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Report 207

Feed Mill Operations of Agricultural Cooperatives

Abstract

This report analyzes the feed mill operations of over 200 farm supply and marketing cooperatives. They were surveyed about their 2004 feed mill ownership, production, type of feed produced, method of sales, and feed form. The cooperatives were also asked what animal types they produced feed for and how the feed was sold. Questions asked were similar to ones used in 1984, 1975, 1969, and 1959 surveys. The data was also sorted into 10 standard U.S. farm production regions and 7 feed mill sizes.

Key words: Cooperatives, feed mills, feed production, feed type, and feed sales.

Feed Mill Operations of Agricultural Cooperatives

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Preface

This report studied 2004 cooperative feed mill production and compared and contrasted this production with production reported in prior studies conducted in 1984, 1975, 1969, and 1959. Cooperatives included in the study were chosen because they had feed sales of over $500,000. Surveys were sent to 646 cooperatives, with over 200 usable surveys returned. Estimates for non-respondents were made based on prior responses and published information. The study also focused on regional and feed mill size differences.

While this study is not a comprehensive census of all cooperative feed manufacturers, the information presented is comparable to the prior studies and can be used by cooperative managers and boards of directors as a basis for comparing trends in feed sales in their region and by size of feed mill. The author thanks the cooperatives that participated in this study.

Contents

Highlights

Feed operations of 220 agricultural cooperatives were analyzed in this report. The cooperatives provided information about their sales, feed mill ownership, production, type of feed produced, method of sales, and feed form. They also provided information on what animal types the feed was produced for and how the feed was sold. Information collected was expanded for non-respondents and compared to prior surveys conducted in 1984, 1975, 1969, and 1959.

Respondent cooperatives comprised about a third of all cooperatives that have over $500,000 in feed sales. The survey found:

- The Corn Belt and Lake States have a combined 80 percent of respondent cooperative feed production.
- Complete feed is produced 83 percent of the time; supplement, 12 percent; and premix, 5 percent.
- Feed was sold in bulk for 90 percent of feed sales and in bags for 10 percent.
- Meal was the most common feed type (72 percent), with pellets second at 14 percent, followed by coarse-textured (11 percent), liquid (2 percent), and cubes and blocks (1 and 0.4 percent, respectively).
- Hog feed, at 53 percent, was most often produced, while dairy feed comprised 17 percent of production and beef comprised 14 percent.
- Over half of the feed produced was sold at retail; 17 percent, wholesale; 15 percent, custom grind and mix; 9 percent custom fed to others' animals; and 6 percent fed to animals owned by the respondent cooperative.

There have been a number of changes in feed mill operations as six major regional cooperatives have ceased operations and one has converted to an investor-owned firm. There have been regional shifts in livestock production and farmer-owned ethanol plants have made distiller's grains widely available for livestock feed.

Feed Mill Operations of Agricultural Cooperatives

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Rural Development

Agricultural cooperatives sold about $7 billion in feed in 2004, more than double the sales reported in the 1984 feed study. This report is the fifth in a series of studies of cooperative feed mills; the prior studies were conducted in 1984, 1975, 1969, and 1959. The prior studies were a census of all U.S. feed manufacturers and were conducted in a partnership with another USDA agency, the Economic Research Service.

Many changes have occurred in the past 20 years for cooperative feed manufacturers. Six of the major cooperative feed manufacturers no longer exist. Their manufacturing facilities have not been lost though. Prior to these cooperatives ceasing operations, alliances were developed with other cooperatives to incorporate most of the feed mills into existing cooperatives. This trend continued until one cooperative became the leading cooperative feed manufacturer. This same cooperative purchased a major investor-owned feed manufacturer and has become the largest U.S. feed manufacturer. Also, one large cooperative feed manufacturer converted to an investor-owned firm.

So, the more than doubling in the dollar amount of feed sales for cooperatives over the last 20 years is a combination of business expansion, purchase of an investor-owned feed manufacturing firm, and increased ingredient costs, minus the loss of the cooperative that converted to an investor-owned firm and other such changes. In the prior studies, cooperatives had a market share of 20 to 22 percent of feed produced. However, with the dramatic growth in sales, cooperative market share for feed has probably also grown.

Survey

The 2004 survey was designed to be comparable with the prior studies. The survey was much simpler than prior surveys, with the survey instrument consisting of seven questions on one page. The survey focused on: ownership type (cooperative, LLC, joint venture, or other); type of feed sold (complete, supplement, and premix); how feed was sold (bag or bulk); the feed form (meal, coarse-textured, pellets, cubes, blocks, or liquid); and animal types (hog, beef, dairy, sheep/goat, broiler, starter-grower/layer-breeder, turkey, horse, aquaculture, pet, and other). The final question asked whether feed sales were wholesale, retail, fed to own animals, custom-fed to others' animals, or custom grind and mix for others.

The survey was sent to 646 cooperatives that had at least $500,000 in feed sales in any of the prior 5 years. There are many more cooperatives with feed sales, but it was expected that few with sales less than $500,000 had either feed mills or the resources available to respond to the survey. Almost 300 surveys were returned, although about 70 were returned incomplete or blank and not used in this study. Of the 70, 15 confirmed that they did not have a feed mill. So, with 220 usable surveys or about 33 percent of those sent, data was analyzed based on those returned while data from non-respondents is based on their prior responses to our surveys and other information gathered over the last 20 years.

Feed Operations

Since the last study there have been numerous changes in the feed industry. Hog production continues toward concentration in larger growers and vertical integration among feed production, hog production, and meat packers. Hog production has also seen movement from traditional production areas of the Corn Belt, Lake States, and Northern Plains to the Appalachian, Southeast, and Mountain states due to pollution and odor issues. Global markets have opened the U.S. borders to meats produced overseas. Bovine spongiform encephalopathy (BSE), or mad cow disease, has closed the U.S. borders several times to importation of live animals and has impacted export markets. Avian flu has had large impacts on foreign production and could become a domestic concern. And, the large increase in ethanol production has made the byproduct, distiller's grain, a competitive alternative to traditional feed production.

Feed Mill Production

Estimated and actual cooperative feed mill production for 2004 and prior studies is presented in table 1. Feed production is up about 16 percent from 1984 to 2004. Feed production is up especially in the Corn Belt, Pacific, and Lake States. The Corn Belt, with 36 percent of cooperative production, and Lake States, with 28 percent, remain the top production regions. Much of this increase in production is due to the acquisition of an investor-owned feed manufacturer by a cooperative.

Information in this section includes estimates of nonrespondent feed production. This information is based on previous USDA surveys and from other published information—often from press releases and other sources within the cooperatives themselves when new acquisitions or combinations have been made.

The survey did not ask for feed sales by State or region. Instead, feed sales by State from RBS's annual survey of cooperatives, feed sales from prior surveys, and knowledge of cooperative feed mill locations were used to allocate feed production to States. Allocation of feed production by this method may mean over- or under-estimates, but the scope of the study was narrowed so that respondents were not unduly burdened with a complicated survey instrument. Most cooperatives produce and sell feed in one State, so allocation

Table 1—**Cooperative feed mill production, 2004, 1984, 1975, and 1969**

	2004		1984		1975		1969	
Region [1]	Feed produced [2]	Percent of total	Feed produced	Percent of total	Feed produced	Percent of total	Feed produced	Percent of total
	1,000 tons	*Percent*	*1,000 tons*	*Percent*	*1,000 tons*	*Percent*	*1,000 tons*	*Percent*
Northeast	676.6	2.47	2,846.5	11.93	2,871.5	14.02	3,231.6	15.57
Lake States	7,584.4	27.64	4,868.0	20.41	4,660.9	22.75	3,776.4	18.19
Corn Belt	9,996.5	36.44	5,184.9	21.73	4,750.4	23.19	6,146.1	29.60
Northern Plains	2,180.6	7.95	1,973.3	8.27	2,203.8	10.76	2,060.5	9.92
Appalachian	1,491.7	5.44	2,025.3	8.49	1,034.0	5.05	1,080.5	5.20
Southeast	666.9	2.43	3,642.5	15.27	1,454.4	7.10	1,205.5	5.81
Delta	91.9	0.33	570.2	2.39	1,005.7	4.91	705.3	3.40
Southern Plains	93.7	0.34	1,365.0	5.72	513.6	2.51	657.8	3.17
Mountain	847.2	3.09	929.0	3.89	541.6	2.64	462.1	2.23
Pacific	3,805.4	13.87	452.1	1.90	1,450.2	7.08	1,435.3	6.91
U.S.	27,435.0	100.00	23,856.8	100.00	20,486.1	100.00	20,761.1	100.00

[1] Standard farm production regions used, Northeast: ME, NH, VT, NY, MA, RI, CT, PA, NJ, DE, MD, and DC. Lake States: MI, WI, and MN. Corn Belt: OH, IN, IL, IA, and MO. Northern Plains: ND, SD, NE, and KS. Appalachian: VA, WV, KY, TN, and NC. Southeast: SC, GA, AL, and FL. Delta States: MS, LA, and AR. Southern Plains: OK and TX. Mountain: MT, ID, WY, CO, UT, NV, AZ, and NM. Pacific: WA, OR, CA, HI, and AK.

[2] Feed produced was expanded to include both survey respondents and nonrespondents. Respondents comprised 7,532 thousand tons out of the total of 27,435 thousand tons.

of feed production is generally simple except for the handful of cooperative feed manufacturers that have multi-state operations.

All Respondents

All further analysis in this study will mainly discuss respondents to the 2004 and 1984 feed mill surveys. Table 2 shows feed production by region and feed mill size. As in 1984, the Corn Belt had the highest concentration of cooperative feed mills and feed production. Over half of all feed production occurred in the Corn Belt and over one-third of the feed mills were located in this region. The Lake States again had the second highest production and number of feed mills. Significant changes occurred in the Northeast, where a cooperative ceased operations and in the Southeast, where a cooperative converted to an investor-owned firm.

By feed mill size, most respondents in 2004 and 1984 had feed mills that produced from 1,000 to 9,999 tons per year. Only 56 feed mills had production of over 100,000 tons per year, yet they produced 53 percent of the total.

Average Production

Average feed mill production in 2004 was almost double the production of 1984 (table 3). Part of the increase in production was probably due to the fact that the survey was sent to cooperatives whose feed sales were at least $500,000. Average feed mill production was about double in the Lake States, Corn Belt, Northern Plains, and Appalachian regions. The other regions had smaller average feed mill production than 1984, and in the case of the Pacific region, considerably smaller. Questions about capacity utilization were not asked in the current survey, but 16 respondents provided this information and overall capacity utilization was 56 percent. Capacity utilization was 70 percent in 1984. Feed mill production peaked with an average of 216,042 tons per year for the largest feed mills.

For products other than feed, there have been some ownership changes in the cooperative community where some cooperatives have joined together to own facilities through joint ventures or limited liability companies (LLCs). This survey found that less than 1 percent of the respondents had some alternative form of feed mill ownership. The Lake States, Corn Belt, and Northern Plains all had one respondent that owned a feed mill with another cooperative(s) through an LLC.

Table 2—**Respondent feed production by region and by feed mill size, 2004 and 1984**

	2004		1984			2004		1984	
	Feed production	Feed mills	Feed production	Feed mills		Feed production	Feed mills	Feed production	Feed mills
	Percent	*Number*	*Percent*	*Number*		*Percent*	*Number*	*Percent*	*Number*
Region					**Feed Mill Tons/Year**				
Northeast	0.59	4	11.93	212	<999	0.06	9	0.10	77
Lake States	25.31	84	20.41	411	1,000 to 9,999	4.79	99	10.96	737
Corn Belt	54.59	135	21.73	585	10,000 to 24,999	7.69	54	17.32	547
Northern Plains	9.20	64	8.27	344	25,000 to 49,999	18.87	67	17.11	247
Appalachian	5.94	11	8.49	113	50,000 to 74,999	10.58	33	16.71	129
Southeast	1.33	3	15.27	77	75,000 to 99,999	5.35	11	6.93	54
Delta	1.01	10	2.39	28	100,000+	52.65	56	30.87	122
Southern Plains	1.20	6	5.72	60					
Mountain	0.76	10	3.89	51					
Pacific	0.05	2	1.90	32					
All	100.00	329	100.00	1,913	All	100.00	329	100.00	1,913
	1,000 tons		*1,000 tons*						
Total sales	7,796.1		23,856.8						

Table 3—**Average feed mill production by region and by feed mill size, 2004 and 1984**

	2004	1984		2004
	Average feed mill production	Average feed mill production		Average feed mill production
	Tons/year			*Tons/year*
Region			**Feed Mill Tons/Year**	
Northeast	11,506	13,427	<999	517
Lake States	23,493	11,844	1,000 to 9,999	4,557
Corn Belt	31,526	8,863	10,000 to 24,999	15,376
Northern Plains	11,208	5,736	25,000 to 49,999	34,221
Appalachian	42,095	17,923	50,000 to 74,999	58,934
Southeast	34,671	47,305	75,000 to 99,999	83,355
Delta	7,895	20,364	100,000+	216,042
Southern Plains	15,594	22,750		
Mountain	5,959	18,216		
Pacific	2,123	14,128		
All	23,696	12,471	All	23,696

Complete, Supplement, or Premix

Formula feed is produced according to exacting specifications to satisfy different animal groups' physiological and environmental needs. Feed production is usually classified further into specific feed types. The types used in this report are complete, supplement, and premix.[1] In table 4, feed production is presented by type of feed, region, and size of feed mill.

Comparing 2004 to 1984, by region, complete feed production rose about the same amount as supplement feed fell. Complete feed production increased greatly over the 1984 average in all but the Northeast, Lake States and Southeast. From 1984 to 2004, complete feed production increased while supplement decreased (chart 1).

By feed mill size, mills producing from less than 999 tons to 74,999 tons annually had fairly similar production ratios from 1984 to 2004, with complete feed about 70 to 79 percent of production. Feed mills producing from 75,000 to 99,999 tons produced more supplement feed (30 percent) and less complete feed (65 percent). Production at feed mills with a volume of over 100,000 tons also differed from the average—they produced over 90 percent complete feed and only 6 percent supplement.

[1] There are both primary and secondary feed manufacturing. Primary feed manufacturing is further classified into complete, supplement, super concentrate, and premix. For definitions of these terms, please see [Brainich and Eversull].

Bag or Bulk

Feed production is sold by the bag or in bulk. Bag sales are usually to smaller accounts, either delivered or picked up by the customer. Bulk sales are usually delivered to the customer and unloaded into their storage bins. By region, 11 percent of feed production was sold in bags, with the remainder, 89 percent, sold in bulk (table 5). Especially noticeable were deviations from the average bag sales occurring in Northeast, Appalachian, Southern Plains, and Pacific regions. In 1969, bag feed sales were more popular, comprising 26 percent of total cooperative sales (chart 2).

Bag sales were used over half the time for feed mills with less than 999 tons of production. Bulk sales generally increased as feed mill size increased, peaking at 93 percent of sales for feed mills with over 100,000-ton production.

Feed Type

In 1984, the use of pellet feed had increased greatly from prior studies to just about half of feed production. Pellet feed included crumbles in 1984, while the 2004 survey asked for pellet feed alone and the category "coarse-textured" was added. Respondents in 2004 had dropped pellet feed to 14 percent of total production while meal was 72 percent and coarse-textured 11 percent (table 6). This compares to 49 percent meal in 1984 and 47 percent pellets (chart 3). Much of this drop in pellet feed is probably due to several of the larger cooperative feed manufacturers

Table 4—**Complete, supplement, and premix feed production by region and by feed mill size, 2004 and 1984**

	Complete	Supplement	Premix		Complete	Supplement	Premix
		Percent				*Percent*	
2004							
Region				*Feed Mill Tons/Year*			
Northeast	70.4	28.7	0.9	<999	77.0	15.9	7.1
Lake States	75.9	15.8	8.4	1,000 to 9,999	73.8	19.7	6.5
Corn Belt	86.6	9.3	4.1	10,000 to 24,999	70.3	23.5	6.2
Northern Plains	78.7	17.7	3.6	25,000 to 49,999	78.8	15.3	5.9
Appalachian	93.9	6.1	0.0	50,000 to 74,999	75.6	14.5	9.9
Southeast	52.2	47.6	0.2	75,000 to 99,999	64.7	29.8	5.6
Delta	83.8	8.0	8.2	100,000+	90.8	6.2	3.0
Southern Plains	99.4	0.5	0.1				
Mountain	83.1	14.5	2.4				
Pacific	97.8	2.2	0.0				
All	83.2	12.0	4.8	All	83.2	12.0	4.8
1984							
All	74.0	20.0	6.0				

Chart 1—**Complete, Supplement, and Premix Feed Production, 2004 and 1984**

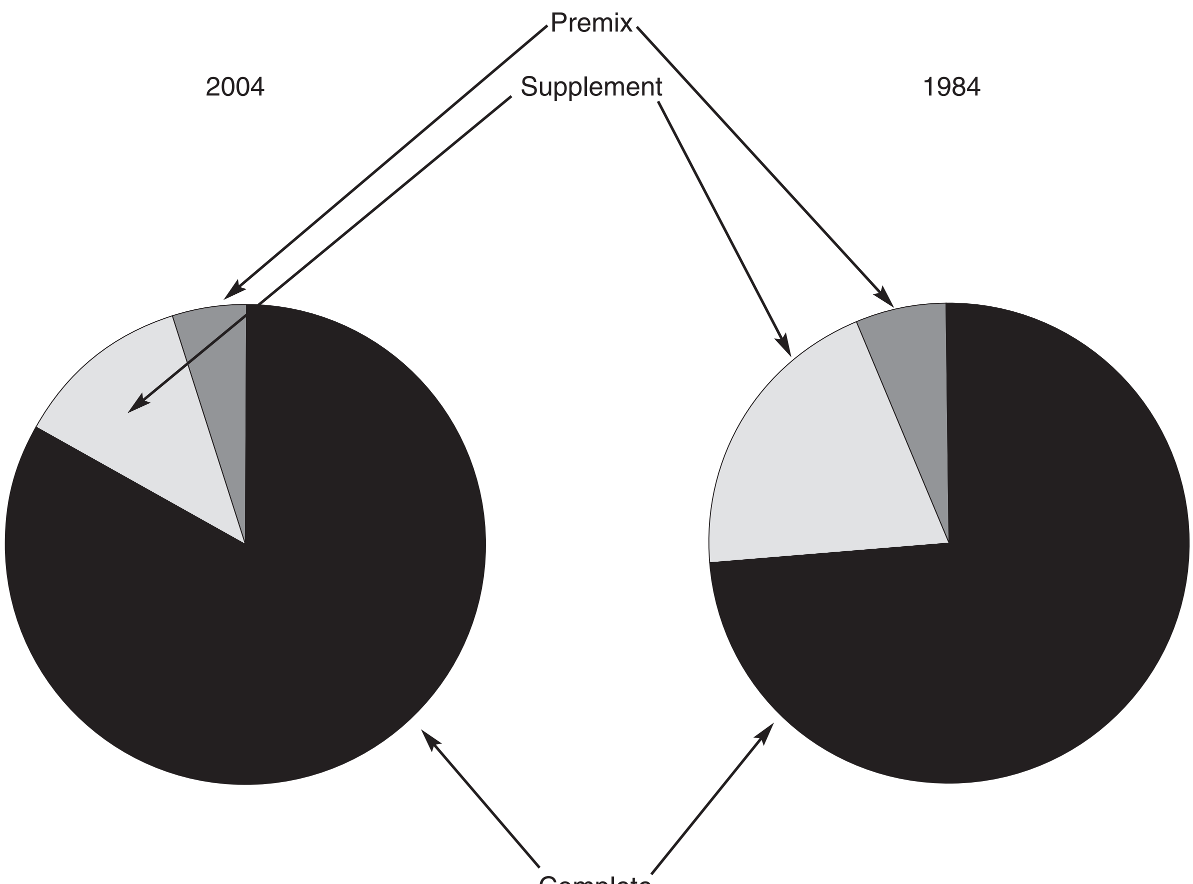


Table 5—**Bag and bulk feed production by region and by feed mill size, 2004**

	Bag	Bulk		Bag	Bulk
	--------------*Percent*--------------			--------------*Percent*--------------	
Region			*Feed Mill Tons/Year*		
Northeast	21.6	78.4	<999	51.3	48.7
Lake States	9.5	90.5	1,000 to 9,999	29.2	70.8
Corn Belt	6.8	93.2	10,000 to 24,999	14.9	85.1
Northern Plains	10.1	89.9	25,000 to 49,999	9.0	91.0
Appalachian	33.1	66.9	50,000 to 74,999	18.2	81.8
Southeast	4.1	95.9	75,000 to 99,999	7.9	92.1
Delta	31.5	68.5	100,000+	7.3	92.7
Southern Plains	63.6	36.4			
Mountain	19.3	80.7			
Pacific	56.9	43.1			
All	10.5	89.5	All	10.5	89.5

Chart 2—**Bag and Bulk Feed Production, 2004 and 1969**

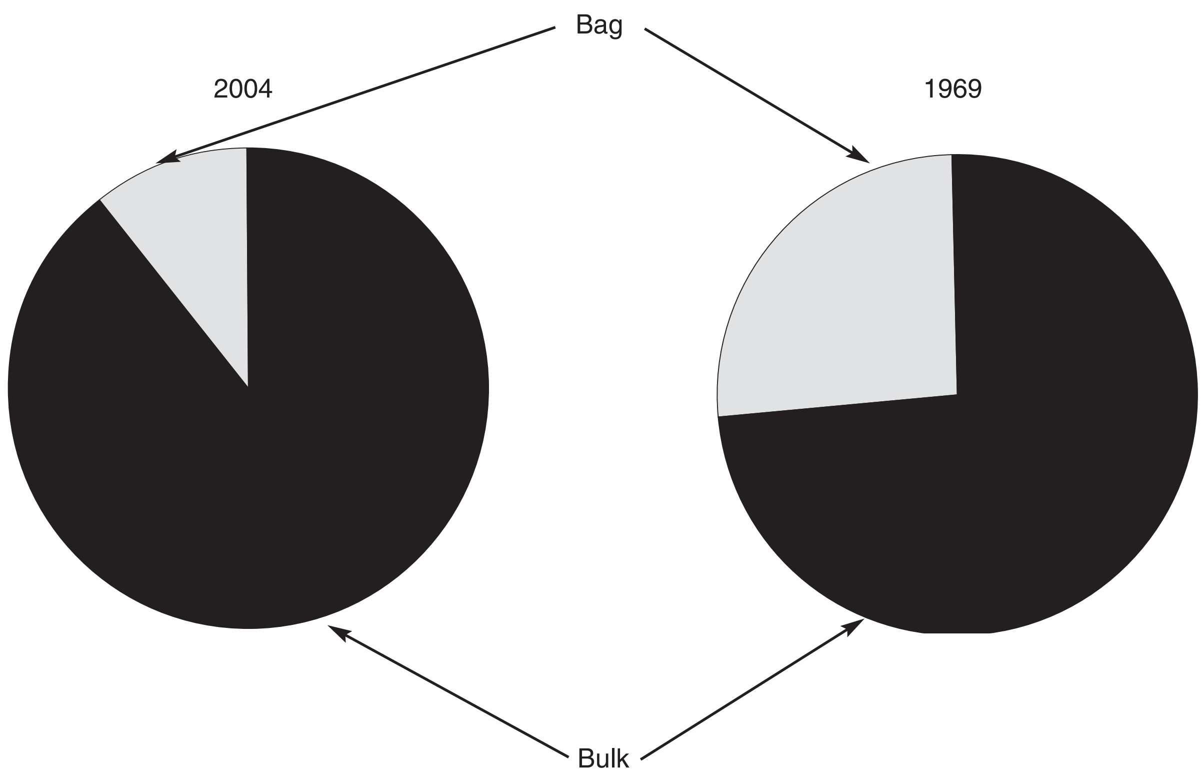
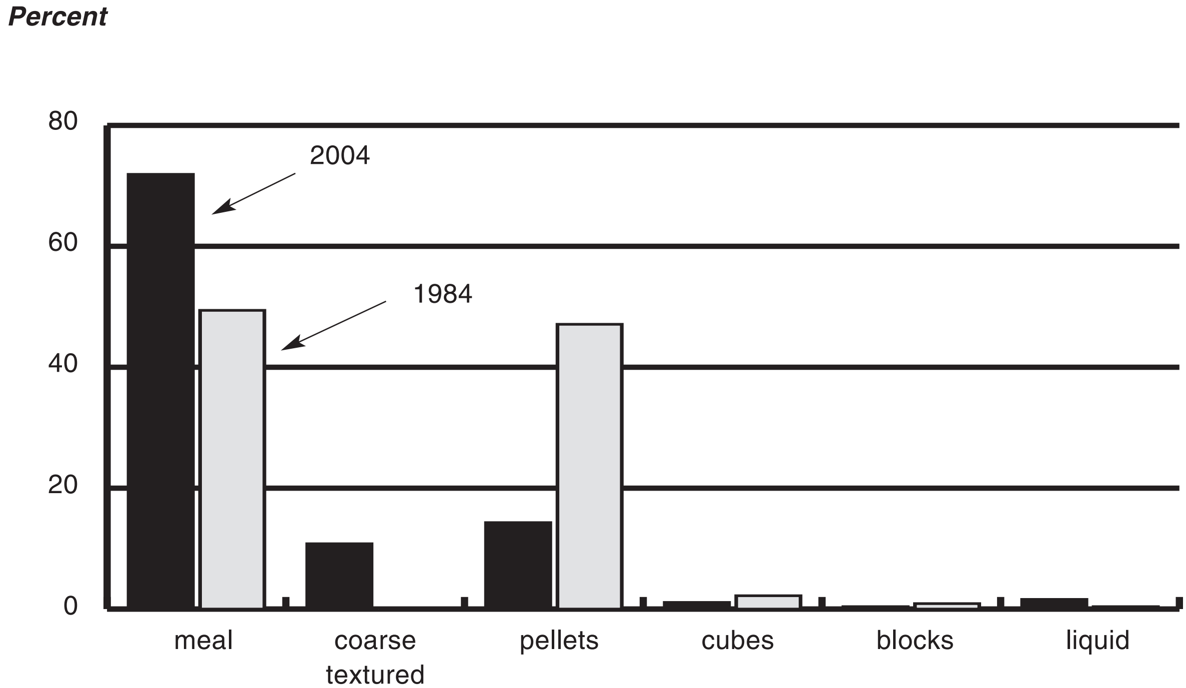


Table 6—**Feed production by region and by feed mill size, 2004 and 1984**

Item	Meal	Coarse-textured	Pellets[1]	Cubes	Blocks	Liquid
			Percent			
Region, 2004						
Northeast	51.2	33.6	14.0	0.0	0.6	0.6
Lake States	74.5	10.6	12.6	0.2	0.3	1.8
Corn Belt	81.5	6.8	9.9	0.4	0.3	1.2
Northern Plains	63.7	16.1	13.9	4.0	1.0	1.3
Appalachian	31.6	24.3	41.6	1.4	1.0	0.0
Southeast	1.1	6.7	91.9	0.2	0.1	0.0
Delta	23.0	25.9	46.1	5.1	0.0	0.0
Southern Plains	9.3	49.8	9.6	26.9	0.9	3.5
Mountain	11.8	37.4	3.3	2.3	2.3	42.9
Pacific	4.3	70.1	25.6	0.0	0.0	0.0
All	71.9	10.8	14.3	1.1	0.4	1.6
Region, 1984						
Northeast	46.6	n.a.	53.1	0.0	0.0	0.2
Lake States	73.2	n.a.	25.8	0.4	0.1	0.4
Corn Belt	53.4	n.a.	42.7	2.5	1.1	0.3
Northern Plains	57.3	n.a.	32.3	7.5	2.1	0.8
Appalachian	19.8	n.a.	76.3	0.8	2.8	0.3
Southeast	46.1	n.a.	53.7	0.1	0.0	0.2
Delta	23.4	n.a.	70.6	6.0	0.0	0.0
Southern Plains	34.4	n.a.	50.2	13.5	1.7	0.3
Mountain	68.7	n.a.	18.1	7.7	2.9	2.6
Pacific	43.2	n.a.	56.5	0.3	0.0	0.0
All	49.4	n.a.	47.1	2.2	0.9	0.4
Feed Mill Tons/Year, 2004						
<999	46.4	43.4	5.0	0.0	0.3	5.0
1,000 to 9,999	44.7	31.9	14.1	3.9	2.6	2.9
10,000 to 24,999	71.1	19.6	6.3	1.3	0.3	1.4
25,000 to 49,999	69.4	14.2	10.9	1.4	0.7	3.4
50,000 to 74,999	71.1	18.9	5.4	2.5	0.3	1.8
75,000 to 99,999	42.8	22.0	31.9	0.0	0.4	2.9
100,000+	78.4	3.6	16.6	0.5	0.2	0.7
All	71.9	10.8	14.3	1.1	0.4	1.6

[1] Pellets included pellets and crumbles in 1984.
n.a. = Category not asked in 1984.

Chart 3— **Feed Production, 2004 and 1984**



not responding to the survey. Meal production increased in the Corn Belt, while pellets increased in the Southeast.

Feed mills with less than 999 tons of production made about equal amounts of meal and coarse-textured feed. They also made the most liquid feed. Feed mills with 10,000 tons to 74,999 tons of production made about the average amount of meal feed, 70 percent. Feed mills with 75,000 to 99,999 tons of production made the most pellet feed (32 percent).

Animal Type

Hog feed was most often (53 percent) produced by the respondents, while dairy feed was the most-produced feed in the 1984 survey (table 7). Hog feed was the highest-produced feed in the Lake States, Corn Belt, Northern Plains, and Mountain regions while beef feed was the most-produced feed in the Southern Plains and Pacific regions. Dairy feed was the most-often-produced feed in the Northeast, Appalachian, Southeast, and Delta regions. Added to the 2004 survey were three new animal types—sheep/goat, aquaculture, and pets. In total, the three new animal types accounted for about 1.5 percent of cooperative feed production.

Hog feed was the most-often-produced feed in 2004, while dairy was in 1984 (chart 4). Dairy feed moved to second place in 2004, and beef remained third. Broiler feed fell from 5th most-produced in 1984 to 6th in 2004.

Hog feed was the most-often-produced feed for those feed mills with annual production from 25,000 tons per year to over 100,000 tons. Feed mills producing between less than 999 tons per year and 9,999 tons focused on beef feed. Feed mills producing between 10,000 tons per year and 24,999 were about evenly split between hog and dairy feeds.

Feed Distribution

By a large margin, respondent cooperatives distributed the feed they produced through retail sales (table 8). This is very different from the distribution pattern found in 1984, in which wholesale sales and retail sales were about equally used. Again, several large cooperatives that did not respond to this survey have feed sales that are known to be heavily weighted toward wholesale sales and thus may have skewed survey results.

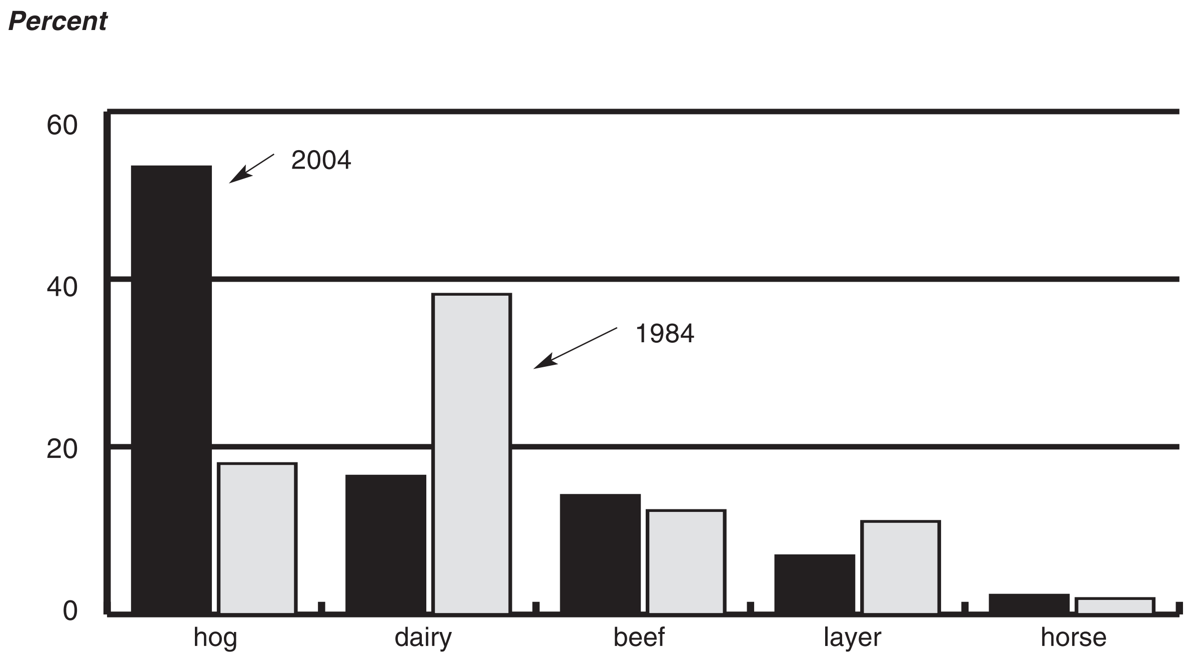
Retail sales increased by about 20 percentage points over 1984, while wholesale sales dropped about the same amount. At 17 percent, wholesale sales were still much smaller than those in 1984 (chart 5). Custom grind and mix dropped 6 percentage points as did feeding to own animals; while feeding to others' ani-

Table 7—**Cooperative feed production by animal type, region, and feed mill size, 2004 and 1984**

Item	Hog	Beef[1]	Dairy	Sheep/ goat[1]	Broiler	Starter-grower/ layer-breeder	Turkey	Horse	Aquaculture	Pet	Other
						Percent					
Region, 2004											
Northeast	2.3	6.0	80.3	2.8	0.0	1.2	0.0	3.1	0.0	1.7	2.6
Lake States	49.9	6.0	30.9	0.5	0.5	2.1	7.3	2.0	0.0	0.7	0.2
Corn Belt	67.5	10.9	6.0	0.8	2.0	10.4	0.7	0.9	0.0	0.3	0.5
Northern Plains	39.4	32.4	10.6	1.8	3.0	6.1	2.1	2.1	0.0	1.2	1.4
Appalachian	2.2	30.7	41.9	1.7	0.4	3.2	0.0	13.1	0.0	0.6	6.1
Southeast	0.1	41.4	57.2	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.2
Delta	3.2	36.4	49.5	0.1	0.2	1.9	0.0	7.0	0.0	1.5	0.2
Southern Plains	4.0	66.8	11.0	0.4	2.9	0.5	0.0	10.4	0.1	0.3	3.7
Mountain	18.4	15.3	13.8	1.6	0.8	0.4	0.3	6.2	0.1	0.7	42.4
Pacific	17.8	23.8	0.0	34.9	0.0	4.3	0.0	15.0	0.0	4.3	0.0
All	53.4	14.2	16.5	0.9	1.6	7.0	2.4	2.3	0.0	0.5	1.2
Region, 1984											
Northeast	3.2	3.2	61.7	n.a.	0.9	20.3	2.4	5.6	n.a.	n.a.	2.7
Lake States	21.6	4.7	61.0	n.a.	0.2	7.8	2.0	0.8	n.a.	n.a.	2.0
Corn Belt	47.6	12.1	22.1	n.a.	0.4	3.8	2.4	1.1	n.a.	n.a.	10.4
Northern Plains	31.4	50.7	11.3	n.a.	0.8	3.9	0.3	0.9	n.a.	n.a.	0.8
Appalachian	9.8	5.1	39.4	n.a.	7.0	10.3	20.3	3.6	n.a.	n.a.	4.5
Southeast	3.5	1.1	31.6	n.a.	38.2	22.2	1.8	0.4	n.a.	n.a.	1.3
Delta	2.5	21.1	25.2	n.a.	30.6	8.6	0.0	3.6	n.a.	n.a.	8.4
Southern Plains	7.3	56.2	25.3	n.a.	0.0	4.4	0.0	3.1	n.a.	n.a.	3.6
Mountain	8.7	33.4	32.7	n.a.	0.9	1.1	18.1	1.5	n.a.	n.a.	3.6
Pacific	0.9	17.3	74.5	n.a.	0.1	3.8	0.0	0.1	n.a.	n.a.	3.4
All	18.0	12.4	38.2	n.a.	9.6	11.1	4.6	1.9	n.a.	n.a.	4.2
Feed Mill Tons/Year, 2004											
<999	7.0	61.1	15.4	1.5	0.2	2.2	0.0	9.6	0.2	1.9	0.7
1,000 to 9,999	22.1	38.0	23.1	2.2	0.8	1.7	0.8	8.2	0.1	2.3	0.6
10,000 to 24,999	31.1	21.4	36.9	2.1	0.7	2.7	0.3	3.5	0.0	0.8	0.6
25,000 to 49,999	54.4	12.7	21.6	1.1	1.0	3.1	1.0	2.1	0.0	0.8	2.4
50,000 to 74,999	45.7	14.3	25.4	0.7	1.0	8.7	1.2	2.3	0.0	0.2	0.4
75,000 to 99,999	42.0	18.1	36.7	0.4	0.2	0.4	0.2	1.5	0.0	0.6	0.0
100,000+	61.7	11.1	7.5	0.6	2.3	9.8	3.9	1.7	0.0	0.3	1.2
All	53.4	14.2	16.5	0.9	1.6	7.0	2.4	2.3	0.0	0.5	1.2

[1] Beef and sheep were combined in 1984, n.a. = not available.

Chart 3— **Feed Production by Animal Types, 2004 and 1984**



mals grew by almost 9 percentage points. Retail sales were used at least 90 percent of the time in the Northeast, Appalachian, Delta, Southern Plains, and Pacific regions.

Feed mills with production of less than 999 tons per year almost exclusively used retail sales. Feed mills producing from 75,000 to over 100,000 tons per year used wholesale sales about 24 percent of the time. These same feed mills also custom-fed their feed to others' animals for over 10 percent of their feed sales.

Summary

There have been a number of changes since the last cooperative feed survey. Six major regional cooperatives have ceased operations. However, most of their feed facilities have been consolidated into the cooperative system, and feed production continues. One cooperative has become both the largest cooperative feed manufacturer and largest U.S. feed manufacturer. With large numbers of joint ventures or LLCs occurring in the cooperative system, it was thought that, because feed mills are expensive to build and operate, there might be a number of feed operations owned as LLCs or joint ventures. The survey found only three cooperative feed facilities owned as LLCs.

Most feed is still sold as complete and in bulk form. Feed sales were heavily weighted towards meal sales and more than half of the feed sold was hog feed.

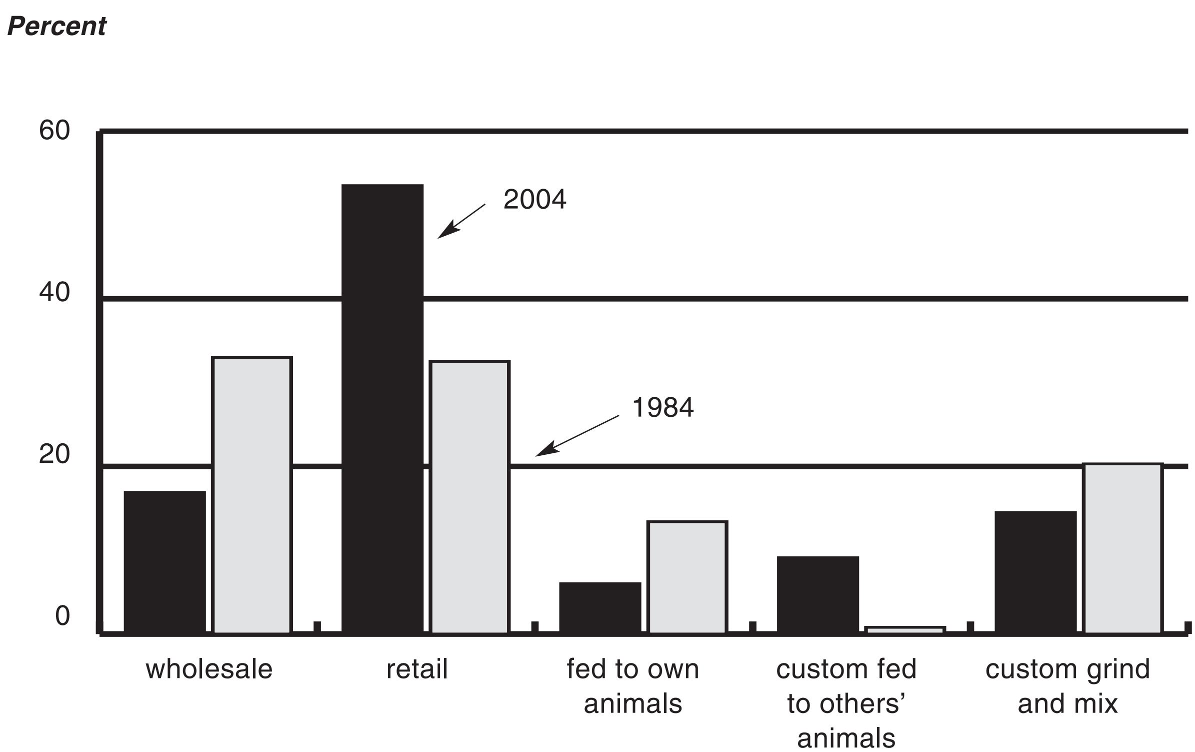
In the last study 20 years ago, more feed was being fed to livestock owned by the cooperative feed mill. This time, respondent cooperatives were not the larger cooperatives that are more likely to own livestock. The rate of feeding to own livestock fell from 13 percent to 6 percent overall while the largest feed mills fed about 9 percent of their feed to their own animals and 11 percent was custom-fed to others' animals.

Because the survey was not sent to cooperatives with less than $500,000 in sales, many small feed mills were probably not documented. Although capacity was not covered by the survey, there appeared to be more than sufficient feed mill capacity, with excess capacity more than likely. Some animal production has moved out of regions with surplus corn and soybean production to areas where animal production odor and pollution were not large concerns. Ethanol plants were also changing feed production, with their byproducts readily available as a feed source in a number of regions.

Table 8—**Method of feed distribution by region and by feed mill size, 2004 and 1984**

Item	Wholesale	Retail	Fed to own animals	Custom fed to others' animals	Custom grind and mix
			Percent		
Region, 2004					
Northeast	5.9	94.1	0.0	0.0	0.0
Lake States	16.3	61.3	0.1	5.2	17.1
Corn Belt	18.6	41.5	9.9	14.1	15.9
Northern Plains	10.4	73.3	2.1	0.0	14.2
Appalachian	4.2	95.8	0.0	0.0	0.0
Southeast	95.4	3.8	0.0	0.0	0.7
Delta	0.8	91.9	0.0	2.5	4.8
Southern Plains	0.8	99.2	0.0	0.0	0.0
Mountain	1.9	32.3	42.0	3.3	20.6
Pacific	4.3	95.7	0.0	0.0	0.0
All	16.9	53.5	6.0	9.1	14.5
Region, 1984					
Northeast	63.9	31.2	0.0	0.0	4.9
Lake States	17.7	42.2	0.2	0.4	39.5
Corn Belt	46.5	29.1	0.5	0.1	23.8
Northern Plains	32.5	37.4	0.3	0.6	29.2
Appalachian	55.1	15.2	28.6	0.0	1.1
Southeast	9.3	26.8	61.8	0.1	2.0
Delta	48.3	6.8	43.7	0.0	1.3
Southern Plains	26.4	2.8	0.0	7.5	63.4
Mountain	12.5	78.5	0.0	4.2	4.8
Pacific	0.5	98.7	0.0	0.0	0.8
All	33.0	32.5	13.4	0.8	20.3
Feed Mill Tons/Year, 2004					
<999	0.0	92.1	0.0	0.0	7.9
1,000 to 9,999	3.3	80.5	1.2	2.1	12.9
10,000 to 24,999	2.3	71.7	1.9	2.2	21.9
25,000 to 49,999	8.0	68.0	4.6	8.9	10.6
50,000 to 74,999	8.5	80.8	4.2	3.0	3.6
75,000 to 99,999	24.8	57.9	0.0	17.3	0.0
100,000+	24.2	37.5	8.5	11.2	18.6
All	16.9	53.5	6.0	9.1	14.5

Chart 5— **Feed Distribution, 2004 and 1984**



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Rural Business–Cooperative Service (RBS) 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 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.