1.3	1.9	2.3
Progressiveness											
Progressive	59.9	23.2	14.8	1.4	0.6	0.0	-6.9*	-1.5	4.3	0.5	0.0
Intermediate	66.1	18.8	9.9	2.1	1.1	2.0	-31.1"	2.9	5.9'	1.2	2.1
Conservative	75.0	9.9	12.9	0.3	1.3	0.6	-10.7"	-1.5	10.2	0.2	0.6
Size (storage capacity)											
Small	73.9	15.4	7.2	1.7	1.8	0.0	-10.1*	-2.3	5.4*	0.6	0.0
Medium	62.5	14.6	18.0	1.5	0.5	2.9	-11.0	-2.0	8.5'	1.0	2.9
Large	62.9	24.0	11.3	1.1	0.7	0.0	-9.9'	3.6	5.1	0.5	0.0

- Statistical significance between groups in a particular category is indicated By the first letter of the other group to which a specific group is compared. A .05 level of significance is used.
- The "Change in Percent" is not the percentage change; it is the change in percentage points.
- Cash = cash purchases; Forward = forward contracts; NPE/DPC = no price established or delayed price contract; MPC = minimum price contract; Basis = basis contract.
- For changes between 1988 and 1992, an asterisk (*) represents a .05 level of statistical significance.

Grain Merchandising

Basis trading and selling grain on the spot market were the main methods of merchandising grain by the 71 participating cooperatives (table 11). Cooperatives used basis trading or selling on the spot market about a third of the time each. To-arrive and FOB-country were used 28 and 12 percent, respectively.

The surveyed cooperatives have cut their use of selling on the spot market and to-arrive and increased use of FOB-country and basis-trading since 1988. The percentage of grain sold on the spot market decreased in all categories while basis trading was up.

Contracting of Services

As an operating option, all 71 participating cooperatives contracted for at least one service such as grain merchandising, financing, or accounting. Some cooperative increased their contracting activities while others reduced them and began to perform that service in-house.

Grain Merchandising

Nearly 82 percent of the cooperatives merchandised grain themselves, down 9.5 percentage points

since 1988 (tables 12 and 13). Use of commission firms to merchandise grain has increased 5.3 percentage points to 14.1 percent since 1988. Other firms handled 4.2 percent of grain merchandising in 1992, a category not even mentioned in 1988.

Consignment marketing of grain has virtually disappeared, so commission firms have either ceased or changed their operation to become grain merchants that assume title to the grain they handle (Dahl). The definition of commission firms is now unclear (Olson 1993) because they are changing roles in other areas of grain marketing, such as offering financing services for grain purchases and arranging transportation for local elevators (Wilson and Olson).

The largest changes from self-merchandising to commission company marketing occurred with elevators in the spring wheat and corn production areas and by large elevators. The change to commission firms, in this case, may indicate that the country elevators are marketing grain to the commission firms rather than through them. The list of those firms includes several regional grain marketing cooperatives.

One reason for changing merchandising practices lies with the cooperative boards of directors, who have

Table 1 I-Percent of 71 Selected Grain Marketing Cooperatives Employing Specific Grain Selling Methods and the Change In Percent from 1988 to 1992 ^{a,b}

Group	Grain selling method				Change in percentage from 1987			
	Spot market	To-arrive	FOB country	Basis trading	Spot market	To-arrive	FOB country	Basis trading
All	29.3	27.8	12.0	30.9	-7.8"	-4.9	2.2	10.3
Production Region								
Spring Wheat	38.4 c	48.0 cw	8.8	9.0 c	-11.7*	10.1	-2.3	3.9
Corn	12.2 SW	23.7 s	9.5	54.8 sw	-10.2*	-5.3	-4.4	19.9*
Winter Wheat	41.9 c	11.5s	20.8	28.0 c	-0.1	-20.3"	14.8	5.8
Progressiveness								
Progressive	27.2	31.2	10.1	31.5	-2.9	-8.0	8.3	4.8
Intermediate	35.0	23.5	13.7	27.8	-12.9"	2.0	2.8	8.2
Conservative	22.4	30.0	12.1	35.5	-5.3	-12.2	-4.7	22.2*
Size (storage capacity)								
Small	38.7	31.7	11.7	17.9	-5.2	-1.2	-1.7	8.1
Medium	29.3	18.8	10.3	41.8	-11.9"	-2.3	2.0	12.2
Large	21.8	33.1	13.8	31.5	-5.5	-10.4	5.8	10.3

. Statistical significance between groups in a particular category is indicated by the first letter of the other group to which a specific group is compared. A .05 level of significance is used.
b The "Change in Percent" is not the percentage change; it is the change in percentage points.

* For changes between 1988 and 1992, an asterisk (*) represents a .05 level of statistical significance.

Table 12-Percent of 71 Selected Grain Marketing Cooperatives Obtaining Services from Specified Sources, 1992 ^a

Group	Grain merchandising			Short-term financing			Govt. program trading			Accounting		
	Self	Comm. ^b	Other	Self	Comm.	Other	Self	Comm.	Other	Self	Comm.	Other
All	81.7	14.1	4.2	18.8	15.4	85.7	87.8	28.1	4.1	71.8	24.3	3.9
Production Region												
Spring Wheat	87.8	27.8 c	4.3	18.2	43.9 cw	38.0 cw	37.0 cw	59.0 cw	4.3	32.8 cw	59.8 cw	7.6
Corn	87.8	8.4 s	5.8	6.0 w	4.0 s	90.0 sw	78.5 s	15.3 s	6.3	86.5 s	13.5 s	0.0
Winter Wheat	88.9	8.9	2.3	34.1 c	0.0 s	85.9 sc	100.0 s	0.0 s	0.0	95.5 s	0.0 s	4.5
Progressiveness												
Progressive	88.4	7.6	4.0	22.9	5.0 i	72.1	70.5	29.5	0.0 c	79.0	17.0	4.0
Intermediate	77.0	21.3	1.7	12.5	28.4 p	59.1	69.3	30.7	0.0 c	69.0	31.0	0.0
Conservative	79.7	11.4	8.8	23.5	8.8	67.6	60.7	21.4	17.9 pi	66.1	23.5	10.3
Size (storage capacity)												
Small	77.8	22.2	0.0	25.0	27.2	47.8 l	49.0 l	51.0 l	0.0	54.8l	45.2 l	0.0
Medium	87.9	10.0	2.1	26.1	18.3	55.7 l	64.3	28.6	7.1	69.8	25.0	5.2
Large	79.0	11.3	9.6	7.7	3.8	88.5 sm	84.8s	10.9 s	4.3	87.5 s	6.7 s	5.7

^a Statistical significance between groups in a particular category is indicated by the first letter of the other group to which a specific group is being compared. A .05 level of significance is used.
^b Comm. ■ Commission companies.

Table +-The Change in Percent of 71 Selected Grain Marketing Cooperatives Obtaining Services from Specified Sources from 1999 to 1992 ^a

Group	Grain merchandising			Short-term financing			Govt. program trading			Accounting		
	Self	Comm. ^b	Other	Self	Comm.	Other	Self	Comm.	Other	Self	Comm.	Other
All	-9.5*	5.3	4.2	5.4	-5.9	0.5	33.3	-33.3"	0.0	7.0	-8.1	1.0
Production Region												
Spring Wheat	-3.0	9.2	4.3	13.6	-11.9	-1.7	50.0	-50.0	0.0	17.4	-16.3	-1.1
Corn	-12.2'	6.4	5.8	-7.0	-5.7	12.7	25.0	-25.0	0.0	7.7	-7.7	0.0
Winter Wheat	-2.1	-0.2	2.3	11.2	0.0	-11.2	0.0	0.0	0.0	-4.5	0.0	4.5
Progressiveness												
Progressive	-9.2	5.2	4.0	0.9	-10.7	9.8	33.3	-33.3	0.0	11.0	-11.0	0.0
Intermediate	-10.3	8.6	1.7	5.4	0.0	-5.4	0.0	0.0	0.0	6.9	-3.4	-3.5
Conservative	-8.6	-0.2	8.8	11.8	-8.8	-2.9	0.0	0.0	0.0	1.5	-11.8	10.3
Size (storage capacity)												
Small	-9.5	9.5	0.0	13.3	-9.2	-4.2	0.0	0.0	0.0	9.5	-4.7	-4.8
Medium	-5.4	3.3	2.1	8.7	-4.9	-3.8	50.0	-50.0	0.0	3.1	-4.2	-4.8
Large	-13.3	3.7	9.6	-3.7	-4.2	7.9	50.0	-50.0	0.0	8.6	-14.4	5.8

^a The "Change in Percent" is not the percentage change; it is the change in percentage points.
^b Comm. = commission companies.

• For changes between 1988 and 1992, an asterisk (*) represents a .05 percent level of statistical significance.

the power to do it. Since 1988, 13 (18.8 percent) cooperative boards of directors have changed merchandising policies (table 14). Twelve of them instituted or made policy additions, while one modified its policy.

Short-Term Financing

The responding cooperatives used three sources for short-term financing: in-house (18.8 percent), commission companies (15.4 percent), and banks including Banks for Cooperatives (65.7 percent). Financing in-house was up 5.4 percentage points and up 0.5 points through banks. Financing through commission companies declined 5.9 percentage points, indicating a minor switch to local financing since 1988.

Accounting

The source for accounting services changed from commission companies to in-house accounting, and in some cases, contracting with other firms to provide accounting services. In-house accounting services increased 7 percentage points from 1988 to 1992 to 72 percent of the cooperatives. The figure reached 96 percent in 1992 in the winter wheat region.

Services to Patrons

Several managers indicated that service to patrons was crucial and that increasing the level of services was necessary to attract new customers and increase business volume. They also felt if a service was missing, customers would go elsewhere to get it.

Although all 71 elevators offered storage services to patrons, the volume of stored grain declined since 1988 (tables 15 and 16). Nearly 50 percent of the cooperatives offered brokerage services to patrons, up 23 percentage points. In most cases, the elevator served as the middleman for a brokerage firm. Most brokerage services offered were hedging (30 cooperatives) and options trading (29 cooperatives). Three cooperatives offered other brokerage services including hedge-to-arrive contracts, minimum-price contracts (MPC), and livestock contracts (table 17).

Nineteen percent of the cooperatives offered pooling to patrons, although few pools are active. Eight managers tried pools between 1988 and 1992, but with little success. Seven cooperatives deducted pooling expenses from the final payment to patrons. Only three cooperatives offered pools where an up-front fee was charged. One cooperative is currently starting a pool.

Table w-Merchandising Policy Changes Mandated by the Board of Directors for 71 Selected Grain Marketing Cooperatlves, 1992

Group	Total		Added	Deleted
	Number	Percent	Number	Number
All	13	18.8	12	1
Production region				
Spring Wheat	3	13.8	3	1
Corn	5	20.0	4	0
Winter Wheat	5	22.7	5	0
Progressiveness				
Progressive	4	18.0	4	0
Intermediate	5	17.9	4	1
Conservative	4	25.0	4	0
Size (storage capacity)				
Small	3	14.3	3	0
Medium	7	30.4	7	0
Large	3	12.0	2	1

The number of cooperatives offering feed grinding services decreased. For all cooperatives, this was the only service offered to patrons that showed a decline. Producers may be feeding fewer livestock, grinding their own feed, or buying prepared feeds.

Fertilizer application was offered by 73 percent of the cooperatives, 91 percent in the winter wheat region. Fertilizer application increased the most in small-sized cooperatives. However, the number of small cooperatives offering this service was still less than that of medium or large cooperatives.

Soil testing services gained in popularity, mostly in the winter wheat production area and by progressive and small cooperatives. In 1992, 70 percent of all cooperatives provided soil testing services.

Competition

Managers reported that while the number of competitors in their marketing area declined, competition among remaining elevators intensified (tables 18 and 19).

The number of cooperative elevator competitors increased 11 percentage points to 56 percent of the total competitors. In some cases, responding managers

Table 15—Percent of 71 Selected Grain Marketing Cooperatives Providing Specific Services to Patrons, 1992 a

Group	Grain storage	Seed cleaning	Drying	Pooling b	Brokerage	Financial services	Feed grinding	Fertilizer application	Soil testing
All	100	72.9	78.8	18.8	47.1	35.7	88.8	72.9	70.0
Production Region									
Spring Wheat	100	91.3 c	82.8 w	0.0 w	52.2	47.8	47.8 cw	47.8 w	39.1 cw
Corn	100	58.0 s	98.0 w	20.0	48.0	38.0	80.0 s	80.0 w	80.0 s
Winter Wheat	100	72.8	54.5 SC	38.4 s	40.1	22.7	77.3 s	90.9 cs	90.9 s
Progressiveness									
Progressive	100	80.0	88.0	24.0	84.0	40.0	80.0	78.0	80.0
Intermediate	100	75.0	75.0	25.0	39.3	32.1	84.3	75.0	80.7
Conservative	100	88.2	70.8	0.0	35.3	35.3	88.2	84.7	70.8
Size (storage capacity)									
Small	100	80.9	81.9 l	14.3	42.9	28.6	57.1	61.9	52.4 l
Medium	100	65.2	78.3	8.7	52.2	34.8	69.6	69.6	69.6
Large	100	73.1	92.3 s	30.8	46.2	42.3	76.9	84.6	84.6 s

. Statistical significance between groups in a particular category is indicated by the first letter of the other group to which a specific group is compared. A .05 level of significance is used.
b Grain pooling services are available, but not active.

Table W-The Change in Percent of 71 Selected Grain Marketing Cooperatives Providing Specific Services to Patrons from 1999 to 1992 ^a

Group	Grain storage	Seed cleaning	Drying	Pooling b/	Brokerage	Financial services	Feed grinding	Fertilizer application	Soil testing
All	0.0	2.8	1.4*	1.4	22.9'	10.0	-4.3	1.4	1.4
Production Region									
Spring Wheat	0.0	0.0	0.0	-13.0	13.0	17.4	-4.3	4.3	0.0
Corn	0.0	0.0	0.0	8.0	32.0*	0.0	-4.0	-4.0	-4.0
Winter Wheat	0.0	9.1	4.5	9.1	22.7'	13.8	-4.5	0.0	9.1
Progressiveness									
Progressive	0.0	4.0	0.0	-4.0	32.0"	8.0	-4.0	-4.0	8.0
Intermediate	0.0	3.8	3.8	7.1	17.9	10.7	-3.6	10.7	3.6
Conservative	0.0	0.0	0.0	0.0	17.8	11.8	-5.9	-11.8	0.0
Size (storage capacity)									
Small	0.0	0.0	0.0	4.8	19.0	14.3	0.0	9.5	4.8
Medium	0.0	4.3	0.0	4.3	26.1	-4.3	-4.3	-8.7	4.3
Large	0.0	3.8	3.8	3.8	23.1 .	19.2	-7.7	0.0	-3.8

^a The “Change in **Percent**” is not the percentage change; it is the change in percentage points.
^b Grain pooling services are available, but not active.

* For changes between 1988 and 1992, an asterisk (*) represents a .05 level of statistical significance.

indicated that IOF competitors soldout to cooperatives or cooperatives became more competitive since the earlier survey.

Average distance to competitors increased by 3.8 miles to 16.3 miles due to mergers and acquisitions. Railcar loadout capacity for competitors increased significantly, especially in the winter wheat production area and by progressive and medium-size elevators.

Competitors’ **Services**

Competitors are offering more services in nearly every area (table 20). Some may be attributed to a change in competitors and the increased level of competition. The percent of all competitors offering seed cleaning, drying, brokerage, fertilizer application, feed grinding, and soil testing has increased significantly (table 21). Only grain storage service dropped, but not significantly. Competitors in the winter wheat area have the fewest drying facilities (42 percent), although there was a 17 percentage point increase since 1988. Managers **commented that** with the changing weather conditions during the 1992 sorghum harvest, they would probably be adding drying facilities in the future.

Table 17—**Number of Cooperatives Offering Brokerage Services and Brokerage Services Offered by 71 Selected Grain Marketing Cooperatives, 1992**

Group	Offering services		Services offered		
	Number	Percent	Hedging	Options	Other
All	33	47.1	30	29	3
Production Region					
Spring Wheat	12	36.4	12	9	0
Corn	12	36.4	10	12	1
Winter Wheat	9	27.3	8	8	2
Progressiveness					
Progressive	16	48.5	15	16	2
Intermediate	11	33.3	10	10	0
Conservative	6	18.2	5	3	1
Size (storage capacity)					
Small	9	27.3	6	7	1
Medium	12	36.4	12	10	1
Large	12	36.4	12	12	1

Table 18—**Competitors^a of 71 Selected Grain Marketing Cooperatives, 1992^b**

Group	Competitors				
	Avg Number	Percent Co-op	Avg loadout capacity	Avg distance	Avg maximum distance
			<i>cars/day</i>	<i>miles</i>	<i>miles</i>
All	2.9	58.0	37.2	18.3	24.3
Production Region					
Spring Wheat	3.1	74.3	39.0 w	21 .o cw	31.4
Corn	2.8	51.3	48.4 w	14.0 s	20.4
Winter Wheat	2.7	41.7	24.1 sc	13.9 s	21.3
Progressiveness					
Progressive	2.7	49.7	47.0 c	18.2	23.0
Intermediate	3.1	81.9	33.8	18.4	28.8
Conservative	2.8	55.4	28.8 p	18.3	22.1
Size (storage capacity)					
Small	3.3	80.3	29.7	13.9	22.5
Medium	2.7	85.8	42.3	18.4	22.9
Large	2.7	43.7	38.7	18.1	27.2

^a As judged by the manager.
^b Statistical significance between groups in a particular category is indicated by the first letter of the other group to which a specific group is compared. A.05 level of significance is used.

Table 19—**The Change in Percent in Competitors^a of 71 Selected Grain Marketing Cooperatives from 1999 to 1992^b**

Group	Competitors				
	Avg Number	Percent Co-op	Avg loadout capacity	Avg distance	Avg maximum distance
			<i>cars/day</i>	<i>miles</i>	<i>miles</i>
All	-1.3*	11.1*	3.8	3.8	0.8
Production Region					
Spring Wheat	-0.9*	12.8"	2.4	14.8"	-0.8
Corn	-1.5*	10.1'	3.8	-8.8	0.4
Winter Wheat	-1.8	10.8	5.8	9.5*	3.1
Progressiveness					
Progressive	-1.5	14.8	5.6*	18.9"	-0.1
Intermediate	-1.3	9.7	3.5"	-7.1	2.4
Conservative	-1.1"	8.4'	1.8	7.0*	-0.5
Size (storage capacity)					
Small	-1.3*	5.2	2.3"	9.8'	1.1
Medium	-1.2*	18.0	4.8	-7.4	0.5
Large	-1.5"	9.9	4.2	14.2*	0.9

^a As judged by the manager.
^b The "Change in Percent" is not the percentage change; it is the change in percentage points.

• For changes between 1988 and 1992, an asterisk (*) represents a .05 level of statistical significance.

Table no-Percent of Same Competitors and Percent of Competitors That Provide Specified Services, 1992 *

Group	Same competitor	Grain storage	Seed cleaning	Drying	Brokerage	Fertilizer application	Feed grinding	Soil testing
All	86.6	93.4	44.3	74.5	17.6	57.4	40.1	46.5
Production Region								
Spring Wheat	84.5	97.6	70.3 cw	61.2 w	21.7	59.6	34.4	57.2
Corn	66.9	91 .o	25.0 s	93.6 w	17.7	53.5	51.1	44.4
Winter Wheat	91.5	91.7	37.3 s	42.1 sc	13.2	59.6	33.3	35.9
Progressiveness								
Progressive	83.1	91.7	45.6	90.9 c	16.9	59.5	37.5	47.3
Intermediate	91.9	96.4	51.4	67.6	15.2	57.4	45.2	49.7
Conservative	83.0	91.2	29.7	64.1 p	20.8	54.7	35.4	39.6
Size (storage capacity)								
Small	91.5	96.4	63.9 l	65.9	15.9	52.0	38.1	38.1
Medium	77.0	95.7	43.3	77.5	25.0	56.7	45.6	41.3
Large	88.2	89.0	28.7 s	79.3	13.7	62.7	37.5	57.7

* Statistical significance between groups in a particular category is indicated by the first letter of the other group to which a specific group is compared. A .05 level of significance is used.

Table 21—The Change in Percent from 1988 to 1992 of Specified Services Competitors Provide Patrons of 71 Grain Marketing Cooperatives *

	Grain storage	Seed cleaning	Drying	Brokerage	Fertilizer application	Feed grinding	Soil testing
All	-0.7	14.4”	27.5”	12.1*	31.4’	12.8	19.9’
Production Region							
Spring Wheat	-5.1	18.1”	25.7”	14.1”	36.2*	10.6	28.8
Corn	1.7	10.4’	37.5*	12.5	25.0	17.4”	16.3
Winter Wheat	1.2	14.9	17.1*	9.2	33.8	9.6	16.2
Progressiveness							
Progressive	-1.4	18.6*	31.8	9.8	35.6*	14.8	20.1’
Intermediate	1.2	19.3*	24.7”	8.9	27.7*	13.5”	19.3
Conservative	1.0	0.0	26.6’	20.8	32.3*	8.9	20.8’
Size (storage capacity)							
Small	-11.5	19.8	23.0*	7.5	25.0”	6.0	13.1”
Medium	8.7	18.3”	28.8”	16.3	33.3”	16.7’	13.8
Large	-0.3	6.7	30.3	12.7*	35.3	15.6”	30.7*

. The “Change in Percent” is not the percentage change; it is the change in percentage points.

* For changes between 1988 and 1992, an asterisk (*) represents a .05 percent level of statistical significance.

Table z-Average Percentage of Grain Handled by 71 Selected Grain Marketing Cooperatives, 1992 ^a										
Group	HRS wheat	HRW wheat	Durum wheat	Barley	Corn	Soybeans	Sorghum	Sunflower	Oats	Other
All	16.9	21.4	2.8	6.1	28.0	12.2	5.3	3.3	2.0	1.7
Production Region										
Spring Wheat	45.2 cw	1.7 w	8.7 cw	17.9 cw	5.5 c	5.7 c	0.0 w	9.5 cw	1.7	3.5
Corn	6.2 s	1.2 w	0.0 s	0.7 s	60.4 sw	25.7 sw	2.1 w	0.0 s	3.6	0.0
Winter Wheat	0.0 s	66.0 SC	0.0 s	0.3 s	13.3 c	3.1 c	14.5 SC	0.7 s	0.3	1.7
Progressiveness										
Progressive	15.9	19.3	3.1	5.8	31.1	10.6	7.6	3.2	1.1	2.4
Intermediate	17.6	21.5	4.0	7.7	27.4	13.5	2.9	2.7	0.9	1.6
Conservative	17.2	24.5	0.4	3.9	24.6	12.4	5.8	4.6	5.0	0.7
Size (storage capacity)										
Small	21.6	26.0	3.0	7.0	16.3	13.9	4.8	5.4	1.0	1.0
Medium	14.9	19.6	0.3	6.8	32.4	14.8	2.3	2.8	3.6	2.0
Large	15.0	19.4	5.0	4.8	33.4	8.5	8.5	2.2	1.2	1.9

^a Statistical significance between groups in a particular category is indicated by the first letter of the other group to which a specific group is compared. A .05 level of significance is used.

Table 23—The Change in the Average Percent of Grain Handled from 1988 to 1992 by 71 Selected Grain Marketing Cooperatives ^a

Group	HRS wheat	HRW wheat	Durum wheat	Barley	Corn	Soybeans	Sorghum	Sunflower	Oats	Other
All	1.6	-0.6	-0.4'	-1.6'	-1 .o	0.2	0.2	0.7	0.4	0.6
Production Region										
Spring Wheat	3.9*	-1 .o	-1.2'	-4.6'	-1.3	1.6	0.0	2.0	-1 .o	1.2
Corn	0.9	-0.3	0.0	-0.4	-1.4	-1 .o	0.1	0.1	2.0	-0.1
Winter Wheat	0.0	-1.2	0.0	-0.2	-0.3	-0.2	0.4	0.1	-0.1	1.5
Progressiveness										
Progressive	2.2	0.0	-0.3	-1 .o	-0.5	-1.5	-0.1	0.4	-0.1	0.9
Intermediate	1.5*	-2.4	-0.6	-1.9	-0.9	1.6	0.7	0.2	-0.2	1.5
Conservative	0.9	0.9	-0.1	-2.7	-2.1	-0.1	-0.6	2.1	1.9	-0.5
Size (storage capacity)										
Small	3.9*	-1 .o	-1.2'	4.6'	-1.3	1.6	0.0	2.0	-1 .o	1.2
Medium	0.9	-0.3	0.0	-0.4	-1.4	-1 .o	0.1	0.1	2.0	-0.1
Large	0.0	-1.2	0.0	-0.2	-0.3	-0.1	0.4	0.1	-0.1	1.5

^a The “Change in the Average Percent” is not the percentage change; it is the change in percentage points.

. For changes between 1968 and 1992, an asterisk (*) represents a .05 level of statistiil significance.

Grain Handled

The percent of grain handled for all cooperatives changed only slightly from 1988 to 1992 (tables 22 and 23). Increased hard red spring wheat handlings (1.6 percentage points) were more than offset by declines in barley (-1.8 percentage points) and durum wheat (-0.4 percentage points). These changes were most evident in the spring wheat production area and by small-sized elevators. Managers said they would handle new crops if an appreciable amount was grown in their area.

Financial Information

Financial information was obtained from 1991 annual stockholder reports from participating cooperative elevators. Fifty-five provided financial information for both the 1988 and 1992 surveys. Financial information reflects changes from 1987 to 1991 (table 24).

Average total assets increased among all elevators that supplied financial information (table 25). The largest increases were by cooperatives in the Corn Belt and by progressive and large cooperatives. These same categories also had the most merger and acquisition activity.

Average net income declined in all cases, but mostly among the winter wheat cooperatives (-\$168,820), progressive cooperatives (-\$206,300), and large cooperatives (-\$214,922). The average net worth of all cooperatives increased from 1987 to 1991, although not significantly among winter wheat cooperatives.

Financial Ratios

The current ratio of current assets to current liabilities measures a firm's liquidity. The average current ratio for all 55 cooperatives declined slightly from 1.70 in 1987 to 1.59 in 1991 (table 26). However, this ratio can be misleading because of the variability of grain inventories reflected in current assets. The current ratio for winter wheat elevators decreased 0.34, the largest drop in any category. Only elevators in the Corn Belt and medium elevators increased these ratios.

Two ratios indicate elevator solvency—debt-to-net-worth and the debt-to-total-assets. The debt-to-net-worth ratio, up 0.66 for the entire sample, describes the ability of the cooperative to meet long-term obligations. Larger increases were reported by large (0.23) and progressive (0.23) cooperatives, while decreases were noted by spring wheat (0.011, intermediate (0.051,

and medium-sized (0.14) cooperative elevators. The debt-to-total-assets ratio, up slightly, measures the percentage of total funds provided by creditors.

The return-on-equity ratio measures profitability and is commonly used to measure return on investment (Clow and Wilson). This return was calculated by dividing the net income (savings) by the net worth for the cooperative (and converted to a percentage figure). The return-on-equity for the entire group decreased 4.58 percentage points from 1987 (11.92 percent) to 1991 (7.34 percent). All changes were statistically significant except for conservative cooperatives.

In the production region category, changes ranged from -4.02 to -5.51 percentage points. Although the changes were nearly even across production area, return-on-equity in 1991 for the spring wheat (8.69 percent) and corn (10.34 percent) regions was significantly more than the winter wheat region (2.41 percent). The 7.03 percentage point drop by progressive cooperatives in return-on-equity was the largest of any group. When separated by size, all cooperatives reported similar returns-on-equity in 1987. Medium cooperatives had the lowest drop in percentage points (-3.66) while the large cooperatives had the greatest (-5.44) from 1987 to 1991.

Return-on-assets also measures profitability. It is calculated by dividing net income by total assets and converting into a percentage figure. Both the return-on-assets and the return-on-equity dropped significantly for all cooperatives. Changes in the groups were all significant except for the conservative cooperatives.

Summary and Implcations

The structure and operations of cooperative country elevators changed considerably between 1987 and 1992 due to excess capacity, the rise and fall of Federal Government programs, and other factors. The large reduction in Government storage payments represented the loss of substantial and steady income. The result has been fewer but larger cooperative country elevators with more facilities, a larger workforce, and greater rail loadout capacity.

Forty-six percent of the 87 grain marketing cooperatives interviewed in 1988 experienced considerable structural change between 1988 and 1992. Of the original 87, 2 cooperatives went out of business, 4 were sold to another company, 10 participated in mergers, and 24 acquired additional facilities.

To compensate for lost storage income, elevators were forced to compete in the merchandising and ser-

Table 24—Average Financial Data for 55 Grain Marketing Cooperatives, 1987 and 1991

Group	Number	Total Assets		Net Income		Net Worth	
		1987	1991	1987	1991	1987	1991
All	55	6,096,587	8,378,953	355,540	276,654	3,063,401	3,742,980
Production Region							
Spring Wheat	18	5,127,478	5,844,700	230,375	188,439 c	2,278,007	2,617,429 c
Corn	20	7,245,634	11,832,071	547,251	520,549 SW	3,724,082	5,167,534 s
Winter Wheat	17	5,770,880	6,999,786	272,317	103,496 c	3,117,725	3,258,794
Progressiveness							
Progressive	19	8,481,236 i	13,569,734 i	613,908 ic	407,608	3,995,394	5,131,264
Intermediate	23	4,426,062 p	5,006,984 p	235,789 p	188,367	2,397,425	2,691,926
Conservative	13	5,566,873	6,758,216	179,131 p	238,179	2,879,524	3,573,507
Size (storage capacity)							
Small	19	2,565,435 l	3,357,227 l	147,386 l	101,194 l	1,498,109 l	1,746,039 l
Medium	19	4,685,359 l	5,598,537 l	263,247 l	275,734	2,485,422 l	3,127,409 l
Large	17	11,620,422 sm	17,098,993 sm	677,808 sm	462,886 s	5,458,822 sm	6,662,847 sm

▪ Statistical significance between groups in a particular category is represented by the first letter of the other group to which a specific group is compared. A .05 level of significance is used.

Table 25—The Change in Average Financial Data from 1987 to 1991 for 55 Grain Marketing Cooperatives

Group	Number	Total Assets	Net Income	Net Worth
All	55	2,282,366*	-76,666	679,579''
Production Region				
Spring Wheat	18	717,222	-41,936	339,422''
Corn	20	4,586,437*	-26,703	1,443,452*
Winter Wheat	17	1,228,906	-168,820*	218,963
Progressiveness				
Progressive	19	5,088,498*	-206,300	1,208,346
Intermediate	23	580,922	-47,422	329,086
Conservative	13	1,191,343	-59,048	795,844''
Size (storage capacity)				
Small	19	791,792'	-46,192	247,929*
Medium	19	913,178	-12,487	641,986'
Large	17	5,478,570*	-214,922	1,204,026*

. For changes between 1987 and 1991, an asterisk (*) represents a .05 level of statistical significance.

vice areas. Elevators began using more refined cash contracts to buy and sell grain. Less grain was purchased with cash or sold on cash spot markets. Cooperatives also turned more merchandising services over to other organizations. Internal handling of activities such as short-term financing and accounting was also up. Cooperative elevators also increased services to patrons such as brokerage, grain drying, and fertilizer application.

The changing structure of the cooperative country elevator system has two implications. The first is that as consolidation continues, competition between cooperative elevators will intensify. Competition in services increased between 1988 and 1992, especially in drying, seed cleaning, fertilizer application, and soil testing. Competition in the merchandising functions of cooperative elevators was reflected by more sophisticated grain acquisition and selling methods between 1988 and 1992. Thirteen of the cooperatives changed their merchandising policies, 12 of which added a merchandising policy.

Competition will force out less efficient operations and increase mergers. Only the most efficient elevators will survive. In 1992, there were 1,243 grain and oilseed cooperatives in the United States, compared with only 1,104, by 1995. The consolidation pattern continues.

The second implication is long-term operating efficiency in the wake of continued consolidation. As

fewer and larger cooperatives evolve, the board, management, and members need to push for greater efficiency.

Comparing operations with similar cooperatives is one way to assess cooperative elevator efficiency. Regional cooperatives and USDA maintain financial and operational data on cooperative country elevators. By looking at various ratios and comparing those with cooperatives of similar size and activity, local grain cooperatives can identify both strengths and weaknesses.

A second measure of a local cooperative's efficiency occurs at the edge of its market area. The adding of new members and/or business in this area would indicate an efficient operation. The opposite is true if the cooperative is losing members and/or business.

Finally, cooperatives are controlled by boards of directors composed of owner-members who monitor the financial position of the company. Changes in margins and certain operating ratios can indicate possible efficiency problems. These can be immediately addressed.

Table 26—Average Financial Indicators for 55 Grain Marketing Cooperatives and the Differences Between 1987 and 1991 ^a

Group	Number	Current Ratio			Debt/Net Worth			Debt/Total Assets			Return-on-Equity			Return-on-Assets		
		1987	1991	Change	1987	1991	Change	1987	1991	Change	1987	1991	Change	1987	1991	Change
All	55	1.70	1.59	-0.11	1.80	1.14	0.88	0.45	0.47	0.02	11.92	7.34	-4.58'	6.09	3.53	-2.56*
Production																
Region																
Spring Wheat	18	1.53	1.32	-0.21	1.55 cw	1.54	-0.01	0.55 w	0.54 w	-0.01	12.71	8.69 w	-4.02'	5.30 c	3.40 SW	-1.90*
Corn	20	1.35	1.53	0.18	0.97 s	1.06	0.09	0.45	0.47	0.02	4.61 w	10.34 w	-4.27'	7.87 sw	5.81 cw	-2.06'
Winter Wheat	17	2.27	1.93	-0.34	0.71 s	0.81	0.10	0.36 s	0.39s	0.03	7.92 c	2.41 sc	-5.51'	4.84 c	1.01 SC	-3.83'
Progressiveness																
Progressive	19	1.56	1.44	-0.12	1.07	1.30	0.23	0.46	0.51	0.05	15.00 c	7.97	-7.03'	7.61 c	3.83	-3.78'
Intermediate	23	1.54	1.52	-0.02	1.14	1.09	-0.05	0.45	0.44	0.01	12.53 c	7.96	-4.57'	6.46 c	4.04	-2.41 .
Conservative	13	2.21	1.96	-0.25	0.99	1.00	0.01	0.45	0.44	-0.01	6.34 pi	5.35	-0.99	3.23 pi	2.21	-1.02
Size (storage capacity)																
Small	19	2.05	1.82	-0.23	0.92	1.05	0.13	0.41	0.42	0.01	11.76	7.04	-4.72*	6.67	3.44	-3.23'
Medium	19	1.59	1.64	0.05	1.19	1.05	-0.14	0.44	0.45	0.01	12.06	8.40	-3.66'	5.99	4.02	-1.97*
Large	17	1.49	1.29	-0.20	1.12	1.35	0.23	0.50	0.53	0.03	11.96	8.52	-5.44'	5.57	3.10	-2.47'

^a Statistical significance between groups in a particular category is indicated by the first letter of the other group to which a specific group is compared. A .05 level of significance is used.

* For changes between 1987 and 1991, an asterisk (*) represents a .05 level of statistical significance.

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The cooperative segment of RBS (1) helps farmers and other rural residents develop cooperatives to 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. RBS also publishes research and educational materials and issues *Rural Cooperatives* magazine.

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