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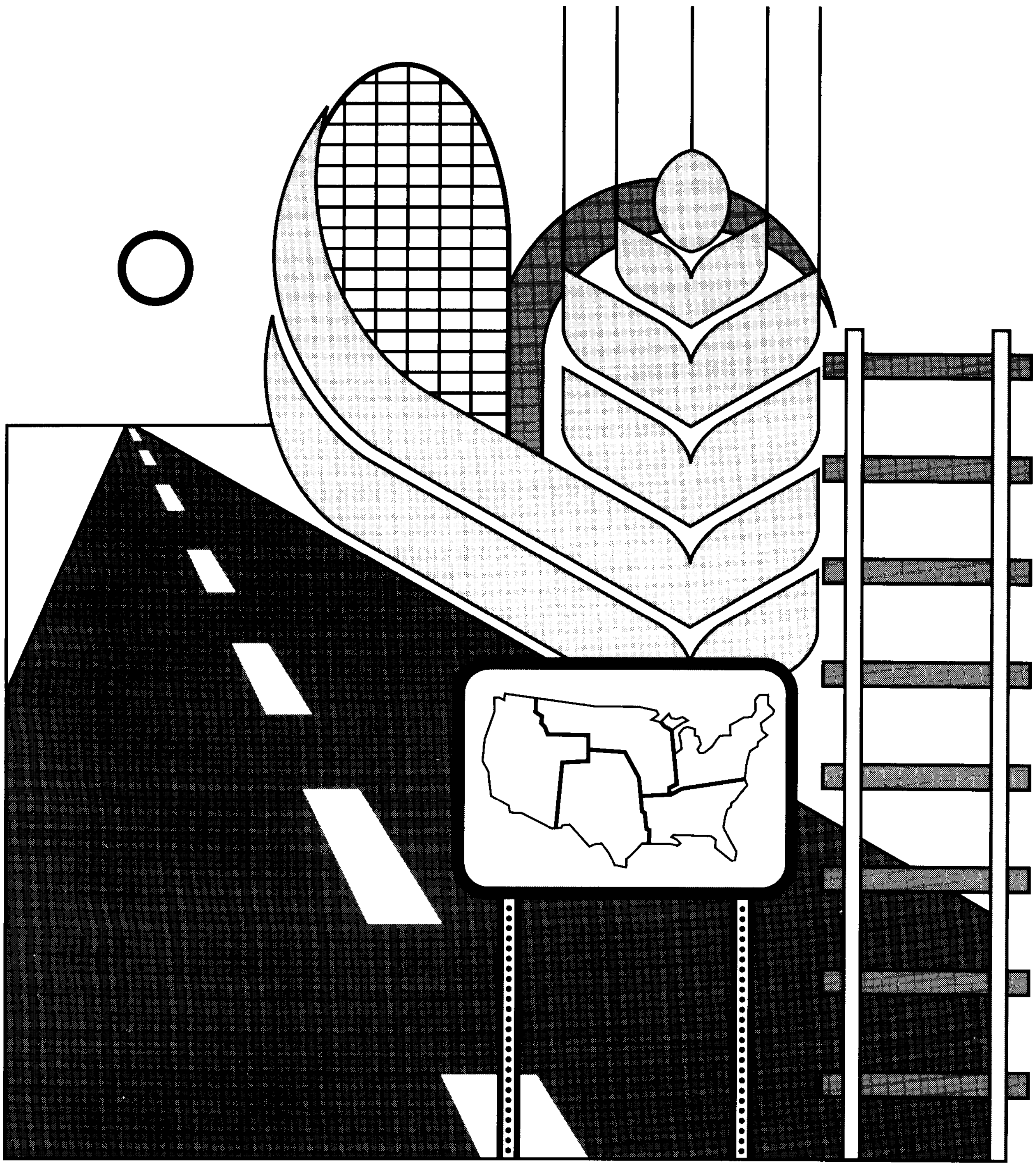
Marketing and Transportation of Grain By Local Cooperatives



Abstract

Marketing and Transportation of Grain by Local Cooperatives

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A total of 1,749 local cooperative associations handled 5.1 billion bushels of grain during the 1990-91 marketing period. Cooperative grain storage totaled 3 billion bushels. Corn, at 2.1 billion bushels, was the leading grain marketed. Wheat was second at 1.3 billion bushels. More than half the grain sold by cooperatives was moved by truck.

Key Words: Cooperative, first-handler, grain-handling, grain transportation.

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Preface

This study focuses on first-handlers-of-grain cooperatives for the fiscal years ending in calendar year 1991. It is comparable with studies previously conducted by the Agricultural Cooperative Service covering 1985-86 (ACS Research Report 70), 1982-83 (ACS Research Report 47), and 1979-80 (ACS Research Report 35). The statistics are expanded survey data based on a 43-percent sample of the Nation's local first-handlers-of-grain cooperatives. The term "cooperative," as used in this report, refers to local cooperative associations that were first-handlers of grain plus the first-handler operations of regional cooperatives that operated line elevators. The Nation was divided into five regions for this study.

The authors express sincere appreciation to the more than 750 cooperative managers who furnished the information that made this report possible.

Contents

Highlights

- Local grain-handling cooperatives handled an average of 2.9 million bushels of grain per association in the 1990-91 marketing period. That amount included grain handled through the grain bank and Commodity Credit Corporation (CCC) programs.
- Storage capacity per cooperative association averaged 1.7 million bushels. Taking the number of locations per association into account (2.3), average storage capacity per location was about 740,000 bushels. Storage capacity per location was virtually unchanged compared with 5 years ago, but capacity per association increased about 13 percent.
- About 94 percent of the grain-handling associations were licensed by Federal and/or State agencies. Most had a State license; about 15 percent had both.
- About 44 percent of the grain sold was corn. Wheat accounted for about 27 percent, while soybeans accounted for 14 percent and grain sorghum 8 percent. Eleven other grains made up the balance.
- The overall turnover rate (ratio of grain handled to storage capacity) was 1.7, unchanged from the 198586 marketing period, but slightly lower than in previous years studied.
- Excluding grain bank and CCC grain, 8 percent of the grain handled was sold locally, 43 percent was sold to other cooperatives, and 49 percent went to noncooperative grain dealers. Marketing through other cooperatives was unchanged from 198586, while the reduction in local sales was offset by sales to noncooperative businesses.
- Local cooperatives transported about 53 percent of their grain marketed by truck, 45 percent by rail, and 2 percent by barge or other conveyance. Of the grain shipped by rail, though down from 46 percent in 1985-86, about 34 percent was shipped in units of 2-24 railcars. Units of 25-49 railcars and 50-74 railcars each accounted for about 25 percent of total volume shipped. About 17 percent of the cooperative locations were capable of loading units of 25 or more cars.
- In the past 3 years, about 3 percent of locally owned cooperative elevators lost rail service through abandonment.

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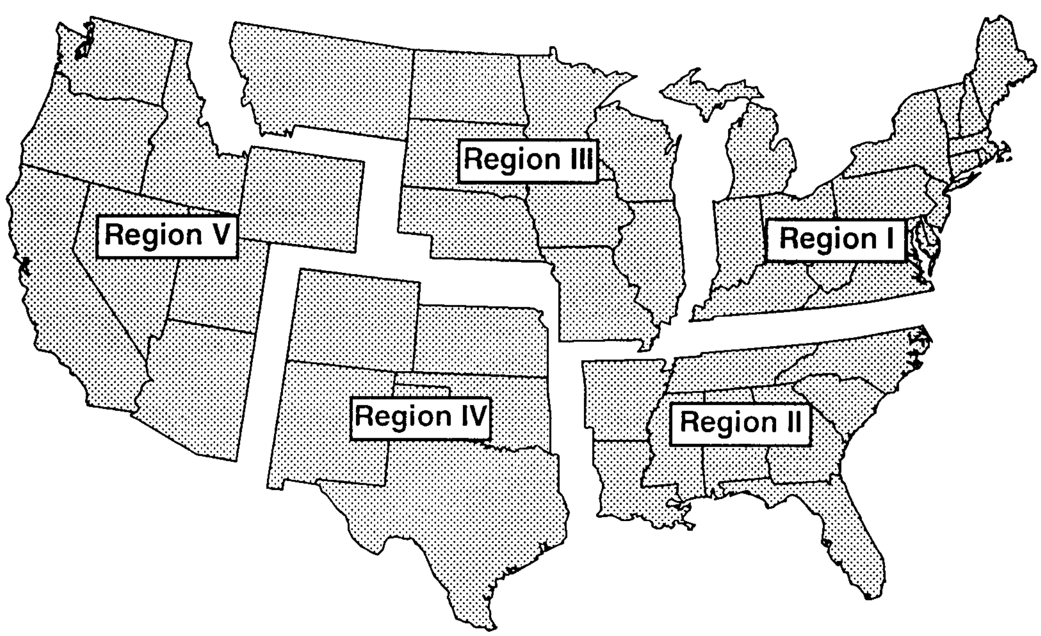
Local grain-handling cooperatives are extensively involved in the movement of grain from the **farmgate** into the marketing channels that provide farmers access to domestic and international markets. These local cooperatives consolidate the harvest from individual farms into larger volumes that command the respect and meet the needs of major buyers.

Local cooperatives are seen as the marketing eyes and ears of producers to alternative marketing practices that will enhance the economic well-being of their producer-members, related agribusinesses, and other members of rural communities throughout the United States. Local farmer-owned grain marketing cooperatives provide related services through programs that assemble grain and furnish market intelligence. They also consolidate marketing services for the vast volumes of grain produced, harvested over short periods of time, and stored and marketed over extended periods.

PROFILE OF LOCAL GRAIN-HANDLING COOPERATIVES

Cooperatives handled a diversity of grains, usually dictated by the different grains produced and marketed by members. Both membership and grain marketed varied widely among the five designated regions used in this report (fig. 1).

Figure 1— **Reporting Regions**



Membership in Local Cooperatives

The number of producers that were members of local cooperatives dropped when compared with the 1985-86 survey period. This reflects declining numbers of local cooperatives during the two survey periods. Total membership dropped 27 percent during the 5-year period. Average membership declined 17 percent, from 1,125 to 939 members per cooperative (table 1). These changes in part reflect local cooperative mergers, yet the average number per cooperative continued to decline as producers consolidated into larger farming units and looked for alternative marketing options not offered by cooperatives.

Region II had the largest average membership, with 3,354 members per association. Regions I and V had an average membership of about 1,018 and regions III and IV showed about 800 and 900, respectively. Grain producers amounted to about 50 percent of total membership, varying from 72 percent in region V to 9 percent in region II.

Licensed Local Grain Storage Capacity

Nearly all (94 percent) of the grain handling cooperatives were licensed to store and market grain. Of them, 60 percent had only a State license, 24 percent had only a Federal license and 16 percent had both.

About 98 percent of the local associations in region IV and about 94 percent in region III were licensed either by their respective states or through Federal licensing procedures. The percentage of the licensed associations in region II was considerably lower (table 2).

Compared with 1985-86 and other survey years, the percent of licensed associations was essentially unchanged. Also, the proportion of Federal to State licenses showed little change from 1979-80.

Type of Storage Capacity

The upright elevator (height greater than width) was the predominate type of grain storage facility. It made up about 81 percent of all storage capacity controlled by local cooperatives. This is up about 5 percentage points from 1985-86, but the same as for earlier study periods (see regional comparison in table 3).

Nearly all cooperatives indicated at least some flat storage capacity, mostly used as temporary storage for grain during or shortly after harvest, otherwise used for storing other commodities or housing equipment.

Table 1— **Membership in local grain-handling cooperative associations, by region, 1990-91**

Region	Associations	Members		Total
		Grain producers	All others	
		Number		
I	166	99,269	69,740	169,009
II	53	14,997	162,754	177,751
III	966	430,619	346.452	777,071
IV	507	247,802	213,169	460,971
V	57	41,887	16,182	58,069
All regions:				
1990-91	1,749	834,574	808,297	1,642,871
1985-86	2,002	1,144,895	1,106,559	2,251,454
1982-83	2,060	1,235,803	631,439	1,867,242
1979-80	2,339	1,481,771	1,043,597	2,525,368

Table 2— Cooperative associations with licensed grain storage warehouses, by type of license and region, 1990-91

Region	Total	Type of license			No license
		Federal	State	Federal and State	
			Number		
I	147	34	54	59	19
II	33	10	16	7	20
III	911	177	575	159	55
IV	495	164	298	33	12
V	57	11	37	9	
All regions:					
1990-91	1,643	396	980	267	106
198586	1,874	407	1,203	264	128
1982-83	1,937	486	1,220	231	123
1979-80	2,079	497	1,329	253	260

Table 3— Grain storage capacity of local cooperative associations, by storage type and region, 1990-91

Region	Total capacity	Type of storage	
		Upright	Flat
	1,000 bu.	*Percent*	
I	280,523	89	11
II	134,230	89	11
III	1,310,116	82	18
IV	1,055,337	74	26
V	225.667	84	16
All regions:			
1990-91	3,005,873	81	19
1985-86	3,015,739	76	24
1982-83	2,514,930	81	19
1979-80	2,334,743	81	19

Storage Capacity

Total storage capacity of local cooperative elevators reversed the upward trend of previous study periods. Changes in storage capacity varied among regions-those in regions I, IV, and V increased while those in regions II and III declined. Overall, total storage declined less than 1 percent from 1985-86, but still remained above the levels in 1982-83 and 1979-80 (table 3).

Overall, cooperative elevator storage capacity in 1990-91 averaged about 1.7 million bushels per association, up about 15 percent since 1985-86 (table 4 and fig. 2). Average storage capacity varied widely among regions-nearly 3.5 million bushels in region V to just below 1.5 million in region III.

Storage capacity per location averaged 740,000 bushels in 1990-91, virtually unchanged from 5 years earlier. Capacity per location averaged highest in region II at about 1 million bushels and lowest in region I at 576,000 bushels (table 4).

Mergers, consolidations, and acquisitions are reflected in the significant 15-percent increase to 2.3 in the number of locations per association. Region V associations had the largest average number of locations at 5.3, reflecting the large area serviced per cooperative.

Figure 2— Storage Capacity per Association, Local Grain-Handling Co-ops, U.S., Selected Years

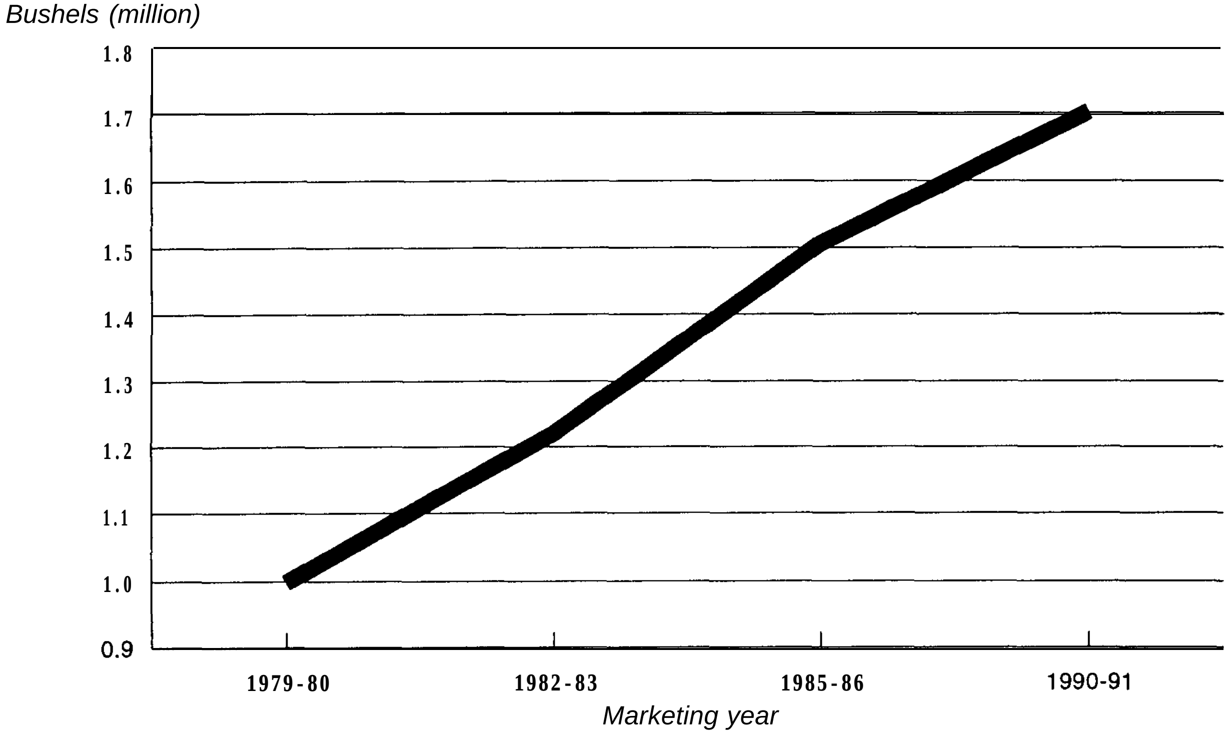


Table 4— Local grain-handling cooperatives: locations per association and storage capacity, by region, 1990-91

Region	Associations	Locations per association	Storage capacity	
			Per association	Per location
	Number	Number	1,000 bushels	1,000 bushels
I	166	2.8	1,595	576
II	53	2.6	2,557	1001
III	966	2.0	1,357	678
IV	507	2.3	2,080	905
V	57	5.3	3,472	664
All regions:				
1990-91	1,749	2.3	1,702	740
1985-86	2,002	2.0	1,506	737
1982-83	2,060	1.9	1,221	634
1979-80	2,339	1.7	998	574

Use of facilities showed no change from 1985-86, but remained below the rates of 10 years ago. The annual overall turnover rate (ratio of volume handled to total storage capacity) was 1.7. It varied widely among regions (table 5).

GRAIN VOLUME

Local cooperatives handled about 5.1 billion bushels of grain during their 1991 fiscal years. This included grain handled for regular marketing channels, grain bank programs, and Commodity Credit Corporation (CCC). Cooperatives in region I handled the largest volume per association at 3.3 million bushels, followed closely by region IV at 3.1 million bushels (table 5). Grain handled averaged 1.3 million bushels per location for all cooperatives.

Cooperatives in region III continued to be the largest assemblers of grain, handling 54 percent of the total in 1990-91. Region IV had 28 percent. Compared with 1985-86, region III decreased (4 percentage points) and region IV gained (five percentage points) in their shares of total grains handled by local cooperatives (table 6). Region III was the major assembler of all grains except sorghum, rapeseed, and canola. Rapeseed showed up in only region V.

The total volume of grain moving into regular marketing channels through local cooperatives in 1990-91 was up 40 percent from 1985-86 (table 7). Grain marketed per association rose nearly 60 percent (fig. 3). Much of this increase reflects the changes in the Government storage and export enhancement programs, which encouraged a more aggressive movement of grains directly into marketing channels.

Corn was the major grain (44 percent) moving into regular marketing channels. Wheat was next at 27 percent, soybeans at 14 percent, and grain sorghum at 8 percent (table 8 and fig. 4).

CCC grain storage and handling declined more than 1 billion bushels from 1985-86 to 146.2 million bushels in 1990-91. Seventy percent of total CCC grain handled was corn, followed by wheat at 21 percent (table 9). Cooperatives in regions III and IV accounted for 89 percent of the CCC grain handled (table 10).

Table 5—Grain volume handled per association and location, and turnover rate, by region, 1990-91

Region	Grain volume handled [1] Total	Per association	Per location	Turnover rate [2]
	1,000 bushels			Ratio
I	575,745	3,271	1,182	2.05
II	112,266	2,118	838	0.84
III	2,794,440	2,892	1,446	2.13
IV	1,436,809	2,834	1,232	1.36
V	204,663	3,149	602	0.91
All regions:				
1990-91	5,123,923	2,900	1,262	1.70
1985-86	5,068,212	2,532	1,239	1.70
1982-83	4,696,414	2,270	1,184	1.90
1979-80	4,578,081	1,957	1,125	2.00

[1] Includes grain bank and CCC grain.
[2] The ratio of volume handled to storage capacity.

Table 6— **Distribution of grains handled by local cooperative associations, by region, 1990-91**

Type of grain	Region I	Region II	Region III	Region IV	Region V	Total
	Percent					
Corn	17	1	61	21		100
Wheat	4	1	46	36	12	100
Soybeans	20	7	65	8		100
Sorghum		2	5	93		100
Oats	15	10	67	7	1	100
Barley	1		83	1	16	100
Rye			99	1		100
Flax			100			100
Canola	54		25		20	100
Rapeseed					100	100
Sunflower			98	2		100
Buckwheat			100			100
Millet			86	14		100
Triticale			75	10	14	100
Safflower			100			100
All grains:						
1990-91	12	2	54	28	4	100
1985-86	11	4	58	23	4	100
1982-83	13	5	54	24	4	100
1979-80	12	8	52	22	6	100

Table 7— **Grain volume marketed: Total and average per association and location, by region, 1990-91**

Region	Grain volume marketed [1]: Total	Per association	Per location
	1,000 bushels		
I	556,470	3,162	1,143
II	111,145	2,097	829
III	2,604,713	2,696	1,347
IV	1,314,944	2,594	1,278
V	194,052	2,985	571
All regions:			
1990-91	4,781,324	2,706	1,178
1985-86	3,403,760	1,700	832
1982-83	3,920,968	1,904	989
1979-80	4,578,081	1,957	1,124

[1] Does not include Grain Bank and CCC programs grain.

Table 8— **Volumes of selected grains marketed by local cooperative associations through regular market channels, 1990-91**

Type of grain	Regular market volumes: Total	Distribution
	7,000 bushels	*Percent*
Corn	2,115,847	44
Wheat	1,283,354	27
Soybeans	666,869	14
Grain Sorghum	378,690	8
Oats	83,287	2
Barley	193,631	4
Rye	5,006	([1])
Flax	2,251	([1])
Canola	958	([1])
Rapeseed	3	([1])
Sunflower	45,441	1
Buckwheat	149	([1])
Millet	5,334	([1])
Triticale	464	([1])
Safflower	40	([1])
Total	4,781,324	100

[1] Less than 0.5 percent.

Figure 3— **Grain Marketed per Association, Local Grain-Handling Co-ops, U.S., Selected Years**

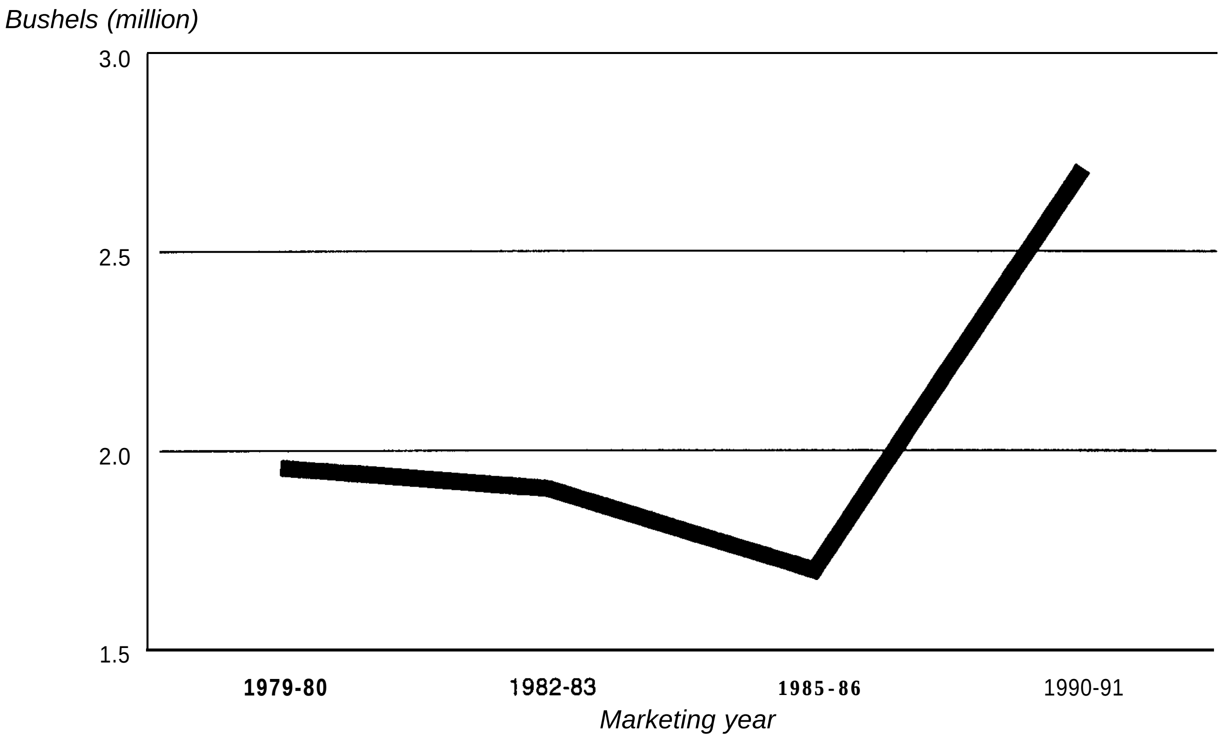


Figure 4— **Distribution of Grains Marketed by Local Grain-Handling Co-ops, U.S., 1990-91**

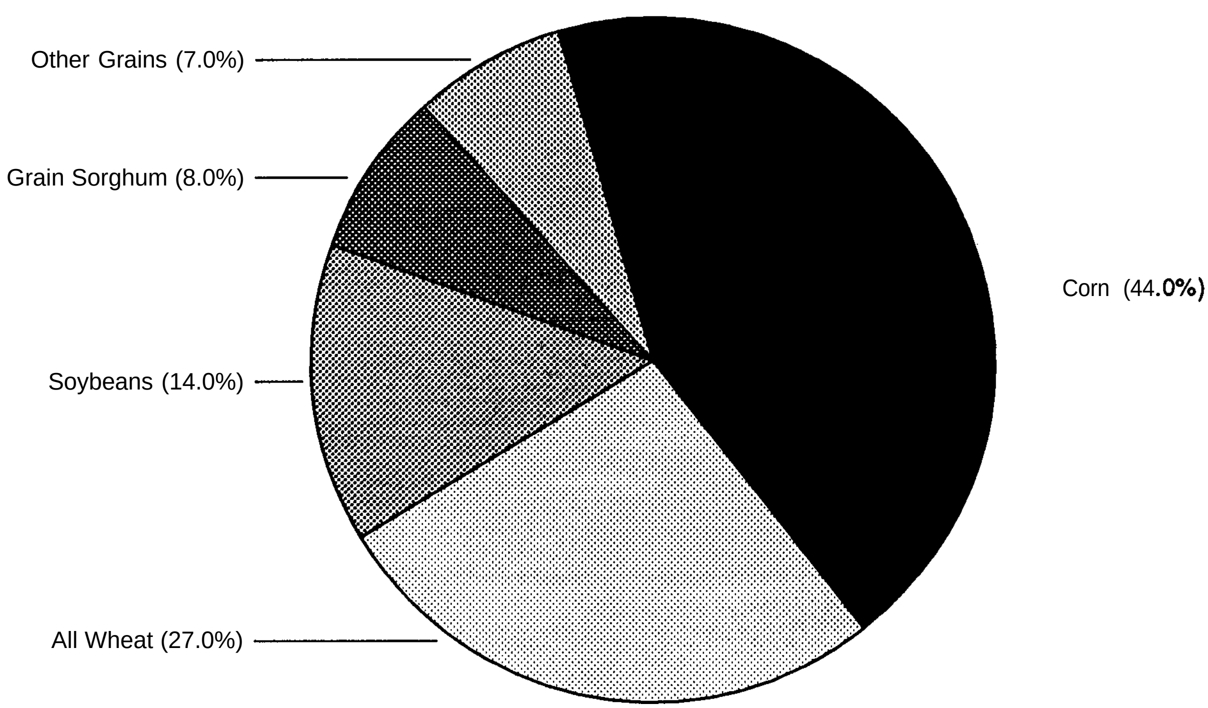


Table 9— **Regular market, Grain Bank, and CCC grains handled by local cooperative associations, by type of grain, 1990-91**

Grain	Grain handled		
	Regular market	Grain Bank	CCC [1]
	1,000 bushels		
Corn	2,115,847	132,329	102,776
Wheat	1,283,354	24,937	30,096
Soybeans	666,869	13,929	2,618
Grain Sorghum	378,690	18,778	9,908
Oats	83,287	5,643	10
Barley	193,631	854	760
Rye	5,006		
Flax	2,251		
Sunflower	45,441		
Other grains [2]	6,946		
Total:			
1990-91	4,781,322	196,470	146,168
1985-86	3,403,760	471,142	1,193,310
1982-83	3,920,968	283,603	491,659
1979-80	4,350,569	115,325	112,187

[1] Commodity Credit Corporation.
[2] Buckwheat, millet, rape, triticale, and safflower.

Grain Bank

Member participation in grain bank programs was down 58 percent in 1990-91 from 1985-86. Corn accounted for 67 percent of all bank grain handled. Cooperatives in regions III and IV handled 92 percent of all the activity (tables 9 and 10).

Disposition of Grain Sales

Local cooperatives assemble grain supplies as the initial stop in the marketing chain. Forty-three percent of total grains sold by local cooperatives went to other cooperative organizations, unchanged from 1985-86. This group included regional cooperatives, merchandisers, feed manufacturers, and processors. Local marketing decreased 3 percentage points compared with 1985-86. Of the grain sold locally, about 60 percent was used for locally manufactured feed. Another 24 percent was sold to local farmers as grain and 16 percent to truckers who buy for resale. Marketing to noncooperative companies continued to increase, reaching nearly half of total local cooperative grain sales (table 11 and fig. 5).

Table lo- **Grain Bank and CCC grain handled by local cooperative associations, by region, 1990-91**

Region	Grain Bank grain		CCC Grain	
	Volume	Distribution of volume	Volume	Distribution of volume
	1,000 bushels	*Percent*	*1,000 bushels*	*Percent*
I	13,754	7	5,522	4
II	1,151	1	0	0
III	106,960	54	82,767	57
IV	74,201	38	47,664	32
V	406	1/	10,206	7
All regions:				
1990-91	196,472	100	146,159	100
1985-86	471,142		1,193,310	
1982-83	283,603		491,659	
1979-80	115,325		112,187	

[1] Less than 0.5 percent.

The percentage of marketings by local cooperatives to other cooperatives increased in regions III and V, but declined elsewhere (appendix table 2).

The proportion of each grain sold to different outlets varied greatly. About 35 percent of all oats was sold locally, while only about 1 percent of the wheat and soybeans was sold locally or to truckers. About 54 percent of the wheat and 52 percent of the soybeans stayed in cooperative channels. About 51 percent of the corn moved to noncooperative companies and 13 percent was marketed locally (appendix table 3).

Table 11— **Distribution by market outlet of grain sold by local cooperative associations, 1990-91**

Region	Grain sold: Locally		To cooperatives		To noncooperatives	
	1990-91	1985-86	1990-91	1985-86	1990-91	1985-86
	Percent					
I	7	9	29	35	64	56
II	4	19	13	21	83	60
III	9	10	55	49	36	41
IV	9	14	26	37	65	49
V	2	1	45	29	53	70
All Regions	8	11	43	43	49	46

Figure 5— **Grain Volume Sold by Market Outlet, Local Grain-Handling Co-ops, U.S., Selected Years**

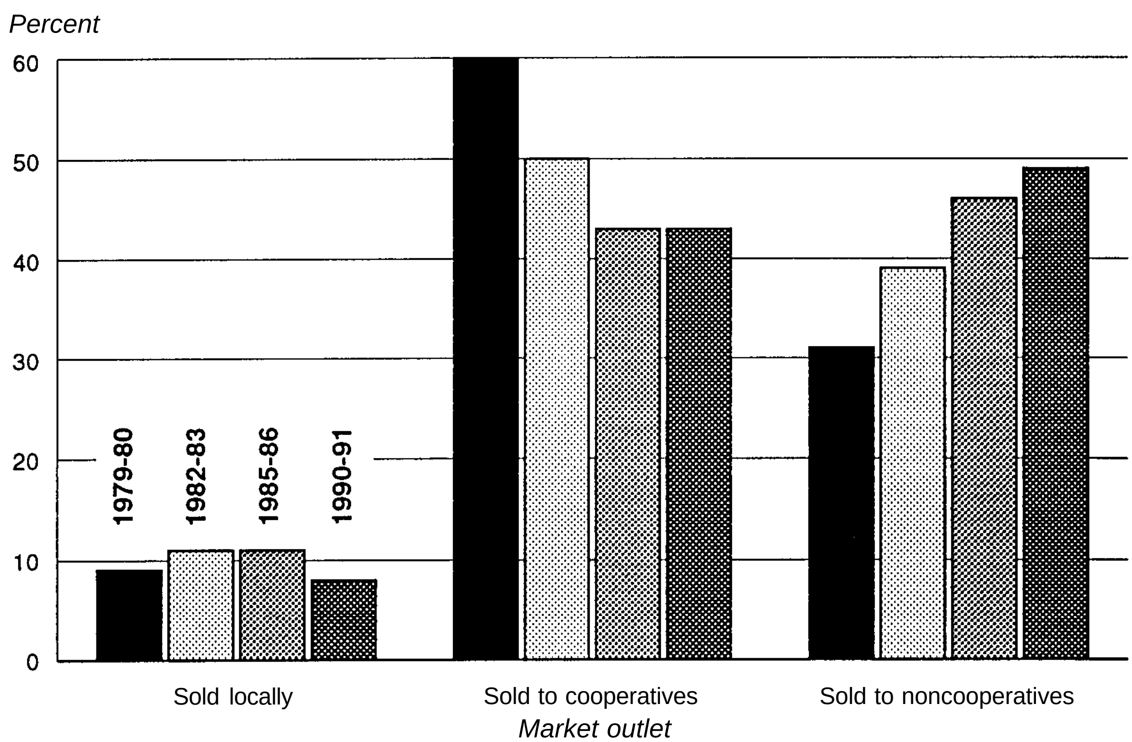


Table 12— Distribution of grain marketed by local cooperative associations, by mode of transportation, by region, 1990-91 and 1985-86

Region	Mode of transportation					
	Truck		Rail		Other	
	1990-91	1985-86	1990-91	1985-86	1990-91	1985-86
	Percent					
I	56	54	43	44	1	2
II	81	54	2	27	17	19
III	50	52	49	48	1	([1])
IV	57	55	42	45	1	
V	26	30	37	51	37	19
All regions	53	52	45	46	2	2

[1] Less than 0.5 percent.

Table 13— Distribution of grain marketed by local cooperative associations by mode of transportation, by type of grain, 1990-91 and 1985-86

Type of grain	Mode of transportation					
	Truck		Rail		Other	
	1990-91	1985-86	1990-91	198586	1990-91	1985-86
	Percent					
Corn	51	57	48	42	1	1
Wheat	40	30	54	67	6	3
Soybeans	71	71	27	26	2	3
Sorghum	72	72	27	27	1	1
Oats	83	74	17	26	([1])	([1])
Barley	41	30	58	67	1	3
Rye	44	29	56	71	1	
Flax	57	64	43	36		
Canola	70		30			
Rapeseed	100	100				
Sunflower	78	48	22	52		
Buckwheat	88	28	12	72		
Millet	37	63	63	37		
Triticale	100	100				
Safflower	100	96	4			
All grains	53	52	45	46	2	2

[1] Less than 0.5 percent.

Mode of Transportation

Local cooperative elevators slightly increased their use of trucks to transport grain in 1990-91—to 53 percent of their grain marketed from 52 percent in 1985-86. Truck transportation increased sharply in region II in 1990-91 to 81 percent of total region II grain shipped (table 12).

Mode of shipment varied widely by type of grain. The proportion of corn shipped by truck declined 6 percentage points from 1985-86, to 51 percent in 1990-91. Most other major grains showed an increase. Shipment of wheat by truck grew from 30 percent in 1985-86 to 40 percent. Trucks continued as the primary vehicle (71 percent) for shipping soybeans (table 13).

Railroads handled 45 percent of grain volume marketed by local cooperatives, down 1 percentage point from 1985-86. Cooperatives in region III were the biggest users of rail shipments, shipping about 49 percent of total marketings by rail. Rates in regions I and IV were 43 and 42 percent, respectively. In contrast, cooperatives in region II shipped only 2 percent of their grain by rail. Region V cooperatives significantly increased shipment by water to 37 percent. Region II cooperatives used water for 17 percent of their shipments.

Table 14— **Storage capacity on major railroads serving local cooperatives, by region, 1990-91**

		Region				
Rail road	Total	I	II	III	IV	V
		1,000 bushels				
Burlington Northern, Inc.	539,772	—	8,792	220,490	272,354	38,136
Union Pacific Railroad Co.	291,371	—	40,378	6,416	181,947	62,630
Atchison, Topeka & Santa Fe	276,029	—	—	7,911	268,117	—
Chicago & North Western	245,610	—	—	228,564	17,046	—
Norfolk Southern	99,342	61,081	3,224	35,037	—	—
Soo Line	82,409	—	—	82,409	—	—
CSX Transportation	73,628	59,459	3,425	10,744	—	—
Illinois Central Railroad Co.	63,794	—	1,842	61,953	—	—
Kyle Railroad	52,276	—	—	—	52,276	—
St. Louis Southwestern	44,212	—	15,533	15,352	13,326	—
Missouri Pacific	43,478	—	—	8,763	34,715	—
Southern Pacific	42,109	—	20,601	859	5,815	14,833
Chicago, Central & Pacific	39,430	70	—	39.360	—	—
Toledo, Peoria & Western	22,532	10,844	—	11,688	—	—
Huron & Eastern Railway	20,583	20,583	—	—	—	—
Red River Valley & Western	20,194	—	—	20,194	—	—
Dakota, Minnesota & Eastern	19,012	—	—	19,012	—	—
MNVA Railroad	16,284	—	—	16,284	—	—
Iowa Northern Railway Co.	16,152	—	—	16,152	—	—
Iowa Interstate Railroad, Ltd.	14,258	—	—	14,258	—	—
Dakota Southern Railway	13,560	—	—	13,560	—	—
Consolidated Rail Corporation	13,065	11,807	—	1,258	—	—

Burlington Northern (BN) Railroad served about 25 percent of the cooperatives' storage located on operative rail lines. The Union Pacific and the Atchinson, Topeka, and Santa Fe railroads were next, each with about 13 percent (table 14).

Railcars Per Shipment

Grain shipped in multiple-car units continued to increase in 1990-91 while single-car shipments declined to 5 percent. Use of 2-24 and 100 or more car units declined while use of 25-49, 50-74, and 75-99 car units increased. In region III, the largest grain shipping area, 34 percent of the rail grain shipped moved in 50-74 car units, 29 percent in 25-49 car units, 20 percent in 2-24 car units, and 12 percent in *75-99* car units (table 15 and fig. 6).

Thirty percent of the corn volume shipped by rail and 60 percent of the sorghum went in 2-24 car units. Volumes of the major grains shipped were about the same for 24-49 car units and 50-74 car units (table 16).

Unit-Train Loading Facilities

About 28 percent of all local cooperative associations and about 17 percent of all cooperatively controlled locations were capable of handling unit-trains of 25 or more cars.

Storage capacity per location with unit-train capability averaged 1.4 million bushels. Region III had the smallest capacity per location at 1.1 million

Figure 6—Grain Volume Marketed by Railcars/Unit, Local Grain-Handling Co-ops, U.S., Selected Years

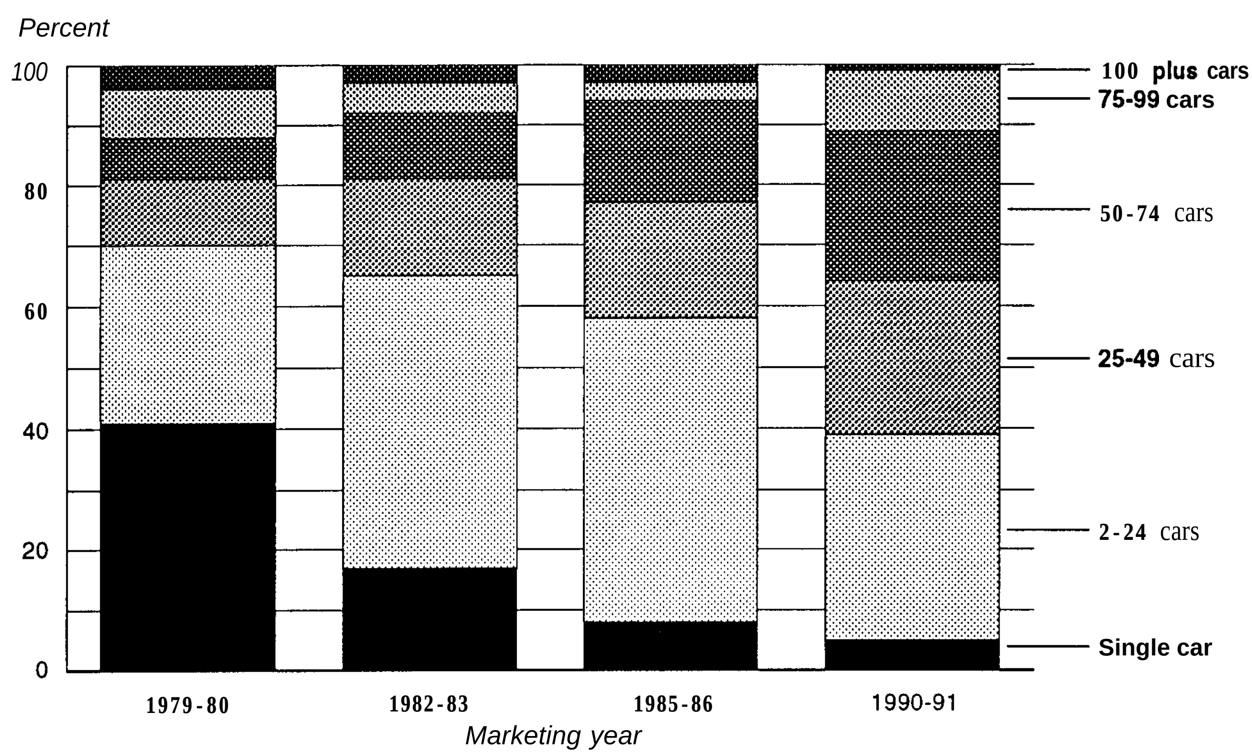


Table 15 — Percentage distribution of rail shipments by local cooperative associations by number of railcars per shipment, by region, 1990-91

Region	Volume	Number of cars in rail shipment					
		Single	2-24	25-49	50-74	75-99	loo plus
	1,000 bushels	Percent					
I	238,880	1	69	7	20		3
II	2,389	8	92				
III	1,290,517	5	20	29	34	12	
IV	546,263	6	54	15	15	9	1
V	70,989	1	20	79			
All regions:							
1990-91	2,149,038	5	34	25	25	10	1
1985-86	1,575,486	8	50	19	17	3	3
1982-83	1,661,769	17	48	16	11	5	3
1979-80	1,866,907	41	29	11	7	8	4

Table 16-Percentage **distribution of volume of selected major grains shipped by rail by local cooperative associations, by number of railcars per shipment, 1990-91**

Number of cars	Type of grain					
	Corn	Wheat	Soybeans	Sorghum	Oats	Barley
	Percent					
Single	2	7	4	6	9	8
2-24	30	39	32	60	46	24
24-49	24	26	22	11	20	41
50-74	26	28	28	17	25	27
75-99	17	(1)	13	6		
100 or more	1	(1)	1	(1)		

[1] Less than 0.5 percent.

Table 17— **Number of cooperative associations and number of locations capable of loading 25 or more car units and storage capacity per association and location, by region, 1990-91**

Region	Associations	Locations	Storage capacity		
			Total	Per association	Per location
	---------- *Number* ----------		---------- *1,000 bushels* ----------		
I	32	43	86,527	2,708	1,998
II	1	4	33,242	33,242	8,310
III	347	487	531,015	1,530	1,092
IV	81	114	225,105	2,787	1,972
V	24	32	53,060	2,221	1,644
Total	485	680	928,949	1,917	1,366

bushels, while those in region II averaged 8.3 million bushels. The other regions ranged from 1.6 to 2.0 million bushels (table 17).

Railroad Abandonment

Rail service lost because of abandonment occurred at 126 cooperative elevator locations during the 1988-91 period, down sharply from the 289 locations affected during 1983-86. Storage capacity for the 126 locations averaged about 600,000 bushels (table 18). Nearly half of the 126 locations were in region III, and accounted for 61 percent of total abandoned capacity. Region II had the fewest abandonments, while region I had the smallest amount of storage capacity abandoned.

Table 18— Storage capacity of cooperative associations and locations where rail service was discontinued during 1988-91, by region, 1990-91

Region	Associations	Locations	Storage capacity		
			Total	Per association	Per location
	Number		1,000 bushels		
I	10	13	3,589	359	276
II	8	8	5,955	744	744
III	58	60	45,718	788	762
IV	18	18	8,711	484	484
V	22	27	10,738	488	398
Total	116	126	74,711	644	593

Appendix

Appendix Table I-Volumes **of grains marketed by local cooperative associations, by region, 1990-91**

Type of grain	Region I	II	III	IV	V	Total
			1,000 bushels			
Corn	358,151	28,819	1,288,198	434,406	6,273	**2,115,847**
Wheat	50,577	18,530	590,884	467,133	156,230	**1,283,354**
Soybeans	133,367	49,347	432,528	51,627		666,869
Sorghum	253	6,273	19,838	352,303	23	378,690
Oats	12,544	8,168	56,066	5,919	590	83,287
Barley	1,048		160,235	1,675	30,673	193,631
Rye	15		4,946	45		5,006
Flax			2,251			2,251
Canola	515	8	241		194	958
Rapeseed					3	3
Sunflower			44,424	1 ,017		45,441
Buckwheat			149			149
Millet			4,564	770		5,334
Triticale			349	49	66	464
Safflower			40			40
Total	556,470	111,145	2,604,713	1,314,944	194,052	**4,781,324**

Appendix table 2— **Volume of grain sold by local cooperative associations by market outlet, by region, 1990-91**

Region	Sold locally	Sold to cooperatives	Sold to noncooperatives
		7,000 bushels	
I	**40,790**	**157,948**	**357,731**
II	**4,154**	**14,735**	**92,256**
III	**221,845**	1,434,409	**948,459**
IV	121,400	342,736	850,808
V	3,716	87,415	102,920
All regions	391,905	2,037,243	2,352,174

Appendix table 3— Distribution of grains sold by local cooperative associations, by market outlet, **1990-91**

Type of grain	Grain sold: Locally	To co-ops	To nonco-ops
		Percent	
Corn	13	**36**	51
Wheat	1	**54**	45
Soybeans	1	**52**	47
Grain Sorghum	9	**20**	71
Oats	35	**28**	37
Barley	11	**58**	31
Rye	2	**41**	57
Flax	([1],	**60**	40
Canola		**12**	88
Sunflower	1	**58**	41
Other grains [2]	6	**21**	73

[1] Less than 0.5 percent
[2] Buckwheat, millet, rape, triticale, and safflower.

Appendix Table 4-Volume **of grain shipped by rail by local cooperative associations, by number of cars per shipment, by region, 1990-91**

Region	Number of cars: Single	2-24	25-49	50-74	75-99	100 plus
	1,000 bushels					
I	2,590	165,219	15,484	47,911	0	7,676
II	196	2,194	0	0	0	0
III	65,997	255.440	376.338	437,896	154,846	0
IV	30.228	298,439	83,271	79,450	51,624	3,251
V	519	14,435	56,035	0	0	0
All regions:						
1990-91	99,530	735,727	531,128	565,257	206,470	10,927
1985-86	124,861	791,717	292,358	268,358	45,309	52,247
1982-83	275,196	797,964	271.318	182,729	78,181	56,381
1979-80	759,144	542,783	208,464	138,992	143,572	73,952

Appendix Table 5— **Distribution of volume of grains handled by local cooperative associations, by region, 1990-91**

Type of grain	Region: I	II	III	IV	V	All regions
	Percent					
Corn	64	26	49	33	3	44
Wheat	9	17	23	36	81	27
Soybeans	24	44	17	4		14
Sorghum	2	6	1	2([1])	([1])	8
Oats	([1])	7	2	([1])	([1])	2
Barley			6		16	4
Rye	([1])		([1])	([1])		([1])
Flax			([1])			([1])
Canola	([1])	([1])	([1])		([1])	([1])
Rapeseed					([1])	([1])
Sunflower			2	([1])		1
Buckwheat			([1])			([1])
Millet			([1])	([1])		([1])
Triticale			([1])	([1])	([1])	([1])
Safflower			([1])			([1])

[1] Less than 0.5 percent.

Appendix table **6— Grain marketed by local cooperative associations, by mode of transportation, by region, 1990-91**

Region	Mode of transportation			Total
	Truck	Rail	Other	
	1,000 bushels			
I	311,456	238,880	6,134	556,469
II	90,434	2,389	18.322	111,145
III	1,306,512	1,290,517	7,683	2,604,713
IV	752,579	546,263	16,102	1,314,944
V	51,560	70,989	71,503	194.051
All regions:				
1990-91	2,512,540	2,149,038	119,744	4,781,322
1985-86	1,763,942	1,575,486	64,332	3,403,760
1982-83	2,153,214	1,661,770	105,984	3,920,968

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