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ABSTRACT

This report summarizes some selected characteristics of the feed manufacturing industry based on the results of a mail survey of U.S. feed manufacturing establishments to obtain information about structural characteristics of the industry in 1984. These characteristics are compared with those reported earlier from the 1975 survey to provide insights about structural changes in the industry between 1975 and 1984. One section discusses structural characteristics that apply to all formula feed production, including number of feed mills and location, size of operation, ownership structure, methods of distribution, and transportation. The next section discusses specific characteristics of formula feed production, including primary and secondary production, type of livestock feed, kinds of primary feed, form of feed, and feed ingredients used to manufacture primary feed. Labor productivity is briefly covered in the final section. Appendix tables 1-16 contain comparative statistics at the regional level. Tables 17-53 cover state details for the 1984 survey. (YLB)

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Selected Characteristics of the U.S. Feed Manufacturing Industry, 1984

Mark Ash
William Lin
Mae Dean Johnson

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ABSTRACT

This report summarizes results obtained from a major, nationwide survey of the feed manufacturing industry for 1984. The number of U.S. feed mills had declined from about 7,920 at the beginning of the 1970's to 6,720 in 1984. Formula feed production totaled 110 million tons, up from 105 million in 1975, and continued to center in the Corn Belt, Southern Plains, Lake States, Pacific, and Northern Plains. Primary feed production has been trending upward, reaching . . . percent of the total feed tonnage. Despite the importance of complete feed, the use of all supplements and premixes increased in 1984. Primary feed production was classified by type of livestock feed: poultry feed 35 percent, dairy feed 22 percent, beef and sheep feed 2 percent, hog feed 15 percent, and other feeds 7 percent.

Keywords: formula feed, primary feed, secondary feed, complete feed, supplements, premix, and feed ingredients.

PREFACE

The feed manufacturing industry was surveyed in late 1985 and 1986 to obtain data in structure, production trend, distribution, feed ingredients, and processing functions. These data complement similar statistics collected on the industry for 1969 and 1975. More comprehensive analyses and reportings of these data will be forthcoming in the near future.

No report of this survey would have been possible without the basic data supplied by the individual feed mills and companies operating in the industry. The authors express appreciation to George Allen who made contributions in the early phase of the survey. Assistance in computer programming of the survey tables and in processing survey data from Philip Friend and Pat Bailey, respectively, was invaluable. A special note of appreciation is due the Economic and Market Research Committee, American Feed Industry Association, for its consultation during the course of this study and in preparing this report. In addition, assistance received from the Agricultural Stabilization and Conservation Service in conducting telephone follow-up is gratefully acknowledged. Marcia Fletcher and Terri Walker helped type the report.

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SUMMARY

The U.S. feed manufacturing industry has undergone significant structural changes during the last decade. The number of feed mills had declined from about 7,920 at the beginning of the 1970's to 6,720 in 1984. Formula feed production totaled 110 million tons, up from 105 million in 1975.

Formula feed production has become more heavily centered in the Corn Belt, Southern Plains, and Pacific regions since 1975. The Corn Belt continued to lead U.S. formula feed production by manufacturing over 20 million tons of commercially prepared feed, or 18.6 percent of total production. The top four regions accounted for 55 percent of the national total.

U.S. feed mills manufactured an average of 16,300 tons of formula feed per mill in 1984, comparable to the 16,500 tons in 1975. The size of mills in terms of annual production tonnage grew most rapidly in the Southeast, reaching 29,900 tons per mill. The nearly 25-percent increase in size over 1975 was largely in response to rapid growth in the broiler industry. Larger feed mills with an annual capacity of 75,000 tons or more made up 5 percent of the total number of mills but accounted for 46 percent of nationwide production.

In 1984, corporations accounted for 56.5 percent of total feed milling establishments, up from 51.0 percent in 1975. Formula feed manufactured by these corporate mills accounted for 71.1 percent of U.S. production in 1984, up from 66.6 percent in 1975. Farmer cooperatives comprised 28.5 percent of U.S. feed mills and manufactured 21.8 percent of the total formula feed tonnage.

Over 30 percent of the formula feed was consumed by the mill's own livestock, up from a quarter in 1975. Due to the expanding broiler industry which is highly vertically integrated, nearly 70 percent of formula feed was fed to the mill's own animals in the Southeast and Delta regions. Wholesale distribution also rose modestly from 24.1 percent in 1975 to 28.8 percent in 1984.

Inshipments of feed ingredients to mills continued to be largely carried by trucks, although a larger portion was hauled by rail than in the 1970's. Like the 1975 survey, virtually all outshipments of formula feed were transported by company-owned, customer-owned, or other trucks. The distance that a ton of feed was hauled by trucks averaged 58 miles.

In 1984, the number of mills manufacturing only primary feed showed a marked increase from 29 percent of all mills in 1975 to 58 percent. Primary feed production altogether accounted for 87 percent of all formula feed manufactured in the United States, up from 72 percent in 1975.

Primary feed production had the following breakdown by type of livestock feed: poultry 35.3 percent, dairy 22.0 percent, beef and sheep 21.2

percent, hogs 15.0 percent, and others 6.5 percent. Although complete feeds are still by far the predominant kind of primary feed manufactured, there was a considerable increase in the production of supplements and super concentrates in 1984. Supplements and super concentrates in 1984 totaled 21.7 percent of primary feed tonnage, up from 13.7 percent in 1975.

Pelleted feeds became more popular due to a higher efficiency in converting feed into meat products. In 1984, pelleted feeds accounted for 51.7 percent of U.S. primary feed, compared with 41.7 percent in 1975.

Feed grains comprised 49 percent of the ingredient tonnage used to manufacture formula feeds (excluding shrinkage), down from 53.4 percent in 1975. Gilseed meals and grain and animal proteins have all risen proportionally to 19.9, 12.7, and 5.7 percent, respectively. Minerals and microingredients (vitamins, drugs, and premixes) comprised 5.3 and 1.1 percent, respectively.

The number of production workers averaged 5.4 per establishment in 1984, down from 7.5 in 1975. Productivity, measured in terms of tons of manufactured feed per production employee, has improved significantly. Output per production worker averaged 5,274 tons in 1984, more than double the 2,238 tons in 1975.

Selected Characteristics of the U.S. Feed Manufacturing Industry, 1984

Mark Ash
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INTRODUCTION

Feed purchases historically have been the single largest item of farm production expenditures, surpassing rent, interest, fertilizer, and energy expenses. In 1984, feed purchases totaled \$18.3 billion, or 14.3 percent of total farm production expenses. Over 50 percent of the \$18.3 billion total feed expenses were made for the purchase of commercially prepared or formula feeds. The rest were for grains, hays and forages, pasture and grazing livestock, and other feed additives (4).^{1/}

Despite the lead role that the feed manufacturing industry plays, little information about the changing structure of the industry has been available since 1975 when the last survey of the industry was completed. To fill this data void, the Economic Research Service (ERS) of USDA conducted and completed a mail survey of U.S. feed manufacturing establishments to obtain information about structural characteristics of the industry in 1984. This survey was designed to gather statewide data on production, number and size of U.S. feed mills, ownership structure, distribution, milling and storage capacity, form of end products, ingredient use, employment, transportation, energy use, and type of livestock feed manufactured.

This report summarizes some selected characteristics of the feed manufacturing industry based on the survey results and compares them with those reported earlier from the 1975 survey to provide insights about structural changes in this industry between 1975 and 1984. Appendix tables 1-16 contain comparative statistics at the regional level while the remaining tables cover State details for the 1984 survey.

METHODOLOGY

In late 1985, survey questionnaires were sent to all known or suspected feed manufacturing establishments in the United States. To be included in the survey, feed mills had to meet two criteria: (1) be involved in grinding and mixing at least two feed ingredients, and (2) have a normal weekly production capacity of 25 tons or more. The establishments could

^{1/} Underscored numbers in parentheses refer to items listed in the References at the end of the report.

manufacture feed for sale, for use in their own feeding operation, or for custom grinding and mixing operations. Data were collected from such large enterprises as cattle feedlots, poultry farms, hog-feeding operations, dairy farms, and commercial mills. The number of such establishments totaled about 8,300 according to a list of feed manufacturers maintained by the Agricultural Stabilization and Conservation Service (ASCS). Like the 1975 survey, the current survey was not mandatory.

Nonrespondents to the first mailing were contacted by ASCS county offices nationwide and urged to cooperate with the survey after receiving the questionnaire for the second time. A telephone follow-up was undertaken by ERS analysts after the first and second mailings to resolve data quality problems including inconsistencies, errors in measurement units, or misinterpretations of questions. About 1,700 feed mills were discovered to be out-of-business or retail stores, or undeliverable at their last address, 650 were unusable, and about 1,700 were usable for summary purposes. The number of U.S. feed manufacturers actually in business at the time of this survey was determined to be about 6,720.

Data obtained from the nearly 1,700 usable survey forms were expanded into estimates of the population universe for the entire formula feed industry. Expansion factors were developed by State and by annual capacity size for 13 size classes ranging from less than 1,000 tons to 250,000 tons and over. The factors were derived by comparing the number of establishments on the ASCS list with the number of usable survey forms.^{2/} A smaller expansion factor means a higher response rate while a larger expansion factor means a lower response rate. For example, an expansion factor of 2.0 means the response rate is 50 percent while an expansion factor of 5.0 means only a 20-percent response rate in terms of the number of establishments.

Overall, the response rate totals about 43 percent in terms of feed tonnage. Table 1 displays expansion factors for computing formula feed production in the Corn Belt.

Table 1--Expansion factors for computing formula feed production in the Corn Belt

State	Annual capacity (1,000 tons)							Total
	Less than 1	1-10	10-25	25-50	50-75	75-100	100 and over	
Illinois	1.19	7.77	3.80	3.29	1.94	1.93	--	4.59
Indiana	3.30	10.05	8.49	3.43	1.62	--	3.81	4.92
Iowa	4.05	3.48	3.33	2.52	2.48	1.63	1.00	2.71
Missouri	3.36	5.46	11.11	4.41	2.43	1.00	1.00	2.99
Ohio	1.50	10.94	6.45	6.34	1.94	--	16.20	5.67
Corn Belt:	2.75	6.06	5.10	3.16	2.13	2.11	1.55	3.56

-- = No response

^{2/} Mean capacity of respondents was generally found to be only slightly larger than that for all mills.

Despite all efforts to minimize problems with the data, inaccuracies in some tables may still exist. The sources of these irregularities in the data are due to: (1) nonresponse bias, where surveys received from respondents may not be representative of the remaining population, (2) reporting errors, caused by misinterpretation of questions on the survey regarding units of measurement, and (3) errors in data entry which have not been corrected. We believe that the level of bias is small for most of the major feed producing States. However, in States where feed production is more concentrated and survey response was low, the expansion may significantly vary from feed production level: indicated by animal numbers. For instance, we received no data on premix manufacturing in New Jersey, which was a major center of premix production and would bias our premix totals downward. In addition, we adjusted the total feed production for California to conform with the dairy feed production indicated by milk cow numbers and the State feed tonnage report.

GENERAL STRUCTURAL CHARACTERISTICS

This section discusses structural characteristics that apply to all formula feed production including number of feed mills and location, size of operation, ownership structure, methods of distribution, and transportation. Specific characteristics relating to kinds of formula feed production and ingredients used to manufacture primary feed are discussed in the next section.

Number of Mills and Location

The survey identified a total number of U.S. feed mills at 6,723 in 1984, compared with 6,340 reported for 1975 and 7,920 in 1969 (2). The numbers may not be directly comparable due to a more complete ASCS list in 1984. As in 1975, the Corn Belt continued to claim the largest share (29.5 percent) of all mills (fig. 1).^{3/} The Lake States region ranked second in number of feed mills, with its share up from 13.7 percent in 1975 to 17.3 percent in 1984. The Northern Plains ranked third and maintained its share of all mills at 13.7 percent. Regional distribution of U.S. feed mills in 1984 showed patterns similar to 1975 although the share in the Southeast and Pacific was down by over 1 percentage point.

In 1984, the Corn Belt continued to lead U.S. formula feed production by manufacturing over 20 million tons of commercially prepared feed, or 18.6 percent of total production (fig. 2). The Southern Plains and Lake States ranked second and third, due to large-scale feedlot operations in the former region and poultry, dairy, and hog operations in the latter. The Pacific closely followed the Lake States as the fourth largest region in manufacturing formula feed due to dairy, poultry, and large-scale feed lot operations. These four regions altogether produced 55 percent of U.S. formula feed in 1984, with the Lake States region expanding its share since 1975 by 2 percentage points. By contrast, the Northeast and Mountain regions both showed a modest decline in their share of formula feed production. U.S. formula feed production in 1984 totaled 109.6 million tons, nearly a 5-percent increase since 1975.

^{3/} See (3) for an article detailing the feed mill survey results in the Corn Belt.

Figure 1

Regional Distribution of Feed Establishments, 1984

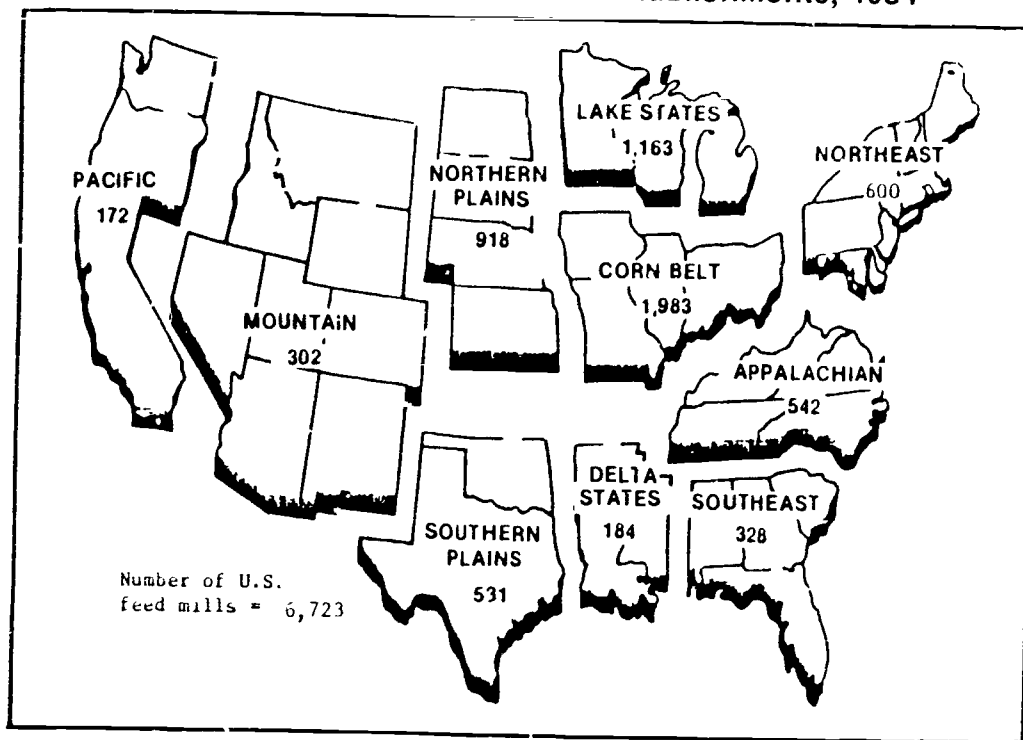
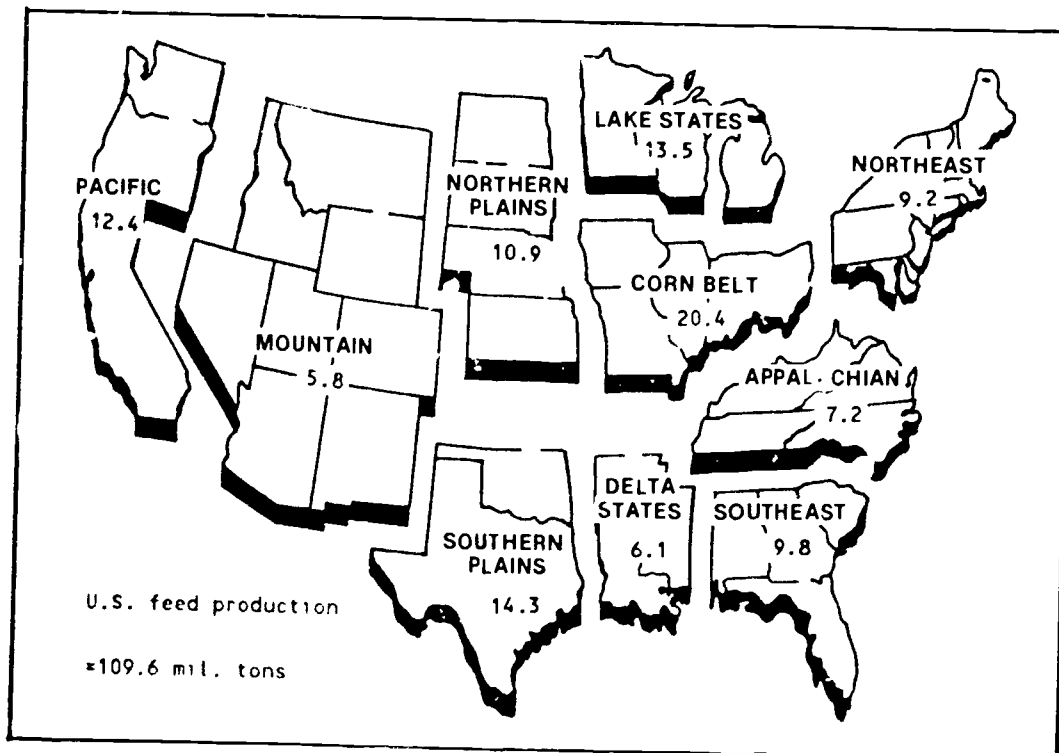


Figure 2

Regional Distribution of Feed Production, 1984 (million tons)



Size of Operation

U.S. feed mills manufactured an average of 16,300 tons of formula feed per mill in 1984, comparable to the 16,500 tons in 1975. The size of mills in terms of annual production tonnage grew most rapidly in the Southeast, which averaged 29,900 tons per mill, nearly 25 percent larger than in 1975 (fig. 3). The rapid growth in the broiler industry from 885 million head in 1975 to 1,327 million in 1984 was the key factor contributing to the rapid expansion in the size of feed mills in this region. Feed mills in the Corn Belt, Northern Plains, and Lake States tended to be smaller, averaging an annual production from 10,300 to 11,900 tons (app. table 1).

In 1984, about three-quarters of U.S. feed mills had an annual capacity to produce formula feed between 1,000 and 25,000 tons. However, this typical size group accounted for only 27.5 percent of U.S. formula feed production. By contrast, larger feed mills with an annual capacity of 75,000 tons or more made up about 5 percent of the total number of mills, but accounted for 46.3 percent of nationwide production (app. tables 2 and 3).

Production concentration of the industry was found to be especially pronounced in the Pacific, Southeast, and Delta regions. For example, the 27 largest feed mills (with an annual capacity of 100,000 tons or more) made up 8.3 percent of all mills in the Southeast, but accounted for 63.4 percent of formula feed production in this region.

Ownership Structure

Corporations are still by far the dominant ownership type in the feed industry and account for the bulk of feed manufactured. In 1984, corporations accounted for 58.5 percent of total feed milling establishments, up from 51.0 percent in 1975 (fig. 4). Formula feed manufactured by these corporate mills accounted for 71.1 percent of U.S. production in 1984, up from 66.6 percent in 1975 (app. table 4).

The role of farmer cooperatives in the formula feed industry has been accentuated since the last survey. In 1984, farmer cooperatives comprised 28.5 percent of U.S. feed mills, up from 25.6 percent in 1975. Formula feed manufactured by these cooperatives accounted for 21.8 percent of the total tonnage, up from 19.6 percent in 1975. Partnerships and sole proprietorships have become even less common in the feed manufacturing industry since 1975. Their share of U.S. feed mills declined from 23 percent in 1975 to about 13 percent in 1984. Similarly, their share of formula feed production decreased from nearly 14 percent in 1975 to 7.1 percent in 1984 (app. table 4).

In 1984, corporations were relatively more common in every production region (fig. 5). Figure 6 shows the proportion of formula feed manufactured by corporations was higher except in the Southeast, Appalachian, and Mountain regions. Farmer cooperatives remained more common in the Northeast, Lake States, Corn Belt, and Northern Plains. Farmer cooperatives became relatively more popular in the Southeast in part because of the influence of farmer cooperatives in poultry operations.

Like the 1975 survey, corporations remain more common in the size groups from 25,000 to 100,000 tons (app. table 6). Farmer cooperatives

Figure 3--Average mill size by region
thousand tons

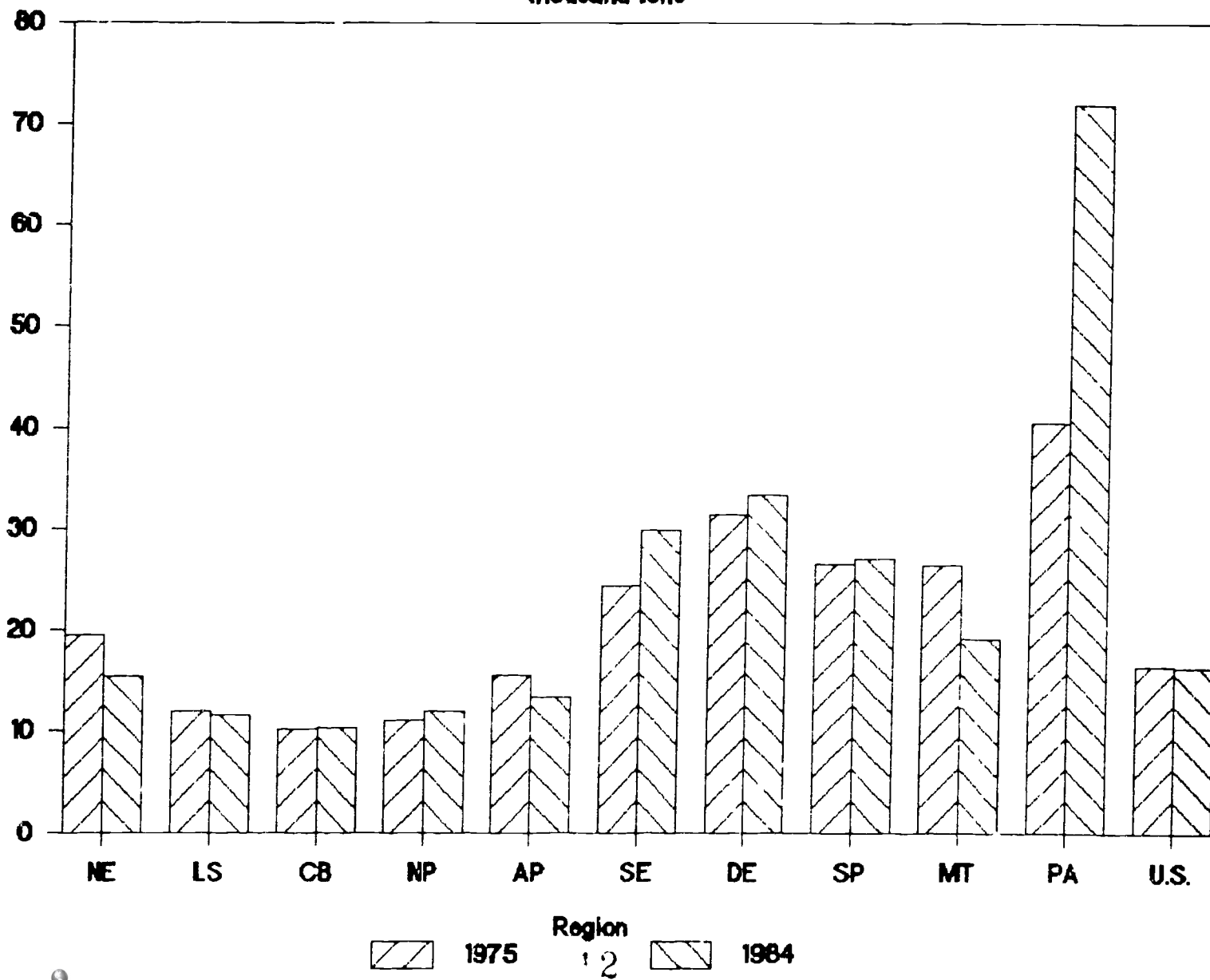
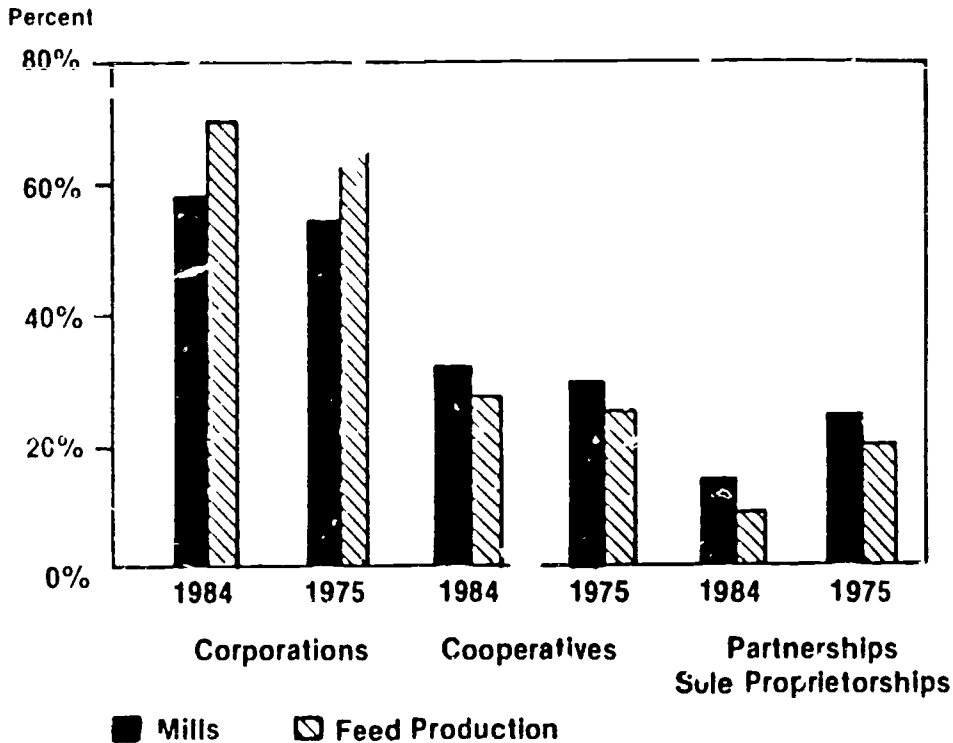


Figure 4
Feed Mill Ownership vs. Production



comprised about 30 percent of smaller mills with an annual capacity of less than 25,000 tons, and a fifth of the largest mills with an annual capacity of 100,000 tons and more. Sole proprietorships accounted for 6-12 percent of smaller U.S. feed mills with an annual capacity of 25,000 tons or less (app. table 6).

Methods of Distribution

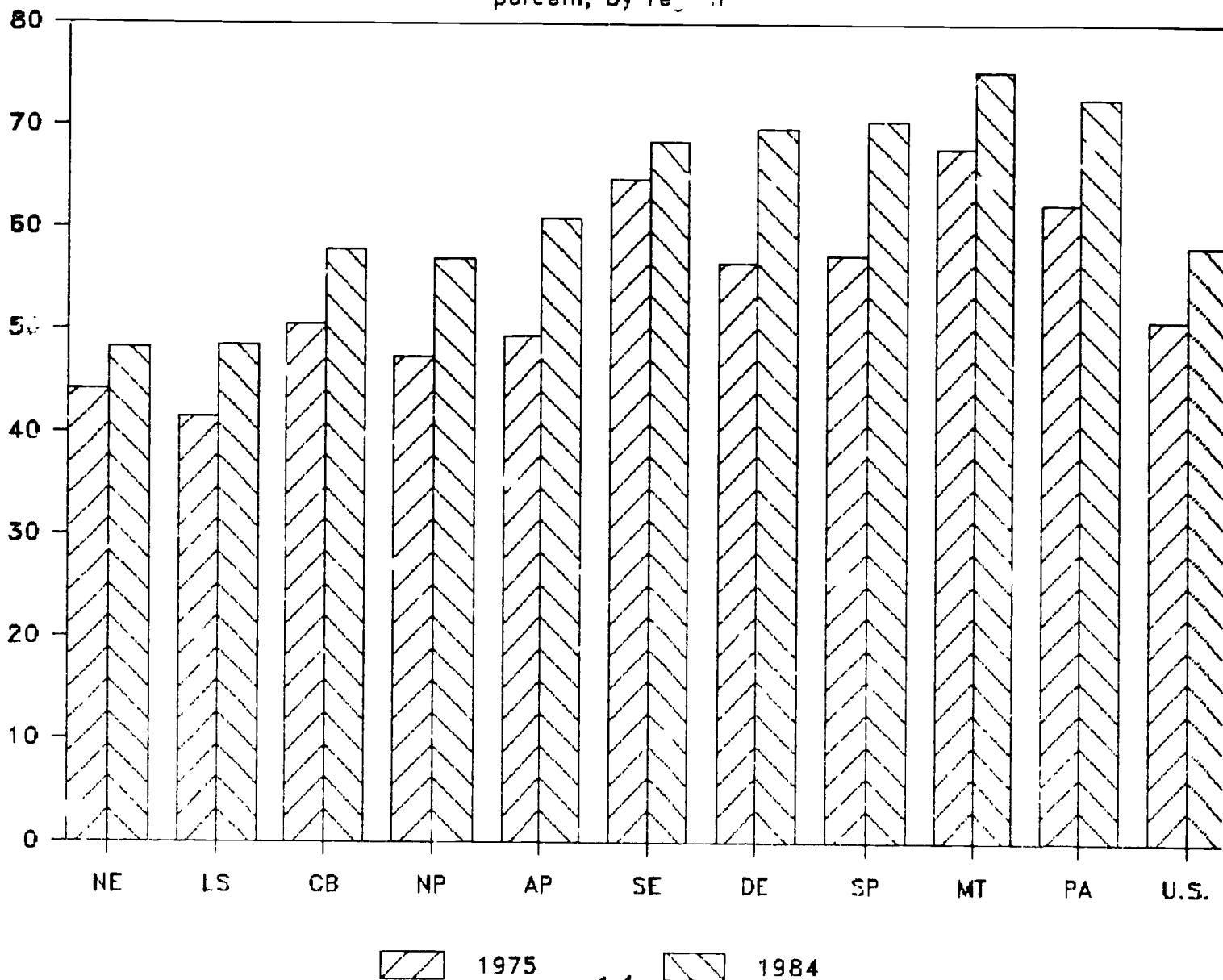
Formula feed is distributed by the following methods: wholesale, retail, feeding own livestock, custom feeding, and custom grinding and mixing. The percentage of feed production being fed to own livestock was narrowly ahead of wholesale and retail sales in 1975 (fig. 7). By 1984, this gap had widened, with over 30 percent of the formula feed consumed by the mill's own livestock, compared with one-quarter in 1975.

Much of this is undoubtedly due to the expanding broiler industry which is highly vertically integrated. As a result, nearly 70 percent of formula feed was fed to the mill's own animals in the Southeast and Delta.

Wholesale distributions rose modestly from 24.1 percent in 1975 to 28.8 percent in 1984. Over half of the Corn Belt production is currently marketed in this manner. Retail sales have risen slightly as a percentage of production. Both custom feeding and custom grind and mix operations have declined in importance.

Since wholesale and fed-to-own livestock operations tend to be concentrated in the over 50,000-ton size class, we may expect that as the industry becomes more heavily represented in mills of these large sizes

Figure 5--Mills owned by corporations,
percent, by region



1975



1984

Figure 6--Feed tonnage by corporations,
percent of total, by region

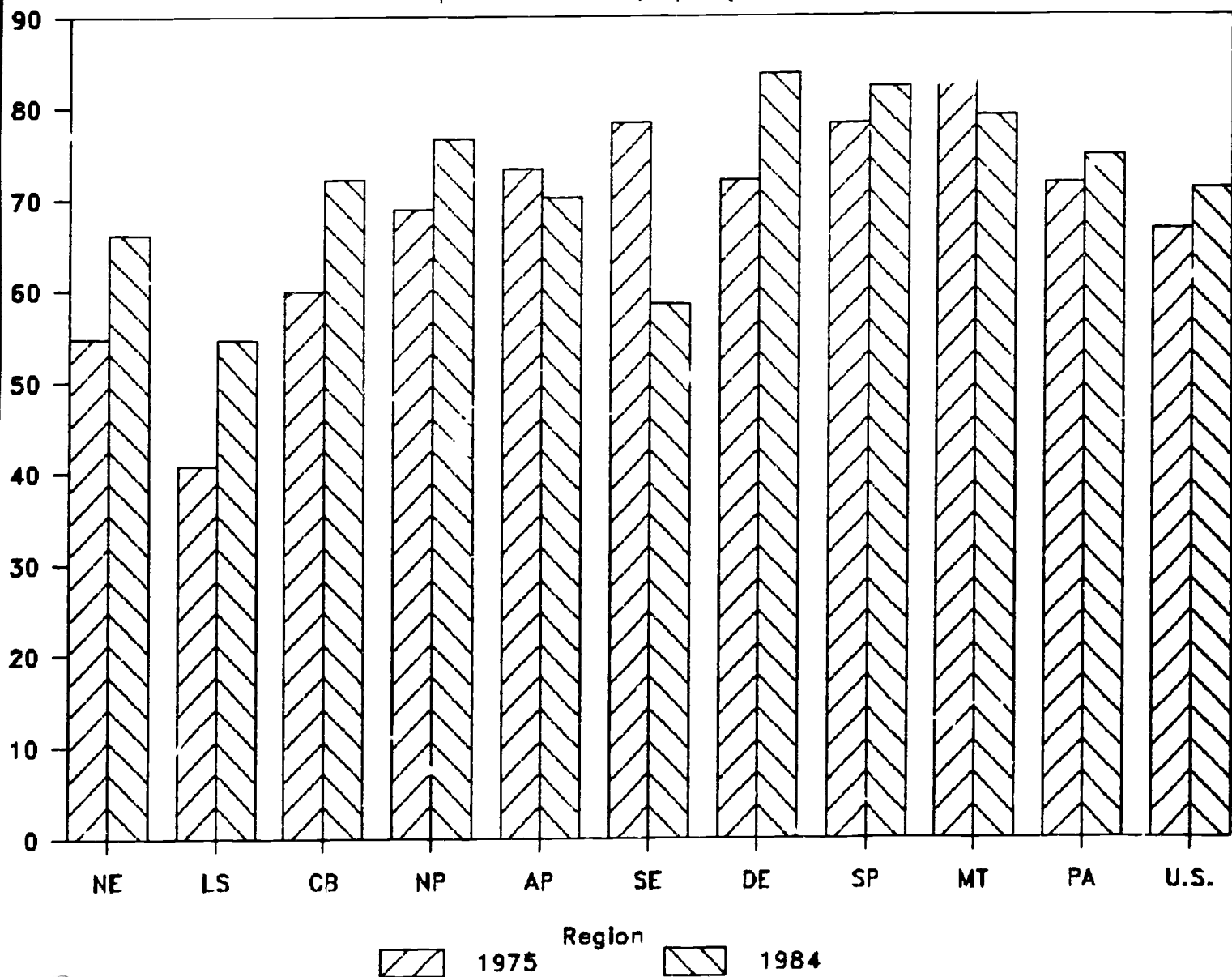
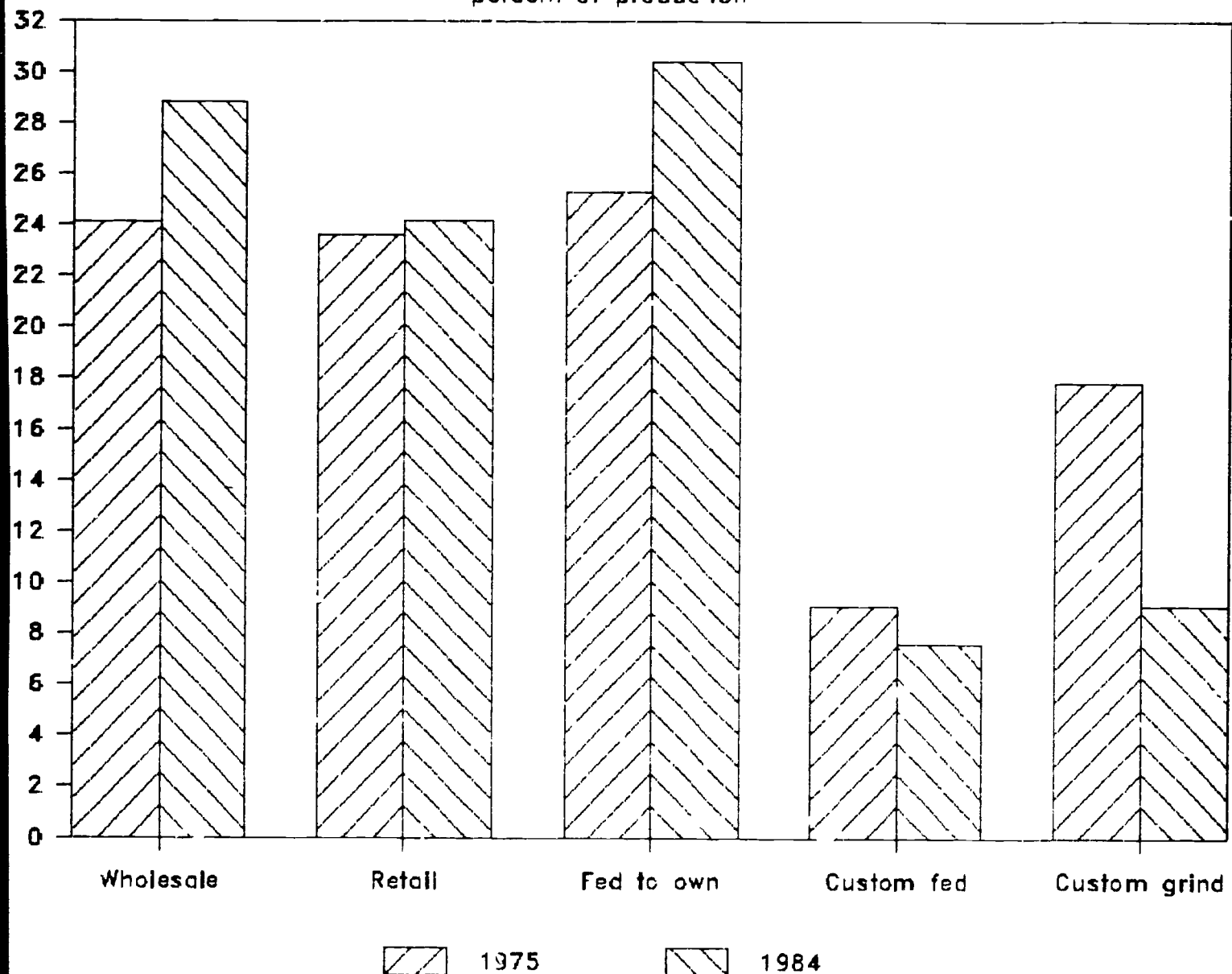


Figure 7--Method of distribution, U.S.

percent of production



these distribution methods would become more prevalent. Conversely, custom feeding and custom grind and mix establishments are generally in the smallest capacity classes. Declines for custom feeding in the Northern Plains, Southern Plains, Mountain, and Pacific regions, and custom grinding and mixing in all areas have been reported. These latter mills also tend to be owned by partnerships and sole proprietors, both of which are relatively fewer in number and production.

Transportation

Inshipments of feed ingredients to mills continued to be largely carried by trucks, although a larger portion was hauled by rail than in the 1970's. Deregulation of the trucking and rail industries in 1980 contributed to these changes in transportation methods. In 1975, 16 percent of feed ingredients were received by rail. By 1984, this proportion more than doubled to 38 percent, mostly at the expense of company-owned trucks. Trucks owned by independent firms still carried over half of all inshipments of feed ingredients. The most dramatic turnabout has occurred in the Southeast region, where rail shipments increased from 28 percent in 1975 to 64 percent in 1984. Truck shipments were still the predominant form of transportation in the grain surplus regions including the Lake States, Corn Belt, and Northern Plains because of the shorter distance involved in the shipments.

Like the 1975 survey, virtually all outshipments of formula feed were transported by company-owned, customer-owned, or other trucks. Rail and barge transportation accounted for only 2.4 percent of the formula feed hauled, compared with 1.7 percent in 1975. Slightly more feed tonnage was hauled by company-owned and other trucks versus customer-owned trucks.

The distance that a ton of feed was hauled by trucks averaged 58 miles, compared with 69 miles in 1975. Distance of shipments ranged from 35 miles in the Pacific region to 83 miles in the Mountain region.

CHARACTERISTICS OF FORMULA FEED PRODUCTION

This section discusses specific characteristics of formula feed production including: (1) primary and secondary production, (2) type of livestock feed, (3) kinds of primary feed, (4) form of feed, and (5) feed ingredients used to manufacture primary feed.

Primary and Secondary Production ^{4/}

In 1984, almost 58 percent of U.S. feed mills engaged only in primary feed production, 21 percent only in secondary feed production, and 21 percent in both primary and secondary feed production. The number of mills manufacturing only primary feed shows a marked increase from 29 percent of all mills in 1975 to 58 percent in 1984 while the number manufacturing secondary feed dropped markedly.

^{4/} Primary feed is feed which is processed and mixed from individual ingredients, although a premix is sometimes used at the rate of less than 100 pounds per ton of finished feed. Secondary feed is manufactured by mixing one or more grains and ingredients with a formula feed supplement at a rate of 100 pounds or more per ton of finished feed.

Primary feed production altogether accounted for 87 percent of all formula feed manufactured in the United States, up from 72 percent in 1975 (fig. 8). Primary feed production was especially dominant in the Appalachian, Southeast, Delta States, Mountain, and Pacific regions (app. table 8).

Primary feed production was also more common in larger mills with an annual capacity of 25,000 tons or more. A marked decline in secondary feed production was reported in 1984 for the smaller mills with an annual capacity of less than 25,000 tons (app. table 9).

Type of Livestock Feed

The amount of livestock feed produced for poultry, dairy, beef, and swine mirrors the changes in livestock numbers since 1975. Grain-consuming animal units during 1975-84 increased about 10 percent (5). Total concentrates fed to livestock and poultry in 1984 were slightly over 20 percent higher than the 1975 level. The number of cattle on feed increased by 19 percent, which is consistent with a 17-percent increase in primary beef and sheep feed tonnage. Swine (based on number slaughtered), broiler, and turkey numbers rose by 23, 45, 46, and 38 percent, respectively, as feed consumption per head was up 7 percent for swine, down 9 percent for broilers, and no change for turkeys. The number of dairy cows and layers in 1984 remained essentially at the 1975 level, although annual milk production was up from 10,400 to 12,600 pounds per cow, and egg production per layer went up from 232 to 245 a year.

Despite the increase in grain consuming animal units, formula feed tonnage in 1984 was held down by improvement in feed conversion efficiency since 1975, and a marked increase in the proportion of supplement feeds as a result of expanded onfarm feed mixing. Feed conversion efficiency, for example, has improved since 1975 by nearly 3 percent for broilers, reducing feed requirements to some extent. Supplement feeds tonnage more than doubled during 1975-84 and accounted for about 22 percent of primary production, up from 14 percent in 1975. Accordingly, the 5-percent increase in all formula feed production from 1975 to 1984 identified by the survey appears to be reasonable.

In 1984, poultry feed accounted for 35 percent of all primary feed production (5.4 million tons), down from 38 percent in 1975 (fig. 9). The significance of poultry feed tonnage was most noticeable in the Southeast where it accounted for 70 percent of all primary feed production, up from 63 percent in 1975. The share of beef cattle and sheep feed also declined, from 23 percent in 1975 to 19 percent in 1984. By contrast, the share of dairy and hog feed rose by 3 and 2 percentage points, respectively, from the 1975 level. The share of formula feed for all other animals (pet food, catfish feed, and others) remained at 4 percent (app. tables 11 and 12).

While the general pattern of formula feed tonnages for various animal feeding activities is consistent with animal inventory numbers, there are a few cases where the results were not expected.

Figure 8--Primary feed production,
percent of formula feed, by region

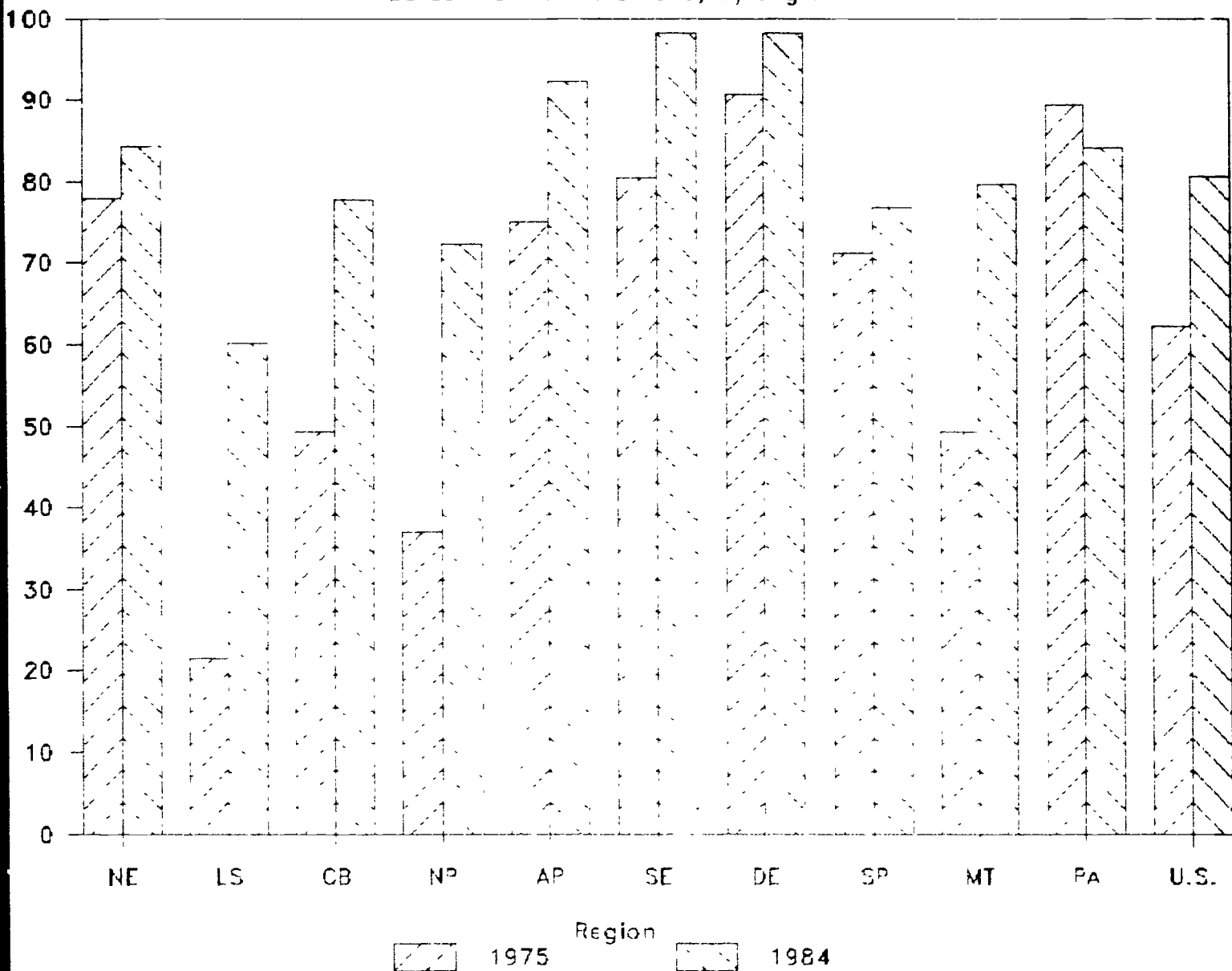
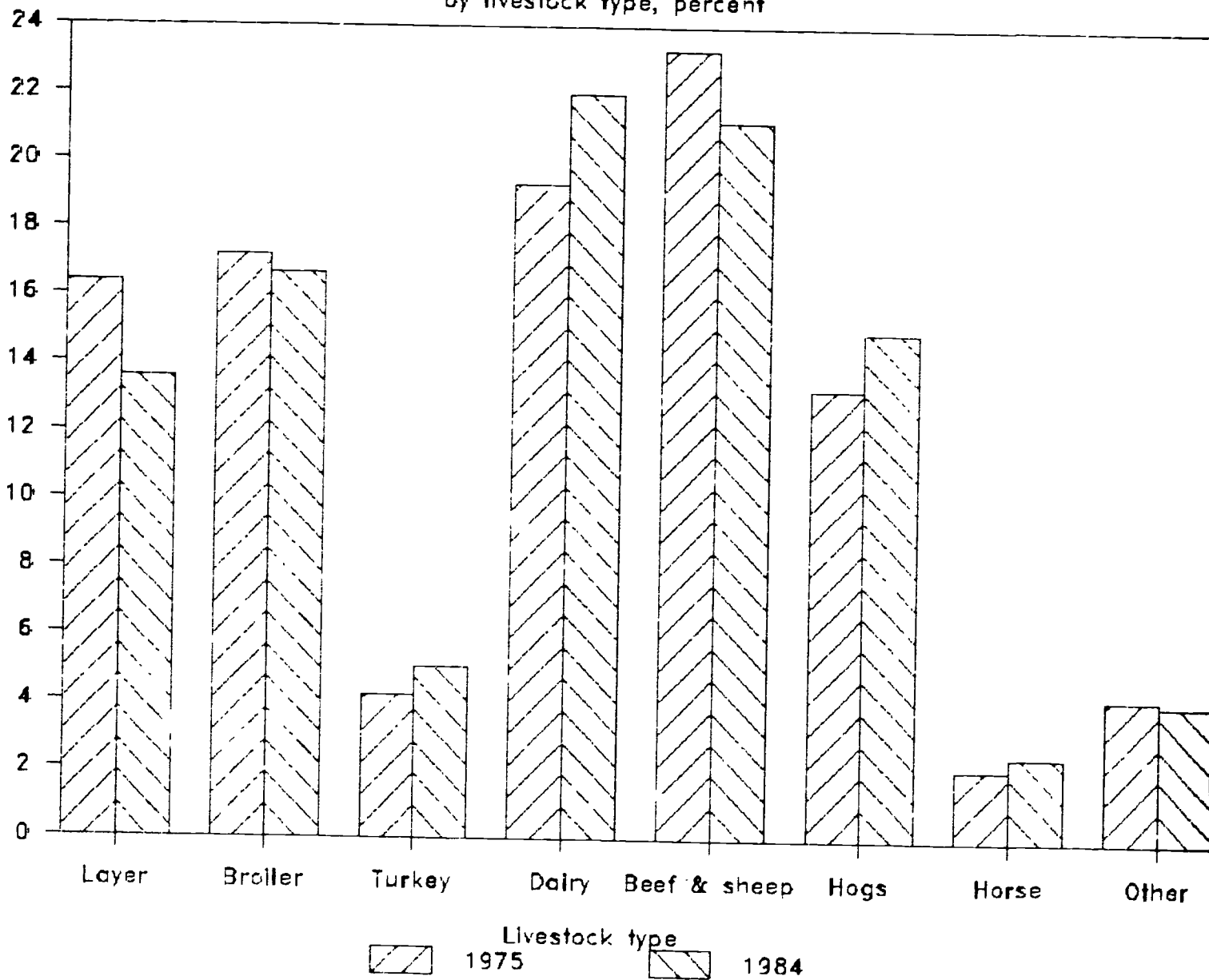


Figure 9--U.S. primary feed production,
by livestock type, percent



Kinds of Primary Feed

Although complete feeds are still by far the predominant kind of primary feed manufactured, there was a considerable increase in the production of supplements and super concentrates in 1984 (fig. 10).^{5/} Supplements and super concentrates in 1984 totaled 21.7 percent of the U.S. primary feed tonnage, compared with 13.7 percent in 1975.

The greatest relative changes in supplement use have occurred with beef, dairy, and swine. Demand for nutritionally complete feeds has declined as livestock producers substitute high-protein supplements and vitamin and minerals premixes that are mixed with their own grains on the farm. Many feeders have their own mixers and, as a consequence, have cut heavily into the market once held by custom grind and mix operations.

Form of Feed

Primary feed is categorized into five different forms: meal, pellets and crumbles, cubes, blocks, and liquid feed. In 1975, 55.5 percent of the primary feed production was ground into a meal or mash form. However, mounting evidence of the nutritional benefits to livestock from consuming pelleted feeds has resulted in a substantial increase in their use. By 1984, pelleted feeds made up 51.7 percent of U.S. primary feed production, compared with 41.7 percent in 1975 (fig. 11). This trend has prevailed in all production regions. Poultry accounts for much of this change, as both poultry numbers and the share of pelleted feed for poultry have increased. Cubes, blocks, and liquid feeds are still relatively minor as a percentage of total U.S. production. However, modest increases have occurred in certain regions. Cubes, as well as liquid feeds, are significantly more important in the Mountain region.

Feed Ingredients^{6/}

Feed grains comprised 49 percent of the the ingredient tonnage used to manufacture formula feeds (excluding shrinkage). This proportion is down from 53.4 percent in 1975 (fig. 12). Oilseed meals and grain and animal proteins have all risen proportionally to 19.9, 12.7, and 5.7 percent, respectively. Minerals and microingredients (vitamins, drugs, premixes), which constituted 3.8 and 1.1 percent of total ingredients tonnage in 1975, were 5.3 and 1.1 percent, respectively, in 1984.

^{5/} Definitions of supplement, super concentrate, and premix are:
Supplement -- a formula feed which requires the addition of grain and sometimes protein to make a complete ration. Used at the rate of approximately 200 pounds or more (usually more than 300 pounds) per ton of complete feed.

Super concentrate -- Differs from supplement in that it contains only part of the animal's protein requirements. It is added with grain and other high-protein ingredients at the rate of 100 pounds or more per ton to make a balanced ration.

Premix -- A combination of one or more microingredients with a carrier. Used at the rate of less than 100 pounds per ton of finished feed.

^{6/} See (1) for an article on feed ration composition for the poultry sector.

Figure 10--Kind of formula feed, U.S.
percent of production

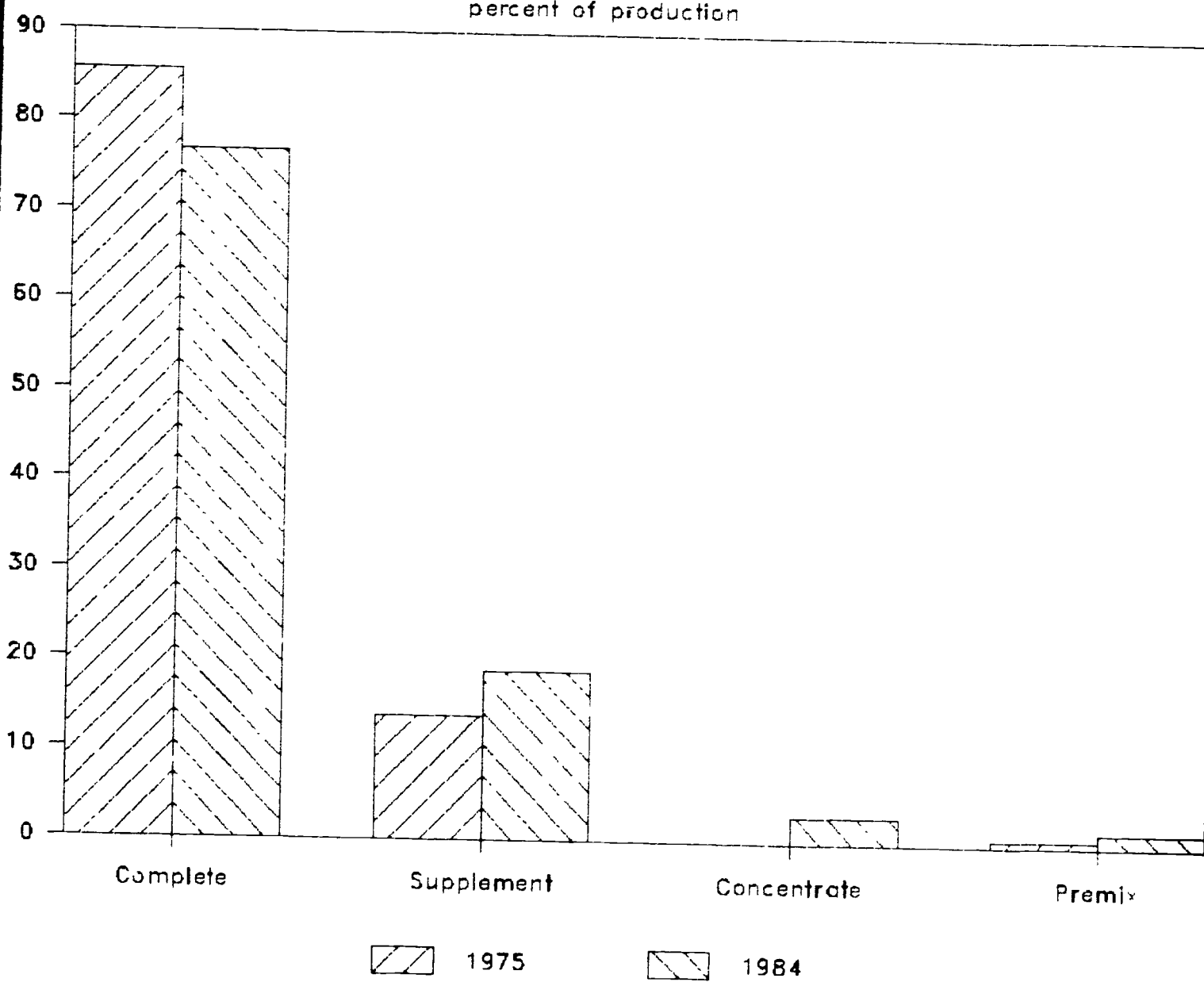


Figure 11--Form of primary feed, U.S.

percent of production

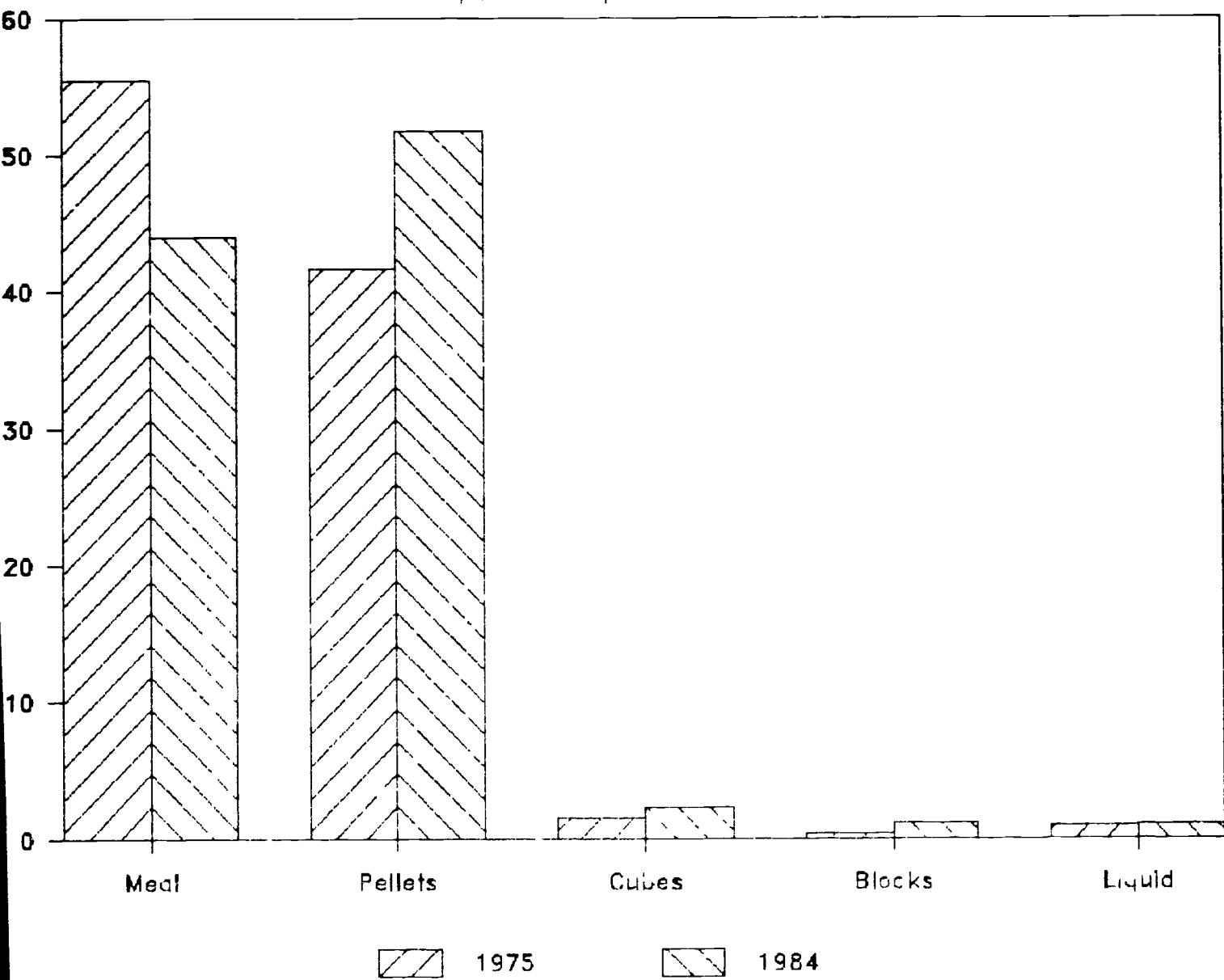
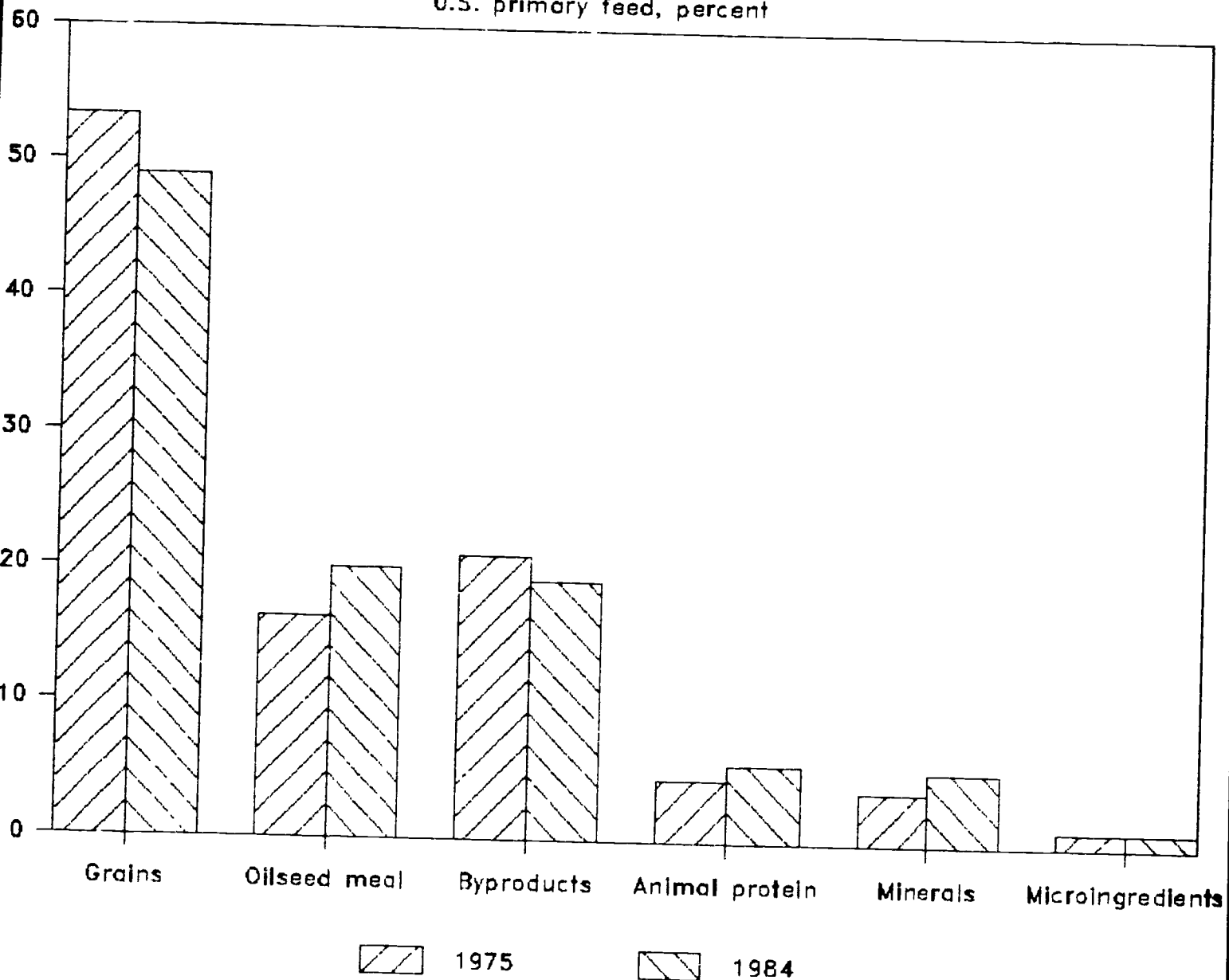


Figure 12--Feed ingredients used in
U.S. primary feed, percent



Corn accounted for 69.4 percent of feed grains used in formula feeds, which is little changed from 70 percent in 1975. Wheat grain has increased its share from 2 percent to 6.1 percent during this timespan. However, wheat prices were very favorable for feeding relative to other grains in 1984. Soybean meal has increased its share of the oilseed market at the expense of cottonseed meal, rising from 87 percent to 90.6 percent. The 17.2 million tons of soybean meal and 1.05 million tons of cottonseed meal survey total use compare closely with the official USDA 1983/84 domestic disappearance of 17.6 and 1.13 million tons, respectively. Wheat millfeeds remained the principal grain byproduct, accounting for 49.8 percent, up from 44 percent in 1975. Meat and bone meal was down from 56.4 percent in 1975 to 54.5 percent of the animal proteins. Poultry byproducts meal and feather meal have grown from 16.9 to 17.8 percent. Calcium constituted 41 percent of the total minerals used in 1975, but rose to 44 percent by 1984.

In the Corn Belt, the percentage of corn to all feed grains has dropped from 86.4 to 76.7 percent, while sorghum has increased from 0.2 to 10.0 percent. A similar pattern exists for the Southeast and Delta States, but in the Pacific region the corn to sorghum ratio increased from 2:1 to 14:1. Oats use appears to have declined in most regions and wheat use was higher in all regions. Soybean meal has increased relative to cottonseed and other oilseed meals in every region except the Northern Plains, where it has declined from 92.5 to 77.3 percent of total oilseed meals.

LABOR PRODUCTIVITY

Employees involved in feed production activities increased from 2.2 employees per mill in the smallest size class to 16.3 production workers in mills exceeding 100,000 tons. The average was 5.4 per establishment in 1984, which was down from 7.5 per establishment in 1975. Fewer production workers were being used in most regions and size intervals than in 1975. Corporations typically have a higher number of employees on average since they are more heavily represented among the higher producing size classes. Average output was highest in the Pacific region, and lowest in the Corn Belt.

Productivity, measured in terms of tons of manufactured feed per production employee, has improved significantly. Output per production worker averaged 5,274 tons in 1984, more than double the 2,238 tons in 1975. This trend holds for all regions and size classes. Average output was highest in the Pacific region, and lowest in the Corn Belt.

Employment in other nonproduction activities (maintenance, warehouse, trucking, office and management, and sales) has increased at most feed mills, averaging 14.5 per establishment. As a consequence, average output per all employee has risen much less than the output per production worker.

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Appendix table 1. Number, formula feed production, and average size of U.S. feed mills by region: 1975 and 1984

Region	Year	Number of feed mills		Formula feed production		Average size of mills
		Number	Percent	Mil. tons	Percent	1,000 tons/mill
Northeast	1975	611	9.6	11.89	11.4	19.5
	1984	600	8.9	9.25	8.4	15.4
Lake States	1975	870	13.7	10.39	9.9	11.9
	1984	1 163	17.3	13.45	12.3	11.6
Corn Belt	1975	1,900	30.0	19.29	18.5	10.2
	1984	1,983	29.5	20.36	18.6	10.3
Northern Plains	1975	873	13.8	9.57	9.2	11.0
	1984	918	13.7	10.91	10.0	11.9
Appalachian	1975	482	7.6	7.53	7.2	15.6
	1984	542	8.1	7.21	6.6	13.3
Southeast	1975	391	6.2	9.49	9.1	24.3
	1984	523	4.9	9.80	8.9	29.9
Delta States	1975	196	3.1	6.15	5.9	31.4
	1984	184	2.7	6.12	5.5	33.3
Southern Plains	1975	473	7.5	12.52	12.0	26.5
	1984	531	7.9	14.34	13.1	27.0
Mountain	1975	304	4.8	8.03	7.7	26.4
	1984	302	4.5	5.78	5.3	19.1
Pacific	1975	239	3.8	9.68	9.3	40.5
	1984	172	2.5	12.37	11.3	71.9
United States ^{1/}	1975	6,340	100.0	104.53	100.0	16.5
	1984	6,723	100.0	109.59	100.0	16.3

^{1/} Excludes Alaska and Rhode Island.

Appendix table 2. Number of U.S. formula feed mills by capacity size and by region, 1984

Region	Unit	Annual capacity (1,000 tons)								Total
		Less than 1	1-10	10-25	25-50	50-75	75-100	100 and over		
Northeast	No.	26	337	136	45	19	12	25	600	
	Pct.	4.3	56.2	22.7	7.5	3.2	2.0	4.2	100.0	
Lake States	No.	71	600	354	85	24	11	18	1,163	
	Pct.	6.1	51.6	30.4	7.3	2.1	0.9	1.5	100.0	
Corn Belt	No.	109	993	597	183	46	21	34	1,983	
	Pct.	5.5	50.1	30.1	9.2	2.3	1.1	1.7	100.0	
Northern Plains	No.	35	436	299	94	29	7	18	918	
	Pct.	3.8	47.5	32.6	10.2	3.2	0.8	2.0	100.0	
Appalachian	No.	29	323	110	37	13	7	23	542	
	Pct.	5.4	59.6	20.3	6.8	2.4	1.3	4.2	100.0	
Southeast	No.	20	124	83	34	20	13	34	328	
	Pct.	6.1	37.8	25.3	10.4	6.1	4.0	10.4	100.0	
Delta	No.	2	65	51	19	17	8	22	184	
	Pct.	1.1	35.3	27.7	10.3	9.2	4.3	12.0	100.0	
Southern Plains	No.	28	191	136	78	40	15	43	531	
	Pct.	5.3	36.0	25.6	14.7	7.5	2.8	8.1	100.0	
Mountain	No.	9	123	93	37	22	6	12	302	
	Pct.	3.0	40.7	30.8	12.3	7.3	2.0	4.0	100.0	
Pacific	No.	8	47	41	36	13	11	16	172	
	Pct.	4.7	27.3	25.8	20.9	7.6	6.4	9.3	100.0	
United States ^{1/}	No.	337	3,239	1,900	648	243	111	245	6,723	
	Pct.	5.0	48.2	28.3	3.6	3.6	1.7	3.6	100.0	

^{1/} Excludes Alaska and Rhode Island.

Appendix table 3. U.S. formula feed production by capacity size and by region, 1984

Region	Unit	Annual capacity (1,000 tons)							Total
		Less than: 1	1-10	10-25	25-50	50-75	75-100	100 and over	
Northeast	:1,000 tons:	10.5	1,251.0	1,302.6	1,112.1	1,004.9	701.4	3,863.4	9,245.9
	: Pct. :	.1	13.5	14.1	12.0	10.9	7.6	41.8	100.0
Lake States	:1,000 tons:	27.4	2,669.0	3,546.9	2,045.3	893.6	699.8	3,570.6	13,452.4
	: Pct. :	.2	19.8	26.4	15.2	6.6	5.2	26.5	100.0
Corn Belt	:1,000 tons:	56.4	3,476.3	5,050.4	4,627.2	1,604.2	1,258.1	4,290.2	20,362.8
	: Pct. :	.3	17.1	24.8	22.7	7.9	6.2	21.1	100.0
Northern Plains	:1,000 tons:	14.4	1,694.0	2,349.4	1,965.0	1,360.1	477.9	3,046.7	10,907.5
	: Pct. :	.1	15.5	21.5	18.0	12.5	4.4	27.9	100.0
Appalachian	:1,000 tons:	9.9	1,170.5	738.7	816.3	622.9	463.2	3,388.4	7,209.9
	: Pct. :	.1	16.2	10.2	11.3	8.6	6.4	47.0	100.0
Southeast	:1,000 tons:	6.5	394.3	627.3	802.4	891.1	872.7	6,215.8	9,804.2
	: Pct. :	.1	4.0	6.4	8.2	9.1	8.9	63.4	100.0
Delta States	:1,000 tons:	.5	360.3	294.8	595.6	753.8	578.5	3,532.0	6,115.6
	: Pct. :	.1	5.9	4.8	9.2	12.3	9.5	57.8	100.0
Southern Plains	:1,000 tons:	12.2	749.2	1,456.3	2,409.3	1,797.5	1,138.6	6,803.4	14,341.5
	: Pct. :	.1	5.2	10.1	16.8	12.5	7.9	47.4	100.0
Mountain	:1,000 tons:	3.3	422.5	1,080.1	999.5	1,208.1	412.2	1,659.2	5,784.5
	: Pct. :	.06	7.3	18.7	17.3	20.9	7.1	26.7	100.0
Pacific	:1,000 tons:	6.5	469.3	1,083.2	1,785.0	1,239.8	904.2	6,877.9	12,365.9
	: Pct. :	.05	3.8	8.8	14.4	10.0	7.3	55.6	100.0
United States ^{1/}	:1,000 tons:	147.6	12,656.4	17,529.7	17,157.7	11,376.0	7,506.6	43,247.6	109,590.2
	: Pct. :	.1	11.5	16.0	15.7	10.4	6.8	39.5	100.0

^{1/} Excludes Alaska, Hawaii and Rhode Island.

Appendix table 4. Ownership structure of U.S. feed mills by region: 1975 and 1984

Region	Year	Form of ownership				Number of feed mills
		Corporation	Partnership	Sole proprietorship	Farmer cooperative	
		Percent				Number
Northeast	1975	44.2	7.2	19.8	29.0	611
	1984	47.6	6.0	11.0	35.4	600
Lake States	1975	41.5	4.3	17.7	36.6	870
	1984	48.9	4.0	11.8	35.3	1,163
Corn Belt	1975	50.6	5.5	15.6	28.3	1,900
	1984	60.1	1.9	8.5	29.5	1,983
Northern Plains	1975	47.4	6.5	9.0	37.0	873
	1984	55.6	2.8	4.1	37.5	918
Appalachian	1975	49.4	14.9	17.8	17.8	482
	1984	60.0	6.8	12.4	20.6	542
Southeast	1975	64.7	4.3	11.9	11.0	391
	1984	65.9	4.6	6.1	23.5	328
Delta States	1975	56.6	14.8	14.8	13.8	196
	1984	71.2	4.3	9.2	15.2	184
Southern Plains	1975	57.3	11.0	13.9	7.9	473
	1984	70.4	5.6	12.6	11.4	531
Mountain	1975	67.8	5.9	10.2	16.1	304
	1984	73.2	5.6	4.3	16.8	302
Pacific	1975	62.3	15.9	9.6	12.1	239
	1984	66.9	11.0	4.1	18.6	172
United States ^{1/}	1975	51.0	7.4	16.0	25.6	6,340
	1984	58.5	4.0	9.0	28.5	6,723

^{1/} Excludes Alaska and Rhode Island.

Appendix table 5. U.S. formula feed production by ownership and by region: 1975 and 1984

Region	Year	Form of ownership				Formula feed production
		Corporation	Partnership	Sole proprietorship	Farmer cooperative	
		Percent				1,000 tons
Northeast	1975	54.7	2.1	19.1	24.1	11,892.3
	1984	66.2	.7	2.4	30.8	9,245.9
Lake States	1975	40.8	4.4	10.0	44.9	10,388.4
	1984	54.7	1.7	7.4	36.2	13,452.4
Corn Belt	1975	59.9	7.0	8.4	24.6	19,293.8
	1984	72.1	.3	2.1	25.5	20,362.8
Northern Plains	1975	68.8	4.5	3.6	23.0	9,567.2
	1984	76.5	4.6	.8	18.1	10,907.5
Appalachian	1975	73.2	3.2	9.9	13.7	7,527.1
	1984	70.2	1.0	.7	28.1	7,209.9
Southeast	1975	78.3	3.2	3.2	15.3	9,487.8
	1984	58.5	2.6	1.7	37.2	9,804.2
Delta States	1975	72.0	7.2	4.5	16.4	6,145.9
	1984	83.7	.3	6.7	9.3	6,115.6
Southern Plains	1975	78.2	6.0	11.7	4.1	12,517.9
	1984	82.2	4.0	4.3	9.1	14,341.5
Mountain	1975	82.6	7.3	3.3	6.7	8,026.3
	1984	79.0	2.4	2.5	16.1	5,784.5
Pacific	1975	71.5	12.3	1.2	15.0	9,684.0
	1984	74.4	1.1	20.9	3.6	12,365.9
United States ^{1/}	1975	66.6	5.7	8.1	19.6	104,530.7
	1984	71.1	1.9	5.2	21.8	109,590.2

^{1/} Excludes Alaska and Rhode Island.

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Appendix table 6. Ownership structure of U.S. feed mills by capacity size: 1975 and 1984

Size of annual capacity (1,000 tons)	Year	Corporation		Partnership		Sole proprietorship		Cooperative		Total	
		No. of establishments	Feed production	No. of establishments	Feed Production	No. of establishments	Feed production	No. of establishments	Feed production	No. of establishments	Feed production
		Percent									
		Number									
		1,000 tons									
Less than 1	1975	35.6	33.2	9.5	11.5	26.9	24.9	28.1	30.3	750	400.2
	1984	53.3	51.5	5.3	6.1	16.0	12.1	25.4	30.3	337	145.2
1-10	1975	46.0	47.7	8.5	8.2	18.3	16.9	27.3	27.3	3,704	14,576.9
	1984	50.0	51.5	5.5	3.3	13.8	8.8	30.7	36.5	3,239	12,496.2
10-25	1975	60.4	61.5	5.2	5.6	9.9	9.6	24.5	23.3	902	13,378.5
	1984	54.4	57.2	3.8	4.5	9.8	6.6	32.1	31.8	1,900	17,311.5
25-50	1975	72.1	72.0	3.3	3.3	4.2	4.7	20.4	20.0	427	14,943.8
	1984	68.9	71.7	2.4	1.3	.9	.5	27.3	27.0	648	17,051.1
50 and over	1975	73.6	71.0	4.7	5.8	4.9	6.4	16.9	16.8	556	61,225.2
	1984	72.3	64.5	.9	1.1	1.8	1.5	25.9	33.0	243	11,405.3
75-100	1975	--	--	--	--	--	--	--	--	--	--
	1984	76.3	78.2	1.3	2.8	5.3	4.3	17.1	14.7	111	7,565.8
100 and over	1975	--	--	--	--	--	--	--	--	--	--
	1984	73.8	75.3	1.3	.9	3.6	4.8	21.1	19.0	245	43,615.1
Total	1975	51.0	66.6	7.4	5.7	16.0	8.1	25.6	19.6	6,340	104,520.7
	1984	58.9	70.9	3.8	2.0	9.5	4.2	27.8	22.9	6,723	109,590.2

-- = No data reported for capacities 75-100 and 100,000 tons and over in 1975 survey.

Appendix table 7. Number of establishments manufacturing primary, secondary, and both primary and secondary feeds: 1975 and 1984

Region	Year	Number of establishments			Total Number
		Primary production	Secondary production	Both primary and secondary production	
		Percent			
Northeast	1975	33.6	28.8	37.6	611
	1984	60.3	13.2	26.5	600
Lake States	1975	13.2	53.6	33.3	870
	1984	40.2	28.1	31.7	1,163
Corn Belt	1975	18.2	60.5	21.3	1,900
	1984	52.2	25.5	22.3	1,983
Northern Plains	1975	22.6	56.6	20.8	873
	1984	50.9	32.1	17.0	918
Appalachian	1975	30.7	49.0	20.3	482
	1984	62.5	18.4	19.1	542
Southeast	1975	45.0	33.5	21.5	391
	1984	82.9	6.1	11.0	328
Delta States	1975	64.8	20.4	14.3	196
	1984	75.4	13.0	11.6	184
Southern Plains	1975	51.0	22.8	26.4	473
	1984	75.4	12.7	11.9	531
Mountain	1975	45.1	29.3	25.7	304
	1984	81.7	10.0	8.3	302
Pacific	1975	65.5	9.2	21.3	239
	1984	84.6	0	15.4	172
United States	1975	29.3	45.9	24.8	6,340
	1984	57.9	21.2	20.9	6,723

^{1/} Excludes Alaska and Rhode Island.

Appendix table 8. Primary and secondary feed production by region: 1975 and 1984

Region	Year	Formula feed production						Total primary feed	Total secondary feed	All feed production
		Primary feed	Secondary feed	Both primary and secondary		Primary	Secondary			
		Percent						1,000 tons		
Northeast	1975	78.0	8.1	8.0	5.9	10,226.3	1,660.0	11,892.3		
	1984	84.3	2.6	9.7	3.4	8,688.8	557.1	9,245.9		
Lake States	1975	21.6	41.6	14.0	22.8	3,697.7	3,690.7	10,388.4		
	1984	60.1	14.7	11.3	13.9	9,603.5	3,848.9	13,452.4		
Corn Belt	1975	49.4	28.9	10.7	11.0	11,591.3	7,702.5	19,293.3		
	1984	77.8	8.0	8.2	6.1	17,496.8	2,866.0	20,362.8		
Northern Plains	1975	37.0	43.4	10.5	2.1	4,545.3	5,021.9	9,567.2		
	1984	72.3	22.0	3.0	2.7	8,213.3	2,694.2	10,907.5		
Appalachian	1975	75.0	13.3	8.5	3.2	6,288.2	1,238.9	7,527.1		
	1984	92.3	1.6	4.6	1.5	6,987.3	222.7	7,209.9		
Southeast	1975	80.5	5.1	2.2	2.8	8,332.9	1,154.9	9,487.8		
	1984	93.2	1.3	3.9	.2	9,663.4	140.7	9,804.2		
Delta States	1975	90.7	4.1	3.9	1.2	5,819.6	326.3	6,145.9		
	1984	98.3	.6	.5	.7	6,039.4	76.2	6,115.6		
Southern Plains	1975	71.1	14.9	8.8	5.3	9,991.3	2,526.6	12,517.9		
	1984	76.7	16.3	6.1	.9	11,873.9	2,467.6	14,341.5		
Mountains	1975	49.4	35.8	11.2	3.6	4,866.6	3,573.5	8,026.3		
	1984	79.7	15.3	4.4	.6	4,864.1	920.4	5,744.5		
Pacific	1975	89.4	.8	6.8	3.0	9,040.9	643.1	9,684.0		
	1984	88.2	0	8.7	3.1	11,985.1	380.8	12,365.9		
United States	1975	62.2	21.0	9.3	7.5	74,739.5	29,791.2	104,530.7		
	1984	80.7	8.9	6.4	4.0	95,415.6	14,174.6	109,590.2		

1/ Excludes Alaska and Rhode Island.

Appendix table 9. Primary and secondary feed production by capacity size: 1975 and 1984

Size of annual capacity (1,000 tons)	Year	Formula feed production						
		Percent		Both primary and secondary		Total		All formula
		Primary feed	Secondary feed	Primary	Secondary	Primary feed	Secondary feed	feed production
Less than 1	1975	14.5	65.0	11.0	9.5	102.0	298.2	400.2
	1984	41.7	27.1	16.1	15.1	83.9	61.3	145.2
1-10	1975	20.2	49.7	13.9	16.3	4,957.2	9,619.8	14,576.9
	1984	43.1	30.0	10.7	16.5	6,683.4	5,812.8	12,496.2
10-25	1975	39.4	30.8	15.2	14.5	7,312.2	6,066.3	13,378.5
	1984	52.9	13.9	20.3	12.2	12,670.9	4,640.6	17,311.5
25-50	1975	69.2	13.9	11.2	5.7	12,020.3	2,929.5	14,949.8
	1984	81.9	3.8	9.0	5.2	15,508.4	1,542.7	17,051.1
50 and over	1975	75.7	13.5	6.4	4.7	50,282.7	10,942.6	61,225.2
50-75	1984	94.3	2.0	3.3	.3	11,134.5	270.8	11,405.3
75-100	1975	--	--	--	--	--	--	--
	1984	94.5	.9	4.2	.4	7,471.6	94.2	7,565.8
100 and over	1975	--	--	--	--	--	--	--
	1984	93.0	3.7	3.0	.3	41,863.0	1,752.1	43,615.1
Total	1975	62.2	21.0	9.3	7.5	74,674.3	29,816.4	104,530.7
	1984	80.7	8.9	6.4	4.0	95,415.6	14,174.6	109,590.2

-- = No data reported for capacities 75-100 and 100,000 tons and over in 1975 survey.

Appendix table 10. Distribution of all formula feed production by region: 1975 and 1984

Region	Year	Wholesale	Retail	Feeding own animals	Custom feeding	Custom grind and mix	Total
		Percent					Million tons
Northeast	1975	27.0	25.3	36.3	.2	11.1	11.89
	1984	36.6	33.9	22.7	.2	6.6	9.25
Lake States	1975	15.4	21.8	4.3	.7	57.8	10.39
	1984	31.9	29.1	7.3	5.3	26.4	13.45
Corn Belt	1975	33.1	26.8	4.0	1.6	34.5	19.29
	1984	54.3	22.7	9.5	.2	13.2	20.36
Northern Plains	1975	22.4	19.3	10.9	28.3	19.1	9.57
	1984	34.7	21.5	17.4	18.1	8.3	10.91
Appalachian	1975	39.6	15.7	32.9	.04	1.8	7.53
	1984	33.2	15.9	42.3	.04	8.6	7.21
Southeast	1975	27.2	17.3	47.1	1.0	7.4	9.49
	1984	12.9	18.2	67.8	.03	1.0	9.80
Delta States	1975	20.5	6.3	70.1	1.5	1.7	6.15
	1984	17.4	8.3	73.7	.03	.5	6.12
Southern Plains	1975	24.1	19.1	22.0	30.5	4.3	12.52
	1984	18.4	16.8	31.6	25.8	7.4	14.34
Mountain	1975	9.1	29.1	40.3	16.8	4.7	8.03
	1984	16.9	43.8	13.9	20.1	5.3	5.78
Pacific	1975	13.6	46.1	27.2	11.1	2.0	9.68
	1984	8.6	38.7	47.4	5.1	.5	12.37
United States ^{1/}	1975	24.1	23.6	25.3	9.1	17.8	104.53
	1984	28.8	24.2	30.4	7.6	9.1	109.59

^{1/} Excludes Alaska and Rhode Island.

Appendix table 11. All formula feed production from primary manufacturing by type of limited feed and by region: 1975 and 1984

Region	Year	Starter-grower-layer-breeder	Broiler	Turkey	Dairy	Beef and sheep	Hog	Horse	All other	Total
										Mil. tons
										1,000 tons
Northeast	1975	2,290.8	3,452.9	122.5	3,239.0	65.9	252.3	202.9	522.2	10.15
	1984	2,096.6	1,691.4	253.9	3,587.7	146.4	335.1	352.0	230.8	8.69
Lake States	1975	441.2	72.6	480.2	1,364.0	205.8	892.1	41.3	189.9	3.69
	1984	1,413.7	435.6	1,626.2	3,381.6	408.7	1,855.3	175.7	306.6	9.60
Corn Belt	1975	1,316.2	111.3	447.8	1,602.5	1,751.1	4,795.6	140.1	1,016.7	11.20
	1984	1,444.1	726.8	875.9	2,667.6	2,155.1	7,899.5	319.1	1,409.6	17.50
Northern Plains	1975	187.7	11.3	39.6	286.0	2,499.0	1,274.9	25.5	159.5	4.48
	1984	266.8	111.6	65.0	665.8	4,620.8	2,163.9	66.7	252.7	8.21
Appalachian	1975	1,167.2	1,539.1	509.9	1,427.1	282.0	916.0	267.7	171.3	6.28
	1984	1,143.4	1,972.3	826.3	1,510.3	226.5	947.4	188.7	172.5	6.99
Southeast	1975	2,317.4	2,895.1	64.4	1,259.8	523.4	714.6	225.0	333.2	8.33
	1984	2,056.0	4,558.2	119.1	1,801.1	290.0	367.4	134.0	337.7	9.66
Delta States	1975	1,157.0	3,093.9	55.6	648.4	343.8	136.6	105.1	73.1	5.82
	1984	1,583.7	2,972.8	25.6	385.9	289.4	172.9	124.1	485.0	6.04
Southern Plains	1975	846.0	937.0	281.2	954.1	5,866.2	500.1	338.2	265.1	9.99
	1984	1,102.8	1,355.8	461.6	915.5	6,977.4	276.6	526.4	257.8	11.87
Mountain	1975	208.6	46.4	168.6	445.8	3,443.9	215.4	114.9	152.1	4.80
	1984	419.7	27.0	170.7	948.5	2,682.6	177.1	281.0	157.7	4.86
Pacific	1975	2,199.7	532.0	708.0	2,904.5	2,236.3	124.2	79.6	196.5	9.04
	1984	1,460.0	2,067.1	389.6	5,119.9	2,408.5	98.5	197.0	244.4	11.99
United States ^{1/}	1975	12,131.7	12,694.7	3,077.9	14,209.2	17,217.4	9,221.8	1,540.3	3,079.6	73.77
	1984	12,981.7	15,918.5	4,812.9	20,983.8	20,205.4	14,293.8	2,364.0	3,854.9	95.42

^{1/} Excludes Alaska and Rhode Island.

Appendix table 12. All formula feed production from primary manufacturing
by type of livestock feed and by region: 1975 and 1984

Region	Year	Starter- grower, layer- breeder	Broiler	Turkey	Dairy	Beef and sheep	Hog	Horse	All other	Total
----- Percent -----										
										Mil. tons
Northeast	1975	22.6	34.0	1.2	31.9	0.6	2.5	2.0	5.1	10.15
	1984	24.1	19.5	2.9	41.3	1.7	3.9	4.1	2.7	8.69
Lake States	1975	12.0	2.0	13.0	37.0	5.6	24.2	1.1	5.1	3.69
	1984	14.7	4.5	16.9	35.2	4.3	19.3	1.8	3.2	9.60
Corn Belt	1975	11.8	1.0	4.0	14.5	15.6	42.8	1.3	9.1	11.20
	1984	8.3	4.2	5.0	15.2	12.3	45.1	1.8	8.1	17.50
Northern Plains	1975	4.2	.3	.9	6.4	55.7	28.4	.6	3.6	4.48
	1984	3.2	1.4	.8	8.2	56.3	26.3	.8	3.1	8.21
Appalachian	1975	18.6	24.5	8.1	22.7	4.5	14.6	4.3	2.7	6.28
	1984	16.3	28.2	11.8	21.7	3.2	13.6	2.7	2.5	6.99
Southeast	1975	27.8	34.7	0.8	15.1	6.3	8.6	2.7	4.0	8.33
	1984	21.3	47.2	1.2	18.6	3.0	3.8	1.4	3.5	9.66
Delta States	1975	19.9	53.2	4.4	11.1	5.9	2.3	1.8	1.3	5.82
	1984	26.2	49.2	.4	6.4	7.8	2.9	2.1	8.0	6.04
Southern Plains	1975	8.5	9.4	2.8	9.6	58.7	5.0	3.4	2.7	9.99
	1984	9.3	11.4	3.9	7.7	58.8	2.3	4.4	2.2	11.87
Mountain	1975	4.4	1.0	3.5	9.3	71.9	4.5	.4	3.2	4.80
	1984	8.9	.6	3.7	19.6	55.0	3.6	5.5	3.2	4.86
Pacific	1975	24.3	5.9	7.8	32.8	24.7	1.4	.9	2.2	9.04
	1984	12.2	17.2	3.3	42.7	20.1	.8	1.6	2.0	11.99
United States	1975	16.4	17.2	4.2	19.3	23.3	13.3	2.1	4.2	73.77
	1984	13.6	16.7	5.0	22.0	21.2	15.0	2.5	4.0	95.42

1/ Excludes Alaska, and Rhode Island.

Appendix table 13. Complete, supplement, super concentrate, and premix production from primary manufacturing: 1975 and 1984

Region	Year	Complete feed	Supplement feed	Super concentrates 1,000 tons	Premix	All primary feed
Northeast	1975	9,573.2 (94.3) ^{1/}	522.7 (5.2)	--	52.6 (.5)	10,148.5
	1984	7,979.8 (91.8)	626.6 (7.2)	76.1 (.9)	6.3 (.1)	8,638.8
Lake States	1975	2,654.2 (72.0)	980.3 (26.6)	--	52.6 (1.4)	3,687.1
	1984	5,637.5 (58.7)	3,115.1 (32.4)	697.9 (7.3)	152.9 (1.6)	9,603.5
Corn Belt	1975	6,759.0 (60.7)	4,261.3 (38.1)	--	138.9 (1.2)	11,199.2
	1984	9,604.2 (54.9)	6,436.3 (36.8)	1,072.7 (6.1)	383.7 (2.2)	17,496.9
Northern Plains	1975	3,112.1 (69.4)	1,360.9 (30.4)	--	10.6 (.2)	4,483.5
	1984	4,613.0 (56.2)	3,091.5 (37.6)	313.5 (3.8)	195.3 (2.4)	8,213.3
Appalachian	1975	5,434.0 (86.5)	769.7 (12.3)	--	76.5 (1.2)	6,280.3
	1984	6,324.6 (90.5)	509.3 (7.3)	57.9 (.8)	95.5 (1.4)	6,987.3
Southeast	1975	7,584.4 (91.0)	744.1 (8.9)	--	4.4 (.05)	8,332.9
	1984	9,160.9 (94.8)	178.7 (1.8)	73.1 (.8)	250.7 (2.6)	9,663.5
Delta States	1975	5,675.8 (97.6)	117.2 (2.0)	--	23.5 (.4)	5,816.5
	1984	5,702.2 (94.4)	334.9 (5.5)	2.3 (0)	0 (0)	6,039.4
Southern Plains	1975	9,263.4 (92.7)	689.5 (6.9)	--	35.2 (.3)	9,988.0
	1984	10,127.3 (85.3)	1,451.8 (12.2)	258.4 (2.2)	36.4 (.03)	11,873.9
Mountain	1975	4,359.5 (90.9)	391.5 (8.2)	--	44.8 (.9)	4,795.8
	1984	3,159.4 (65.0)	1,286.5 (26.4)	210.5 (4.3)	217.7 (4.3)	4,864.2
Pacific	1975	8,772.2 (97.0)	233.8 (2.6)	--	34.9 (.4)	9,988.0
	1984	10,945.8 (91.3)	936.4 (7.8)	3.0 (.02)	58.2 (.8)	11,985.0
United States ^{2/}	1975	63,227.8 (85.7)	10,070.9 (13.7)	--	99.9 (.6)	73,772.6 (100.0)
	1984	73,254.9 (76.8)	17,967.1 (18.8)	2,765.4 (2.9)	1,428.4 (1.5)	95,415.8 (100.0)

^{1/} Figures in parentheses are percentage numbers.

^{2/} Excludes Alaska and Rhode Island.

-- = no data reported for super concentrate production in 1975 survey.

Appendix table 14. Complete feed production from primary manufacturing by type of feed and by region: 1975 and 1984

Region	Year	Starter-	Broiler	Turkey	Dairy	Beef	Hog	Horse	All	Total
		grower, layer- breeder								
		----- Percent -----								Mil tons
Northeast	1975	22.7	35.7	1.2	30.4	.4	2.2	2.0	5.4	9.57
	1984	25.7	21.3	3.1	37.8	1.6	3.4	4.3	2.8	7.98
Lake States	1975	11.6	2.3	16.8	38.6	3.4	21.3	1.5	4.6	2.65
	1984	20.6	7.3	27.1	22.5	2.2	14.3	2.9	3.1	5.64
Corn Belt	1975	12.8	1.4	5.2	16.7	10.6	38.1	1.8	13.4	6.80
	1984	11.9	7.4	8.5	15.5	10.1	31.1	3.0	12.5	9.60
Northern Plains	1975	4.3	.3	1.1	6.8	60.9	23.5	.7	2.4	3.11
	1984	4.8	.3	1.3	9.7	59.4	19.8	.9	3.8	4.61
Appalachian	1975	18.5	25.2	8.8	24.9	4.2	10.9	4.9	2.6	5.43
	1984	17.7	30.3	12.7	21.1	2.6	10.5	2.9	2.2	6.32
Southeast	1975	28.3	37.1	.8	13.8	5.8	7.7	2.6	3.9	7.58
	1984	21.9	47.5	1.3	19.2	2.6	2.9	1.4	3.2	9.16
Delta States	1975	20.2	53.0	4.5	11.1	5.8	2.2	1.9	1.3	5.68
	1984	27.7	47.0	.4	6.7	4.5	2.9	2.2	8.6	5.70
Southern Plains	1975	8.7	10.1	2.8	9.8	57.9	4.5	3.5	2.6	9.26
	1984	10.3	13.4	4.5	8.1	54.8	2.2	4.6	2.1	10.13
Mountain	1975	4.5	1.1	3.9	9.4	70.8	4.5	2.5	3.3	4.36
	1984	13.1	.6	15.3	18.6	46.6	3.5	7.5	4.8	3.16
Pacific	1975	24.6	5.6	8.0	32.9	25.0	1.3	.9	1.5	8.77
	1984	13.2	18.3	3.6	38.9	21.6	.9	1.8	1.7	10.95
United States ^{1/}	1975	17.3	19.4	4.6	19.8	22.8	9.7	2.3	4.2	63.23
	1984	16.6	20.7	6.3	20.9	19.1	8.9	3.0	4.5	73.25

^{1/} Excludes Alaska, and Rhode Island.

Appendix table 15. Forms of primary feed production by region: 1975 and 1984

Region	Year	Meal	Pellets	Cubes	Blocks	Liquid	Total primary Production
Percent							1,000 tons
Northeast	1975	42.5	<u>1/</u>	<u>1/</u>	0	0.2	10,149
	1984	36.2	63.3	.4	0	.1	8,688.8
Lake States	1975	65.8	33.2	0.3	0.05	.6	3,687
	1984	58.9	39.5	.5	.1	.9	9,603.5
Corn Belt	1975	60.0	37.8	.6	.5	1.0	11,199
	1984	47.9	48.5	1.9	1.1	.5	17,496.9
Northern Plains	1975	55.3	34.3	5.2	.8	4.4	4,484
	1984	55.2	35.6	4.3	1.8	3.1	8,213.3
Appalachian	1975	41.7	56.9	.3	.4	.8	6,280
	1984	30.5	67.1	1.0	1.2	.2	6,987.3
Southeast	1975	51.7	47.5	.4	.1	.2	8,333
	1984	37.7	60.8	.3	.5	.7	9,663.5
Delta States	1975	45.1	53.8	.9	.03	.2	5,817
	1984	23.0	74.4	1.1	1.4	.1	6,039.4
Southern Plains	1975	58.8	36.6	5.4	.9	.2	9,988
	1984	47.6	41.9	6.3	3.1	1.1	11,873.9
Mountain	1975	75.3	18.2	1.9	.7	3.9	4,796
	1984	48.4	35.9	8.9	1.8	5.0	4,864.2
Pacific	1975	66.4	32.8	.6	.04	.1	9,041
<u>1/</u>	1984	41.9	57.5	.5	.06	.1	11,985.0
United States	1975	55.5	41.7	1.5	.4	.9	73,773
	1984	43.9	51.7	2.3	1.1	1.0	95,415.8

1/ Data not given to avoid disclosure of individual operations.

Appendix table 16. Feed ingredients used in primary manufacturing by region: 1975 and 1984

Region	Year	Oil grains	Oilseed meals	Grain byproducts	Animal proteins	Minerals	Other byproduct feeds	Micro ingredients	Total
1,000 tons									
Northeast	1975	4,865.3	1,546.7	2,113.3	439.7	281.3	513.3	51.5	9,811.1
	1984	3,816.1	1,639.2	2,068.1	408.4	359.3	325.4	72.4	8,688.9
Lake States	1975	1,534.4	1,003.3	410.3	249.5	225.0	239.3	22.3	3,684.4
	1984	3,526.7	3,748.1	738.8	447.8	599.5	418.0	124.6	9,603.5
Corn Belt	1975	4,943.3	2,369.0	1,216.8	721.3	588.9	684.5	82.3	10,606.8
	1984	5,863.6	4,984.7	2,765.5	1,324.0	1,463.5	916.1	79.6	17,497.0
Northern Plains	1975	2,140.5	577.2	412.4	121.8	178.8	589.5	71.7	4,091.9
	1984	3,741.3	1,289.9	969.3	679.1	653.2	791.7	86.5	8,213.2
Appalachian	1975	2,537.6	1,258.9	885.6	297.2	211.1	295.8	75.1	5,562.1
	1984	3,605.0	1,483.9	1,068.7	280.4	286.6	211.9	50.9	6,987.4
Southeast	1975	4,602.4	1,401.6	625.5	377.5	270.8	882.6	107.3	8,267.1
	1984	5,211.5	1,767.1	1,029.8	594.4	271.4	665.9	128.7	9,663.4
Delta States	1975	3,240.9	1,048.1	409.6	339.9	181.7	237.6	105.4	5,569.4
	1984	3,705.6	1,164.3	324.9	382.4	196.7	172.6	32.5	5,982.0
Southern Plains	1975	5,726.2	1,033.8	781.2	163.7	347.3	953.3	126.0	9,127.0
	1984	6,811.3	1,251.7	1,651.3	245.5	641.2	1,081.3	191.5	11,873.8
Mountain	1975	2,645.7	230.4	129.9	60.3	130.3	916.0	57.1	4,169.7
	1984	2,290.2	441.7	763.3	78.6	323.6	688.7	57.6	4,644.1
Pacific	1975	4,861.6	850.7	1,080.2	324.7	234.2	1,203.0	74.8	8,519.2
	1984	7,915.4	1,210.6	716.9	972.6	254.5	705.0	126.6	11,989.3
United States	1975	37,104.4	11,319.4	8,055.3	3,095.4	2,645.8	6,515.0	773.5	69,508.8
		(53.4)	1/ (16.3)	(11.6)	(4.5)	(3.8)	(9.4)	(1.1)	
	1984	46,489.6	18,975.6	12,096.6	5,413.2	5,049.6	5,977.0	1,053.2	95,054.8
		(48.9)	(19.9)	(12.7)	(5.7)	(5.3)	(6.3)	(1.1)	

1/ Figures in parentheses are percentage numbers.

Appendix table 17--Number of feed manufacturing establishments producing formula feed, by state and region, 1984

State and Region	Form of ownership				
	Corporation	Partnership	Single Owner	Farmer Cooperative	Total
	Number				
Northeast					
Connecticut	0	0	0	9	9
Delaware	13	0	0	0	13
Maine	5	0	0	3	8
Maryland	22	6	13	19	60
Massachusetts	0	0	2	2	4
New Hampshire	1	0	0	1	2
New Jersey	0	0	0	12	12
New York	91	0	9	101	201
Pennsylvania	141	30	43	62	276
Vermont	11	0	0	4	14
Total	285	36	66	212	599
Lake States					
Michigan	142	11	17	63	233
Minnesota	211	8	27	140	386
Wisconsin	216	27	93	208	544
Total	569	46	137	411	1,163
Corn Belt					
Illinois	284	0	38	60	382
Indiana	256	7	44	88	395
Iowa	329	6	39	208	583
Missouri	191	5	28	84	307
Ohio	132	20	20	145	316
Total	1,191	38	169	585	1,983
Northern Plains					
Kansas	220	8	13	177	418
Nebraska	204	17	9	70	300
North Dakota	22	0	0	27	49
South Dakota	64	0	17	70	151
Total	510	26	38	344	918
Appalachian					
Kentucky	93	12	15	31	151
North Carolina	125	8	32	12	177
Tennessee	46	12	15	8	81
Virginia	56	0	4	52	111
West Virginia	6	6	0	11	22
Total	325	37	67	113	542
Southeast					
Alabama	48	6	0	30	84
Florida	57	0	0	12	69
Georgia	93	0	11	25	129
South Carolina	18	9	9	9	46
Total	216	15	20	77	328
Delta					
Arkansas	45	3	6	6	60
Louisiana	38	0	0	6	44
Mississippi	48	5	11	16	80
Total	131	8	17	28	184
Southern Plains					
Oklahoma	74	9	17	31	131
Texas	300	21	50	29	400
Total	374	30	67	60	531
Mountain					
Arizona	21	0	0	0	21
Colorado	64	10	0	20	94
Idaho	50	0	6	6	62
Montana	3	0	0	13	16
Nevada	4	0	0	0	4
New Mexico	23	0	0	0	23
Utah	25	0	0	13	38
Wyoming	0	7	7	0	14
Total	222	17	13	51	303
Pacific					
California	77	4	7	4	91
Hawaii	3	0	0	0	3
Oregon	22	11	0	11	43
Washington	13	4	0	18	35
Total	115	19	7	32	172
48 States					
Total	3,936	270	603	1,913	6,723

Appendix table 13- Number and production of feed manufacturing establishments, by form of ownership, by state and region, 1984

State and Region	Establishments	Form of ownership					Total
		Corporation	Partnership	Single owner	Farmer cooperative		
	Number	1,000 Tons					
Northeast							
Connecticut	9	0.0	0.0	0.0	349.2	349.2	
Delaware	13	773.5	0.0	0.0	0.0	773.5	
Maine	8	151.8	0.0	0.0	64.7	216.5	
Maryland	60	1,329.1	6.2	16.9	196.9	1,549.1	
Massachusetts	4	0.0	0.0	2.9	113.4	116.3	
New Hampshire	2	75.1	0.0	0.0	53.1	128.2	
New Jersey	12	0.0	0.0	0.0	188.9	188.9	
New York	201	1,044.4	0.0	75.1	1,328.0	2,447.6	
Pennsylvania	276	2,345.1	59.1	127.3	69.6	3,001.1	
Vermont	14	392.8	0.0	0.0	82.7	475.5	
Total	599	6,111.9	65.2	222.2	2,846.5	9,245.9	
Lake States							
Michigan	233	1,403.3	129.5	59.4	744.8	2,337.0	
Minnesota	386	3,218.4	25.9	97.0	1,339.1	4,680.4	
Wisconsin	544	2,726.5	79.1	845.3	2,784.1	6,435.1	
Total	1,163	7,348.2	234.5	1,001.7	4,868.0	13,452.4	
Corn Belt							
Illinois	382	2,534.7	0.0	137.7	734.4	3,406.9	
Indiana	395	3,017.9	8.0	56.2	718.4	3,800.4	
Iowa	583	4,460.2	25.5	171.5	1,924.1	6,581.4	
Missouri	307	3,150.8	7.1	44.7	928.8	4,131.3	
Ohio	316	1,526.3	20.7	16.6	879.3	2,442.9	
Total	1,983	14,689.9	61.3	426.7	5,184.9	20,362.8	
Northern Plains							
Kansas	418	4,596.2	2.3	9.1	679.6	5,287.2	
Nebraska	300	2,898.1	497.7	31.3	440.8	3,867.9	
North Dakota	49	244.4	0.0	0.0	188.7	433.0	
South Dakota	151	610.1	0.0	45.1	664.2	1,319.4	
Total	918	8,348.8	500.0	85.4	1,973.3	10,907.5	
Appalachian							
Kentucky	151	676.1	14.0	16.0	357.1	1,063.3	
North Carolina	177	2,604.5	5.1	24.5	476.3	3,110.4	
Tennessee	81	1,052.8	48.3	11.7	541.7	1,654.5	
Virginia	111	570.1	0.0	1.5	645.9	1,217.5	
West Virginia	22	155.8	4.2	0.0	4.2	164.2	
Total	542	5,059.2	71.7	53.7	2,025.3	7,209.9	
Southeast							
Alabama	84	1,566.0	7.1	0.0	887.0	2,460.0	
Florida	69	1,542.9	0.0	0.0	835.7	2,378.6	
Georgia	129	2,514.1	0.0	162.0	1,778.4	4,454.5	
South Carolina	46	109.7	251.2	8.7	141.5	402.1	
Total	328	5,732.7	258.3	170.6	3,642.5	9,703.5	
Delta							
Arkansas	60	2,475.6	15.8	5.9	148.4	2,645.8	
Louisiana	44	1,142.0	0.0	0.0	163.5	1,305.5	
Mississippi	80	1,498.6	3.9	403.6	258.3	2,164.3	
Total	184	5,116.2	19.7	409.5	570.2	6,115.6	
Southern Plains							
Oklahoma	131	2,417.7	11.1	37.8	286.7	2,753.3	
Texas	400	9,376.8	557.0	576.1	1,078.4	11,588.2	
Total	531	11,794.5	568.1	613.9	1,365.0	14,341.5	
Mountain							
Arizona	21	843.0	0.0	0.0	0.0	843.0	
Colorado	94	1,601.9	119.5	0.0	351.0	2,092.4	
Idaho	63	921.8	0.0	8.6	172.3	1,102.7	
Montana	46	571.5	0.0	0.0	213.2	784.7	
Nevada	4	72.1	0.0	0.0	0.0	72.1	
New Mexico	23	441.8	0.0	0.0	0.0	441.8	
Utah	38	116.5	0.0	0.0	192.5	309.0	
Wyoming	14	0.0	0.0	138.7	0.0	138.7	
Total	303	4,568.7	139.5	147.3	929.0	5,784.5	
Pacific							
California	91	7,891.0	27.5	2,580.6	145.3	10,644.3	
Hawaii	3	83.6	0.0	0.0	0.0	83.6	
Oregon	43	774.1	6.6	0.0	17.5	798.3	
Washington	35	454.0	96.4	0.0	289.2	839.7	
Total	172	9,202.7	130.5	2,580.6	452.1	12,365.9	
48 States							
Total	6,723	77,972.8	2,048.9	5,711.6	23,856.9	109,590.2	

Appendix table 19--Formula feed production from establishments with only primary, only secondary, and both primary and secondary manufacturing, by state and region, 1984

State and region	Only		Both primary and secondary		Total		Total formula feed
	primary	secondary	Primary	Secondary	primary	secondary	
	1,000 Tons						
Northeast							
Connecticut	349.2	0.0	0.0	0.0	349.2	0.0	349.2
Delaware	773.5	0.0	0.0	0.0	773.5	0.0	773.5
Maine	1.8	0.0	63.3	1.4	215.1	1.4	216.5
Maryland	1,527.2	7.7	23.1	14.1	1,527.3	21.8	1,549.1
Massachusetts	113.4	0.0	2.9	0.0	116.3	0.0	116.3
New Hampshire	128.2	0.0	0.0	0.0	128.2	0.0	128.2
New Jersey	188.9	0.0	0.0	0.0	188.9	0.0	188.9
New York	1,566.6	71.4	612.4	197.7	2,179.0	268.6	2,447.6
Pennsylvania	2,544.9	159.1	191.0	106.1	2,735.8	265.2	3,001.1
Vermont	475.5	0.0	0.0	0.0	475.5	0.0	475.5
Total	7,796.2	238.2	892.6	318.9	8,688.8	557.1	9,245.9
Lake States							
Michigan	1,484.2	356.2	161.9	334.6	1,646.1	690.8	2,337.0
Minnesota	3,442.4	617.4	174.5	446.1	3,617.0	1,063.4	4,680.4
Wisconsin	3,159.9	1,000.5	1,180.5	1,094.1	4,340.4	2,094.6	6,435.1
Total	8,086.6	1,974.1	1,516.9	1,874.8	9,603.5	3,848.9	13,452.4
Corn Belt							
Illinois	2,368.0	366.7	488.9	163.3	2,856.9	550.0	3,406.9
Indiana	3,383.1	220.7	48.2	148.5	3,431.2	369.2	3,800.4
Iowa	5,155.7	493.8	357.0	574.9	5,512.7	1,268.7	6,581.4
Missouri	3,301.7	256.1	415.9	157.4	3,717.7	413.6	4,131.3
Ohio	1,625.8	290.3	352.5	174.2	1,978.4	464.5	2,442.9
Total	15,834.3	1,627.6	1,662.5	1,238.4	17,496.8	2,866.0	20,362.8
Northern Plains							
Kansas	3,967.1	1,055.6	104.0	160.5	4,071.0	1,216.1	5,287.2
Nebraska	2,824.2	952.8	59.7	31.3	2,883.9	984.0	3,867.9
North Dakota	192.9	34.3	128.6	77.2	321.6	111.5	433.0
South Dakota	703.7	355.4	33.1	27.1	936.8	382.6	1,319.4
Total	7,887.8	2,398.1	325.5	296.1	8,213.3	2,694.2	10,907.5
Appalachian							
Kentucky	927.4	34.0	66.0	36.0	993.4	70.0	1,063.3
North Carolina	2,976.5	38.6	82.4	12.9	3,058.9	51.5	3,110.4
Tennessee	1,644.3	10.2	0.0	0.0	1,644.3	10.2	1,654.5
Virginia	1,109.8	22.7	54.6	30.3	1,164.4	53.1	1,217.5
West Virginia	0.0	8.4	126.3	29.5	126.3	37.9	164.2
Total	6,658.0	114.0	329.3	108.6	6,987.3	222.7	7,209.9
Southeast							
Alabama	2,441.6	0.0	11.3	7.1	2,452.9	7.1	2,460.0
Florida	2,268.6	110.0	0.0	0.0	2,268.6	110.0	2,378.6
Georgia	4,418.5	13.5	12.4	10.1	4,430.9	23.6	4,454.5
South Carolina	502.3	0.0	8.7	0.0	511.1	0.0	511.1
Total	9,631.0	123.5	32.4	17.2	9,663.4	140.7	9,804.2
Delta							
Arkansas	2,622.0	4.0	7.9	11.9	2,630.0	15.8	2,645.8
Louisiana	1,262.3	0.8	13.6	22.7	1,275.9	29.5	1,305.5
Mississippi	2,125.8	24.4	7.7	6.4	2,133.5	30.8	2,164.2
Total	6,009.1	35.2	29.2	41.0	6,039.4	76.2	6,115.6
Southern Plains							
Oklahoma	2,055.5	31.1	651.1	15.6	2,706.6	46.7	2,753.3
Texas	8,950.7	2,311.5	216.6	109.5	9,167.3	2,421.0	11,588.2
Total	11,006.2	2,342.6	867.7	125.1	11,873.9	2,467.6	14,341.5
Mountain							
Arizona	210.9	623.1	0.0	0.0	219.9	623.1	843.0
Colorado	2,038.5	4.5	26.9	22.5	2,065.5	26.9	2,092.4
Idaho	680.5	51.3	162.4	8.5	1,042.9	59.8	1,102.7
Montana	716.5	68.2	0.0	0.0	716.5	68.2	784.7
Nevada	72.1	0.0	0.0	0.0	72.1	0.0	72.1
New Mexico	441.8	0.0	0.0	0.0	441.8	0.0	441.8
Utah	238.4	0.0	67.1	3.5	305.5	3.5	309.0
Wyoming	0.0	138.7	0.0	0.0	0.0	138.7	138.7
Total	4,607.7	885.9	256.5	34.5	4,864.1	920.4	5,784.5
Pacific							
California	9,964.1	0.0	422.2	258.0	10,386.3	258.0	10,644.3
Hawaii	83.6	0.0	0.0	0.0	83.6	0.0	83.6
Oregon	24.1	0.0	651.3	122.8	675.4	122.8	798.3
Washington	839.7	0.0	0.0	0.0	839.7	0.0	839.7
Total	10,911.6	0.0	1,073.5	380.8	11,985.1	380.8	12,365.9
48 States							
Total	88,429.5	9,739.3	6,986.1	4,435.3	95,415.6	14,174.6	109,590.2

Appendix table 20--Formula feed from primary manufacturing: Production by livestock type, by state and region, 1984

State and Region	Starter-grower layer-breeder	Broiler	Turkey	Dairy	Beef and sheep	Hogs	Horse	All Other	Total
Tons									
Northeast									
Connecticut	179,918	5,892	4,593	143,725	1,047	2,048	3,360	8,621	349,204
Delaware	93,032	647,409	422	20,616	34	9,278	2,389	337	773,515
Maine	12,022	0	0	203,078	0	0	0	0	215,100
Maryland	790,675	547,268	333	123,159	5,868	17,160	3,701	8,136	1,527,300
Massachusetts	56,792	37	1,567	55,461	490	742	1,112	89	116,291
New Hampshire	16,113	6,398	5,029	52,519	3,518	4,611	25,011	15,049	128,248
New Jersey	17,001	8,497	2,832	37,774	28,330	28,185	56,660	9,592	188,871
New York	203,656	3,469	6,587	1,721,401	44,405	37,864	80,918	80,760	2,179,000
Pennsylvania	616,088	591,383	229,929	839,009	58,693	224,962	110,676	65,060	2,735,805
Vermont	21,381	1,416	2,582	367,806	2,932	7,131	30,666	41,582	475,496
Total	2,006,678	1,811,768	253,874	3,564,548	145,317	331,920	345,493	229,226	8,688,125
Lake States									
Michigan	513,845	24,985	134,066	424,146	64,305	408,987	38,911	36,855	1,646,100
Minnesota	535,944	404,819	800,378	548,870	194,576	916,258	103,669	112,486	3,517,000
Wisconsin	363,900	5,838	691,781	2,408,623	149,809	530,084	33,118	157,247	4,340,400
Total	1,413,689	435,642	1,626,225	3,381,639	408,690	1,855,329	175,698	306,588	9,603,500
Corn Belt									
Illinois	162,440	21,149	14,904	405,541	365,072	1,714,484	63,041	110,270	2,856,900
Indiana	471,198	20,050	26,422	531,476	209,922	1,354,662	80,053	737,419	3,431,260
Iowa	323,184	14,683	188,301	492,038	783,008	3,510,643	29,520	171,324	5,512,770
Missouri	240,240	668,340	546,924	626,998	647,458	828,494	44,601	114,645	3,717,777
Ohio	247,025	2,549	98,432	611,544	149,637	491,245	101,875	276,093	1,978,878
Total	1,444,086	726,770	874,983	2,667,596	2,155,097	7,899,528	319,089	1,409,750	17,496,979
Northern Plains									
Kansas	112,875	9,568	5,993	418,266	2,045,894	287,535	45,036	145,833	4,071,000
Nebraska	101,546	97,983	45,600	94,002	960,491	1,516,496	13,365	54,416	2,883,900
North Dakota	6,764	615	496	79,248	170,708	34,613	5,007	24,149	321,600
South Dakota	45,607	3,476	12,876	74,283	443,665	325,287	3,256	2,349	936,800
Total	266,792	111,642	64,965	665,799	4,620,759	2,163,931	66,664	252,747	8,213,300
Appalachian									
Kentucky	123,779	13,137	2,810	473,488	66,755	191,759	51,671	70,000	993,400
North Carolina	568,213	1,194,700	540,834	155,027	13,278	501,394	27,212	58,271	3,058,900
Tennessee	252,045	542,074	21,959	499,717	112,635	158,349	41,719	15,802	1,644,300
Virginia	197,995	222,347	260,745	298,523	32,878	77,022	46,508	28,382	1,164,400
West Virginia	1,416	0	0	83,566	937	18,841	21,540	0	126,300
Total	1,143,449	1,972,258	826,317	1,510,320	226,484	947,365	188,651	172,456	6,987,300
Southeast									
Alabama	495,266	1,612,706	189	79,531	33,469	28,079	11,159	192,501	2,452,900
Florida	576,405	636,540	0	744,428	129,197	34,092	69,363	78,575	2,268,600
Georgia	852,574	2,107,344	92,908	908,492	124,243	245,883	47,900	51,556	4,430,900
South Carolina	131,729	201,627	25,998	68,664	3,133	59,298	5,532	15,092	511,061
Total	2,055,973	4,558,217	119,085	1,801,115	290,041	367,352	133,954	337,724	9,663,461
Delta									
Arkansas	493,182	1,628,838	25,648	155,615	93,830	144,607	20,980	57,240	2,630,000
Louisiana	506,797	265,326	0	196,399	148,322	15,773	86,682	56,602	1,275,900
Mississippi	583,710	1,078,586	0	33,842	47,255	12,510	16,472	361,125	2,133,500
Total	1,583,689	2,972,750	25,648	385,856	289,406	172,949	124,133	700,967	5,039,400
Southern Plains									
Oklahoma	529,298	210,784	165,072	221,292	1,244,697	122,847	152,600	60,009	2,706,600
Texas	573,526	1,145,008	296,487	694,218	5,732,691	153,719	373,802	197,796	9,167,300
Total	1,102,824	1,355,792	461,558	915,510	6,977,389	276,566	526,402	257,805	11,873,900
Mountain									
Arizona	0	0	0	66,088	153,079	0	0	3	212,900
Colorado	80,099	9,073	3,810	361,192	1,200,321	91,258	221,138	98,878	2,065,500
Idaho	129,444	17,165	6,077	403,429	457,037	21,688	7,887	172	1,042,900
Montana	61,409	591	1,371	31,296	570,501	37,989	6,967	6,376	716,500
Nevada	0	0	0	2,344	42,699	142	3,167	23,704	72,056
New Mexico	144,333	0	0	32,470	192,051	20,780	38,442	13,762	441,838
Utah	4,365	177	159,399	51,653	66,878	5,227	3,444	14,357	305,500
Wyoming	0	0	0	0	0	0	0	0	0
Total	419,650	27,007	170,266	948,473	2,682,566	177,085	281,046	157,711	4,864,194
Pacific									
California	1,269,750	2,046,816	386,571	4,085,796	2,175,726	78,883	177,395	165,410	10,386,347
Hawaii	40,073	0	0	13,956	7,324	3,869	2,073	16,305	83,600
Oregon	31,718	18,003	2,643	523,664	30,842	11,153	16,681	40,696	675,400
Washington	118,464	2,285	357	496,441	194,621	1,641	839	22,019	839,667
Total	1,460,004	2,067,104	389,571	5,119,857	2,403,513	98,546	196,988	244,431	11,985,014
48 States									
Total	12,896,835	16,038,950	1,812,883	20,960,714	20,204,262	14,290,621	2,358,118	3,853,410	95,415,794

Appendix table 2i—Complete feed from primary manufacturers: Production by livestock type, by state and region, 1984

State and Region	Starter-grower layer-breeder	Broiler	Turkey	Dairy	Beef and sheep	Hogs	Horse	All Other	Total
Tons									
Northeast									
Connecticut	179,918	5,892	4,593	143,725	1,047	2,048	3,360	8,621	349,204
Delaware	93,032	647,409	422	20,616	34	9,278	2,389	337	773,515
Maine	12,022	0	0	203,078	0	0	0	0	215,100
Maryland	790,508	547,268	333	99,466	5,725	15,503	34,049	7,708	1,500,560
Massachusetts	55,767	37	1,567	54,856	490	742	1,112	89	114,660
New Hampshire	16,413	6,398	5,029	52,519	3,518	4,611	25,011	15,049	128,248
New Jersey	17,001	8,497	2,832	37,774	28,330	28,185	56,660	9,592	188,871
New York	196,216	3,469	6,545	1,461,351	44,163	32,554	80,903	80,760	1,905,960
Pennsylvania	584,657	591,352	224,859	571,221	41,213	167,983	104,031	60,539	2,345,854
Vermont	21,381	1,416	2,582	355,125	2,932	7,131	30,666	41,582	462,815
Total	1,966,614	1,811,737	248,761	2,999,731	127,452	268,035	338,181	224,277	7,984,788
Lake States									
Michigan	445,691	7,618	124,756	231,221	23,161	246,304	37,012	20,236	1,135,998
Minnesota	437,843	399,258	732,748	263,595	53,764	370,593	98,929	54,707	2,408,439
Wisconsin	1,431	4,904	669,840	771,817	45,277	189,966	26,993	103,874	2,093,112
Total	1,160,965	411,779	1,527,345	1,266,632	122,202	806,864	162,935	178,817	5,637,339
Corn Belt									
Illinois	131,022	10,627	14,522	115,550	135,658	853,327	54,027	65,599	1,380,333
Indiana	363,257	19,285	23,119	268,597	48,599	496,094	73,488	713,704	2,006,144
Iowa	266,665	9,785	157,186	93,846	198,015	931,434	16,536	43,640	1,717,098
Missouri	222,760	668,171	545,668	571,942	499,818	441,779	43,963	106,508	3,100,607
Ohio	162,845	2,483	78,093	457,468	87,433	267,052	96,243	268,395	1,400,011
Total	1,146,550	710,350	818,589	1,487,402	969,523	2,989,685	104,257	1,197,836	9,604,192
Northern Plains									
Kansas	99,108	8,367	1,916	339,911	777,841	111,216	24,301	111,452	2,674,117
Nebraska	86,810	4,173	45,351	42,370	474,313	705,602	10,367	31,277	1,400,262
North Dakota	5,134	615	488	34,765	109,418	23,898	4,315	12,938	191,572
South Dakota	31,070	2,136	11,949	28,188	178,094	74,060	2,611	18,978	347,088
Total	222,123	15,292	59,704	445,238	2,739,667	914,777	41,594	174,445	4,613,041
Appalachian									
Kentucky	121,992	13,137	2,810	366,600	50,761	144,898	49,445	40,131	789,772
North Carolina	564,468	1,194,611	540,772	145,285	11,401	364,828	27,149	58,771	2,906,785
Tennessee	240,401	486,276	290	487,087	75,241	86,358	41,314	15,202	1,432,167
Virginia	190,952	222,347	260,745	258,195	24,972	52,681	45,114	21,145	1,080,150
West Virginia	1,249	0	0	75,236	937	16,759	21,540	0	115,722
Total	1,119,062	1,916,371	804,617	1,332,403	163,311	665,523	184,561	138,749	6,324,596
Southeast									
Alabama	469,804	1,412,172	189	76,615	24,821	19,604	11,159	191,733	2,204,097
Florida	72,826	636,299	0	729,544	100,374	32,412	63,992	35,541	2,170,991
Georgia	836,441	2,101,888	92,705	883,735	109,051	176,627	47,173	50,792	4,298,411
South Carolina	129,665	201,627	24,762	66,953	2,953	40,819	5,532	15,092	487,432
Total	2,008,737	4,351,986	117,656	1,744,879	237,199	269,461	127,856	293,157	9,160,931
Delta									
Arkansas	493,182	1,628,838	25,648	155,315	92,963	144,189	20,980	67,240	2,628,354
Louisiana	505,156	265,326	0	192,007	117,270	12,943	85,837	56,602	1,235,142
Mississippi	583,710	787,141	0	33,842	46,582	10,067	16,472	360,933	1,838,748
Total	1,582,048	2,681,305	25,648	381,164	256,816	167,199	123,289	484,775	5,702,244
Southern Plains									
Oklahoma	505,176	210,784	165,072	204,820	891,306	106,419	145,057	60,009	2,288,644
Texas	541,788	1,144,161	295,705	610,674	4,657,493	118,662	320,038	150,182	7,838,701
Total	1,046,964	1,354,945	460,777	815,494	5,548,798	225,081	465,095	210,191	10,127,345
Mountain									
Arizona	0	0	0	64,256	153,079	0	0	733	218,068
Colorado	75,732	1,139	3,317	295,434	602,660	57,506	180,710	96,397	1,312,946
Idaho	129,358	17,165	6,077	128,612	269,042	14,977	7,887	172	573,289
Montana	59,524	591	531	22,641	167,338	12,040	2,442	3,154	268,261
Nevada	0	0	0	1,551	37,518	0	2,994	23,704	65,766
New Mexico	144,333	0	0	29,745	190,688	20,780	38,442	13,762	437,750
Utah	4,144	177	159,399	44,878	52,319	4,874	3,216	14,357	283,364
Wyoming	0	0	0	0	0	0	0	0	0
Total	413,091	19,123	169,324	587,116	1,472,644	110,177	235,692	152,273	3,159,445
Pacific									
California	1,253,194	1,977,867	386,571	3,231,300	2,137,385	76,441	176,177	153,952	9,392,887
Hawaii	40,073	0	0	13,956	7,324	3,869	2,073	16,305	83,600
Oregon	31,667	17,992	2,636	514,344	30,393	10,798	16,420	7,194	631,465
Washington	118,464	2,285	357	495,508	194,310	4,112	839	22,019	837,895
Total	1,443,418	1,998,144	389,564	4,255,109	2,369,412	95,221	195,510	199,471	10,945,847
48 States									
Total	12,109,572	15,271,031	4,621,984	15,325,169	14,007,023	6,512,023	2,158,969	3,254,196	73,259,966

Appendix table 22 Supplement feed from primary manufacturing: Production by livestock type, by state and region, 1984

State and Region	Starter-grower layer-breeder	Broiler	Turkey	Dairy	Beef and sheep	Hogs	Horse	All Other	Total
Tons									
Northeast									
Connecticut	0	0	0	0	0	0	0	0	0
Delaware	0	0	0	0	0	0	0	0	0
Maine	0	0	0	0	0	0	0	0	0
Maryland	167	0	0	23,627	130	1,644	652	217	26,438
Massachusetts	0	0	0	605	0	0	0	0	605
New Hampshire	0	0	0	0	0	0	0	0	0
New Jersey	0	0	0	0	0	0	0	0	0
New York	2,343	0	43	210,406	238	5,247	15	0	218,293
Pennsylvania	26,653	31	4,138	262,084	17,480	52,084	6,568	4,460	373,497
Vermont	0	0	0	2,843	0	0	0	0	2,843
Total	29,163	31	4,180	499,566	17,848	58,975	7,236	4,677	621,676
Lake States									
Michigan	37,714	773	7,370	182,676	37,987	133,253	1,899	8,259	409,931
Minnesota	65,368	1,520	48,333	258,816	131,363	508,189	4,431	49,448	1,067,468
Wisconsin	55,498	368	19,589	1,145,922	93,675	283,549	5,793	33,255	1,637,710
Total	158,579	2,662	75,293	1,587,474	263,025	924,991	12,123	90,962	3,115,109
Corn Belt									
Illinois	24,758	692	243	266,160	189,122	631,499	6,770	34,397	1,153,640
Indiana	92,071	173	2,061	256,035	149,399	643,609	6,388	21,760	1,171,496
Iowa	46,424	4,158	11,672	340,704	531,901	2,202,723	7,416	98,692	3,243,691
Missouri	16,306	169	529	53,433	137,077	330,046	146	4,969	542,675
Ohio	40,702	66	16,419	77,791	37,633	140,059	4,431	7,699	324,839
Total	220,261	5,259	30,924	994,122	1,045,131	3,947,977	25,150	167,516	6,436,341
Northern Plains									
Kansas	7,553	1,200	4,033	76,399	985,738	160,839	18,107	19,534	1,273,404
Nebraska	13,587	89,834	249	35,258	425,237	656,317	2,924	16,911	1,240,316
North Dakota	1,629	0	8	10,494	8,760	10,506	692	11,160	57,249
South Dakota	13,497	920	3	41,593	237,736	220,828	64	9,370	511,493
Total	36,266	91,854	293	163,744	1,567,471	1,048,491	22,367	56,976	3,091,463
Appalachian									
Kentucky	1,390	0	0	44,175	10,389	40,085	835	4	101,545
North Carolina	3,702	0	32	7,681	1,154	132,832	63	0	145,464
Tennessee	10,730	55,798	18	11,268	31,182	66,049	406	179	175,630
Virginia	7,043	0	0	32,913	7,906	23,544	1,394	3,238	76,038
West Virginia	167	0	0	8,329	0	2,082	0	0	10,578
Total	23,032	55,798	49	104,367	50,631	264,593	2,698	8,087	509,256
Southeast									
Alabama	3,180	0	0	4,916	8,648	8,450	0	0	25,194
Florida	3,500	241	0	3,021	27,060	1,679	5,240	0	40,742
Georgia	4,652	593	203	22,157	12,616	51,664	33	753	92,670
South Carolina	539	0	933	1,452	180	16,984	0	0	20,088
Total	11,872	834	1,136	31,546	48,503	78,777	5,273	753	178,693
Delta									
Arkansas	0	0	0	300	867	478	0	0	1,646
Louisiana	1,641	0	0	2,122	31,051	2,830	844	0	38,489
Mississippi	0	291,445	0	0	672	2,442	0	192	294,752
Total	1,641	291,445	0	2,422	32,591	5,750	844	192	334,886
Southern Plains									
Oklahoma	18,832	0	0	10,482	323,305	13,883	7,543	0	374,046
Texas	26,287	847	782	78,904	836,292	33,399	53,617	47,617	1,077,746
Total	45,119	847	782	89,386	1,159,599	47,282	61,160	47,617	1,451,791
Mountain									
Arizona	0	0	0	1,832	0	0	0	0	1,832
Colorado	4,367	0	492	45,139	596,202	32,721	40,428	2,211	721,561
Idaho	69	0	0	94,581	24,838	6,712	0	0	126,200
Montana	1,808	0	40	5,613	372,981	21,904	4,439	2,237	409,822
Nevada	0	0	0	793	5,181	142	174	0	6,290
New Mexico	0	0	0	0	1,363	0	0	0	1,363
Utah	221	0	0	4,778	13,905	353	219	0	19,477
Wyoming	0	0	0	0	0	0	0	0	0
Total	6,465	0	1,332	152,737	1,014,479	61,831	45,260	4,448	1,286,544
Pacific									
California	16,556	68,950	0	811,962	26,313	2,046	1,210	0	927,044
Hawaii	0	0	0	0	0	0	0	0	0
Oregon	0	0	0	7,225	100	195	15	484	8,234
Washington	0	0	0	311	311	466	0	0	1,088
Total	16,556	68,950	0	819,498	26,803	2,707	1,369	484	936,366
48 States									
Total	548,954	517,679	117,990	4,444,861	5,326,073	6,441,374	183,480	381,712	17,962,125

Appendix table 23--Fee premix from primary manufacturing: Production by livestock type, by state and region, 1984

State and Region	Starter-grower-layer-breeder	Broiler	Turkey	Dairy	Beef and sheep	Hogs	Horse	All Other	Total
Tons									
Northeast									
Connecticut	0	0	0	0	0	0	0	0	0
Delaware	0	0	0	0	0	0	0	0	0
Maine	0	0	0	0	0	0	0	0	0
Maryland	0	0	0	65	13	13	0	0	91
Massachusetts	0	0	0	0	0	0	0	0	0
New Hampshire	0	0	0	0	0	0	0	0	0
New Jersey	0	0	0	0	0	0	0	0	0
New York	543	0	0	1,015	4	2	0	0	1,564
Pennsylvania	1,092	0	768	793	0	501	77	61	4,293
Vermont	0	0	0	362	0	0	0	0	362
Total	1,636	0	768	3,235	17	516	77	61	6,310
Lake States									
Michigan	2,703	16,594	0	712	0	8,027	0	0	28,036
Minnesota	7,730	4,041	1,678	12,983	2,336	5,783	302	8,331	43,185
Wisconsin	2,809	566	2,351	27,648	4,874	25,565	331	17,576	81,721
Total	13,242	21,201	4,030	41,343	7,210	39,375	633	25,907	152,941
Corn Belt									
Illinois	2,392	95	0	5,862	5,022	47,998	1,910	10,274	73,553
Indiana	7,787	0	0	2,644	35	39,847	177	47	50,538
Iowa	2,050	543	16,493	41,058	20,563	132,356	4,624	12,771	230,458
Missouri	0	0	0	750	2,908	9,408	0	0	13,066
Ohio	1,097	0	898	4,601	166	9,302	0	0	16,064
Total	13,325	638	17,391	54,916	28,694	238,911	6,711	23,092	383,679
Northern Plains									
Kansas	2,060	0	44	969	68,612	12,662	393	3,027	87,767
Nebraska	321	771	0	7,893	39,994	36,754	75	6,219	92,026
North Dakota	0	0	0	42	98	208	0	51	398
South Dakota	0	0	53	214	7,315	7,481	0	0	15,063
Total	2,381	771	97	9,119	116,017	57,105	467	9,296	195,254
Appalachian									
Kentucky	298	0	0	51,145	4,810	3,223	1,392	2,625	63,492
North Carolina	43	89	0	209	0	2,961	0	0	3,303
Tennessee	7	0	21,651	1,015	1,536	2,827	0	422	27,458
Virginia	0	0	0	1,264	0	0	0	0	1,264
West Virginia	0	0	0	0	0	0	0	0	0
Total	349	89	21,651	53,633	6,346	9,011	1,392	3,046	95,518
Southeast									
Alabama	22,282	20,134	0	0	0	0	0	0	222,816
Florida	0	0	0	11,861	0	0	0	0	11,861
Georgia	2,651	4,863	0	1,446	1,241	2,536	694	0	13,431
South Carolina	1,524	0	293	159	0	614	0	0	2,591
Total	26,457	205,398	293	13,466	1,241	3,151	694	0	250,698
Delta									
Arkansas	0	0	0	0	0	0	0	0	0
Louisiana	0	0	0	0	0	0	0	0	0
Mississippi	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0
Southern Plains									
Oklahoma	43	0	0	0	4,998	1,270	0	0	6,311
Texas	27	0	0	53	29,965	34	0	0	30,078
Total	71	0	0	53	34,963	1,303	0	0	36,389
Mountain									
Arizona	0	0	0	0	0	0	0	0	0
Colorado	0	0	0	18,769	251	846	0	0	19,866
Idaho	0	0	0	171,654	0	0	0	0	171,654
Montana	77	0	0	3,042	8,141	326	86	857	12,529
Nevada	0	0	0	0	0	0	0	0	0
New Mexico	0	0	0	2,726	0	0	0	0	2,726
Utah	0	0	0	795	159	0	0	0	954
Wyoming	0	0	0	0	0	0	0	0	0
Total	77	0	0	196,986	8,551	1,171	86	857	207,728
Pacific									
California	0	0	0	12,534	12,029	39	0	11,458	66,417
Hawaii	0	0	0	0	0	0	0	0	0
Oregon	31	11	7	271	20	11	109	32,974	33,434
Washington	0	0	0	0	0	0	0	0	0
Total	31	11	7	42,805	12,048	407	109	44,433	99,851
48 States									
Total	57,568	228,109	44,237	415,556	215,088	350,949	10,170	106,693	1,428,369

Appendix table 24--Super concentrate from primary manufacturing. Production by livestock type, by state and region, 1984

State and Region	Starter-grower: Layer-breeder	Broiler	Turkey	Dairy	Beef and sheep	Hogs	Horse	All Other	Total
Tons									
Northeast									
Connecticut	0	0	0	0	0	0	0	0	0
Delaware	0	0	0	0	0	0	0	0	0
Maine	0	0	0	0	0	0	0	0	0
Maryland	0	0	0	0	0	0	0	0	0
Massachusetts	1,026	0	0	0	0	0	0	211	211
New Hampshire	0	0	0	0	0	0	0	0	1,026
New Jersey	0	0	0	0	0	0	0	0	0
New York	4,553	0	0	0	0	0	0	0	0
Pennsylvania	3,686	0	0	48,629	0	0	0	0	53,183
Vermont	0	0	164	3,912	0	4,394	0	0	12,156
Total	9,265	0	164	62,017	0	4,394	0	211	9,476
Lake States									
Michigan	27,738	0	1,940	9,537	3,157	21,403	0	8,360	72,135
Minnesota	28,003	0	17,618	13,476	7,112	31,692	7	0	97,909
Wisconsin	25,163	0	0	463,175	5,983	31,004	0	2,541	527,867
Total	80,904	0	19,558	486,189	16,252	84,099	7	10,901	697,911
Corn Belt									
Illinois	4,268	9,734	138	17,969	35,270	181,650	334	0	249,374
Indiana	8,082	591	1,241	4,201	11,889	175,111	0	1,907	203,022
Iowa	8,045	197	2,950	16,429	32,529	244,130	943	16,230	321,454
Missouri	1,174	0	727	873	7,655	47,262	492	3,169	61,351
Ohio	42,381	0	3,022	91,684	24,406	74,793	1,201	0	237,486
Total	63,950	10,522	8,079	131,157	111,749	722,955	2,970	21,307	1,072,680
Northern Plains									
Kansas	4,153	0	0	984	13,703	2,817	2,235	11,820	35,712
Nebraska	829	3,205	0	8,480	20,947	117,823	0	10	151,295
North Dakota	0	0	0	33,946	42,433	0	0	0	76,379
South Dakota	1,040	520	870	4,287	20,520	22,918	0	0	50,156
Total	6,022	3,725	870	47,698	97,600	143,559	2,235	11,830	313,542
Appalachian									
Kentucky	99	0	0	11,568	795	3,553	0	22,574	38,990
North Carolina	0	0	0	1,852	724	772	0	0	3,348
Tennessee	907	0	0	347	4,676	3,115	0	0	9,045
Virginia	0	0	0	6,150	0	798	0	0	6,948
West Virginia	0	0	0	0	0	0	0	0	0
Total	1,006	0	0	19,917	6,195	8,238	0	22,574	57,931
Southeast									
Alabama	0	0	0	0	0	25	0	769	794
Florida	79	0	0	0	1,763	0	131	43,034	45,007
Georgia	8,829	0	0	1,155	1,335	15,056	0	11	26,387
South Carolina	0	0	0	70	0	881	0	0	950
Total	8,908	0	0	1,224	3,099	15,963	131	43,814	73,139
Delta									
Arkansas	0	0	0	0	0	0	0	0	0
Louisiana	0	0	0	2,270	0	0	0	0	2,270
Mississippi	0	0	0	0	0	0	0	0	0
Total	0	0	0	2,270	0	0	0	0	2,270
Southern Plains									
Oklahoma	5,247	0	0	5,990	25,088	1,276	0	0	37,600
Texas	5,424	0	0	4,588	208,941	1,675	147	0	220,775
Total	10,671	0	0	10,577	234,029	2,950	147	0	258,374
Mountain									
Arizona	0	0	0	0	0	0	0	0	0
Colorado	0	7,884	0	1,849	1,208	186	0	0	11,127
Idaho	17	0	0	8,583	163,157	0	0	0	171,757
Montana	0	0	0	0	22,041	3,719	0	129	25,889
Nevada	0	0	0	0	0	0	0	0	0
New Mexico	0	0	0	0	0	0	0	0	0
Utah	0	0	0	0	0	0	0	0	0
Wyoming	0	0	0	1,202	495	0	9	0	1,705
Total	17	7,884	0	11,633	186,901	3,905	9	129	210,477
Pacific									
California	0	0	0	0	0	0	0	0	0
Hawaii	0	0	0	0	0	0	0	0	0
Oregon	0	0	0	0	0	0	0	0	0
Washington	0	0	0	1,824	250	149	0	44	2,266
Total	0	0	0	1,824	250	149	0	44	2,266
48 States									
Total	180,741	22,131	28,671	775,129	656,078	986,275	5,499	110,809	2,765,332

Appendix table 25--Primary feed production: Quantity by form, by state and region, 1984

State and region	Meal	Pellets	Cubes	Blocks	Liquid	Total
	Tons					
Northeast						
Connecticut	273,122	76,082	0	-0	0	349,204
Delaware	75,471	698,044	0	0	0	773,515
Maine	54,301	131,657	29,142	0	0	215,100
Maryland	130,622	1,383,216	0	0	5,462	1,527,300
Massachusetts	62,859	53,432	0	0	0	116,291
New Hampshire	34,713	92,635	900	0	0	128,248
New Jersey	104,029	84,842	0	0	0	188,871
New York	971,792	1,197,265	2,943	27	6,973	2,179,000
Pennsylvania	1,269,943	1,464,490	882	30	454	2,735,800
Vermont	159,009	315,478	1,008	0	0	475,496
Total	3,143,861	5,497,142	34,875	57	12,889	8,688,825
Lake States						
Michigan	1,207,390	409,663	27,362	1,356	330	1,646,100
Minnesota	2,116,269	1,424,100	8,508	2,855	65,248	3,617,000
Wisconsin	2,331,019	1,960,912	14,601	9,292	24,575	4,340,400
Total	5,654,678	3,794,675	50,472	13,503	90,173	9,603,500
Corn Belt						
Illinois	1,571,480	1,199,231	64,185	15,750	6,255	2,856,900
Indiana	1,802,185	1,581,404	44,425	396	2,790	3,431,200
Iowa	3,008,579	2,247,820	115,695	77,461	63,145	5,512,700
Missouri	911,299	2,582,751	103,678	102,874	17,099	3,717,700
Ohio	1,094,614	876,860	5,364	300	1,262	1,978,400
Total	8,388,157	8,488,066	333,346	196,780	90,551	17,496,900
Northern plains						
Kansas	2,435,510	1,292,092	166,385	76,011	101,002	4,071,000
Nebraska	1,634,052	1,025,044	93,189	29,867	101,748	2,883,900
North Dakota	87,394	173,560	46,309	13,996	340	321,600
South Dakota	385,954	430,630	44,033	25,110	51,073	936,800
Total	4,542,909	2,921,326	349,917	144,985	254,163	8,213,300
Appalachian						
Kentucky	410,267	539,675	33,890	7,323	2,244	993,400
North Carolina	868,951	2,183,100	2,770	3,683	395	3,058,900
Tennessee	467,528	1,132,536	18,725	18,319	7,192	1,644,300
Virginia	42,154	752,793	16,275	51,355	1,822	1,164,400
West Virginia	41,756	84,544	0	0	0	126,300
Total	2,130,656	4,692,648	71,661	80,681	11,653	6,987,300
Southeast						
Alabama	332,887	2,106,620	6,467	0	6,926	2,452,900
Florida	1,501,236	726,539	7,894	0	32,931	2,268,600
Georgia	1,629,289	2,720,180	13,883	46,577	20,971	4,430,900
South Carolina	180,821	328,983	1,258	0	0	511,061
Total	3,644,232	5,882,322	29,501	46,577	60,829	9,663,461
Delta states						
Arkansas	795,488	1,771,848	27,278	34,363	1,024	2,630,000
Louisiana	205,015	1,007,591	29,116	31,452	2,726	1,275,900
Mississippi	388,557	1,712,890	7,721	20,172	4,160	2,133,500
Total	1,389,060	4,492,329	64,116	85,986	7,910	6,039,400
Southern Plains						
Oklahoma	1,103,522	1,425,561	170,569	6,948	0	2,706,600
Texas	4,545,209	3,546,104	575,511	368,314	132,162	9,167,300
Total	5,648,730	4,971,666	746,080	375,262	132,162	11,873,900
Mountain						
Arizona	212,572	7,328	0	0	0	219,900
Colorado	775,175	1,078,153	158,409	33,308	20,456	2,065,500
Idaho	617,940	194,172	8,219	0	222,569	1,042,900
Montana	244,626	327,382	112,792	29,128	2,571	716,500
Nevada	19,694	41,989	10,372	0	-	72,056
New Mexico	244,200	46,805	140,225	10,608	0	441,838
Utah	239,410	51,356	1,149	13,585	0	305,500
Wyoming	0	0	0	0	0	0
Total	2,353,617	1,747,186	431,167	86,629	245,596	4,864,194
Pacific						
California	4,400,446	5,919,672	54,367	7,117	4,744	10,386,347
Hawaii	25,527	58,073	0	0	0	83,600
Oregon	222,589	452,641	0	0	100	675,400
Washington	368,295	463,602	1,554	0	6,211	839,667
Total	5,016,856	6,893,988	55,983	7,117	11,071	11,985,014
48 States	41,912,758	49,381,347	2,167,117	1,037,576	916,995	95,415,794

Appendix table 26--Poultry primary feed production: Quantity by form, by state and region, 1984

State and region	Total primary	Meal	Pellets & crumbles
Tons			
Northeast			
Connecticut	190,403	164,255	26,148
Delaware	709,992	65,302	644,690
Maine	12,022	12,022	0
Maryland	1,333,068	26,934	1,306,134
Massachusetts	58,866	49,578	9,289
New Hampshire	27,540	10,062	17,478
New Jersey	28,530	18,888	9,642
New York	307,359	224,446	82,913
Pennsylvania	1,408,671	550,490	858,181
Vermont	25,379	17,432	7,946
Total	4,101,630	1,139,410	2,962,220
Lake States			
Michigan	592,195	540,067	52,128
Minnesota	1,715,155	987,257	727,898
Wisconsin	1,040,639	222,884	817,755
Total	3,347,989	1,750,208	1,597,781
Corn Belt			
Illinois	192,391	132,272	60,119
Indiana	599,260	475,445	123,815
Iowa	439,348	233,364	205,983
Missouri	1,464,699	182,773	1,281,926
Ohio	349,550	236,535	113,015
Total	3,045,249	1,260,390	1,784,859
Northern plains			
Kansas	130,820	93,326	37,494
Nebraska	245,212	205,970	39,241
North Dakota	7,704	883	6,821
South Dakota	61,718	52,255	9,463
Total	445,454	352,434	93,020
Appalachian			
Kentucky	140,576	113,748	26,828
North Carolina	2,312,654	521,422	1,791,232
Tennessee	828,605	271,474	557,129
Virginia	667,583	170,912	496,671
West Virginia	1,416	167	1,249
Total	3,950,834	1,077,784	2,873,050
Southeast			
Alabama	2,131,516	435,715	1,695,801
Florida	1,212,947	583,317	629,629
Georgia	3,055,388	587,142	2,468,246
South Carolina	359,343	124,887	234,456
Total	6,759,190	1,731,060	5,028,129
Delta states			
Arkansas	2,125,217	879,921	1,245,296
Louisiana	772,123	25,178	746,945
Mississippi	1,663,278	347,032	1,316,245
Total	4,560,618	1,252,131	3,308,487
Southern Plains			
Oklahoma	887,144	452,313	434,831
Texas	2,159,714	635,679	1,524,035
Total	3,046,858	1,087,992	1,958,866
Mountain			
Arizona	0	0	0
Colorado	276,574	23,118	34,706
Idaho	182,768	18,000	0
Montana	63,372	58,000	4,576
Nevada	0	0	0
New Mexico	140,429	121,206	19,224
Utah	163,940	159,549	4,391
Wyoming	0	0	0
Total	827,414	759,517	67,897
Pacific			
California	6,563,913	1,199,443	5,364,471
Hawaii	37,881	19,594	18,288
Oregon	52,364	16,274	36,090
Washington	120,880	103,057	17,822
Total	6,775,038	1,338,367	5,436,671
48 States	36,860,273	11,749,294	25,110,979

Appendix table 27--Ruminant primary feed production: Quantity by form, by state and region, 1984

State and region	Total primary	Meal	Pellets & crumbles	Cubes	Blocks	Liquid
Tons						
Northeast						
Connecticut	144,773	101,621	43,152	0	0	0
Delaware	40,171	10,168	30,002	0	0	0
Maine	203,078	8,115	94,964	0	0	0
Maryland	134,051	73,207	40,844	0	0	0
Massachusetts	56,401	12,633	43,768	0	0	0
New Hampshire	56,037	7,486	48,551	0	0	0
New Jersey	66,104	18,888	47,216	0	0	0
New York	1,686,770	654,673	1,023,866	1,174	0	7,058
Pennsylvania	893,996	536,188	356,970	357	30	451
Vermont	370,738	54,477	315,016	1,245	0	0
Total	3,652,118	1,477,455	2,164,348	2,775	30	7,510
Lake States						
Michigan	516,500	277,275	238,140	0	1,085	0
Minnesota	752,429	289,139	403,260	1,056	2,940	56,034
Wisconsin	2,582,386	1,636,839	900,155	2,657	9,121	24,614
Total	3,851,314	2,203,253	1,541,555	4,713	13,147	80,647
Corn Belt						
Illinois	817,752	286,954	497,797	12,281	14,574	6,146
Indiana	753,838	213,859	515,939	930	200	22,910
Iowa	1,331,198	338,003	828,596	32,582	65,603	66,415
Missouri	1,281,736	290,452	801,858	75,893	96,764	16,769
Ohio	758,279	273,999	478,687	4,033	300	1,260
Total	4,942,803	1,403,268	3,122,877	125,718	177,441	113,499
Northern plains						
Kansas	3,453,238	2,083,852	1,045,015	161,791	65,108	97,867
Nebraska	1,042,935	341,294	529,785	60,170	23,328	88,358
North Dakota	252,549	55,632	136,860	45,840	13,874	343
South Dakota	535,399	144,649	299,983	36,280	17,676	36,812
Total	5,284,121	2,625,427	2,011,643	303,686	119,985	223,380
Appalachian						
Kentucky	534,688	129,123	394,506	1,490	7,324	2,245
North Carolina	168,974	37,549	129,279	1,750	0	396
Tennessee	596,539	73,401	480,636	17,444	867	7,192
Virginia	344,383	77,596	236,988	1,176	27,298	1,325
West Virginia	84,503	13,702	70,801	0	0	0
Total	1,729,086	331,372	1,312,209	21,860	52,488	11,157
Southeast						
Alabama	105,345	27,192	66,953	4,801	0	6,399
Florida	873,625	823,328	15,864	6,741	0	27,691
Georgia	1,028,060	803,021	144,130	10,110	50,211	20,589
South Carolina	71,796	7,789	63,140	866	0	0
Total	2,078,826	1,661,330	290,088	22,519	50,211	54,679
Delta states						
Arkansas	273,615	57,906	164,362	22,722	28,624	0
Louisiana	344,643	81,214	207,356	29,032	24,318	2,723
Mississippi	85,415	16,034	37,286	7,731	20,198	4,165
Total	703,673	155,155	409,004	59,485	73,140	6,888
Southern Plains						
Oklahoma	1,437,212	525,163	739,687	163,969	8,394	0
Texas	5,762,062	3,240,891	1,542,534	502,474	346,666	129,498
Total	7,199,274	3,766,054	2,282,220	666,443	355,059	129,498
Mountain						
Arizona	219,900	212,572	7,328	0	0	0
Colorado	1,378,450	510,917	709,961	109,334	29,789	18,449
Idaho	832,742	423,193	178,762	8,219	0	222,569
Montana	601,797	153,138	305,513	111,447	29,123	2,571
Nevada	45,043	5,974	39,069	0	0	0
New Mexico	230,398	74,540	6,357	138,894	10,608	0
Utah	118,532	67,712	36,313	1,149	13,357	0
Wyoming	0	0	0	0	0	0
Total	3,426,861	1,448,046	1,283,303	369,043	82,881	243,588
Pacific						
California	3,294,663	2,832,472	434,947	0	7,056	20,188
Hawaii	20,116	0	20,116	0	0	0
Oregon	554,506	171,373	383,072	61	0	0
Washington	697,498	256,516	433,208	1,555	0	6,219
Total	4,566,783	3,260,361	1,271,343	1,616	7,056	26,407
48 States	37,434,861	18,331,719	15,697,591	1,576,858	931,438	897,254

Appendix table 28--Swine primary feed production: Quantity by form, by state and region, 1984

State and region	Total primary	Meal	Pellets & crumbles	Cubes	Blocks	Liquid
Tons						
Northeast						
Connecticut	2,048	0	2,048	0	0	0
Delaware	18,049	0	18,049	0	0	0
Maine	0	0	0	0	0	0
Maryland	17,511	13,990	3,521	0	0	0
Massachusetts	757	630	126	0	0	0
New Hampshire	1,611	1,154	3,457	0	0	0
New Jersey	28,185	18,886	9,299	0	0	0
New York	35,304	23,854	11,422	0	27	0
Pennsylvania	220,343	88,623	131,427	293	0	0
Vermont	7,127	1,362	5,765	0	0	0
Total	333,934	148,499	185,114	293	27	0
Lake States						
Michigan	439,277	330,471	102,647	6,078	0	81
Minnesota	924,507	692,078	215,751	7,351	0	9,327
Wisconsin	528,804	353,574	165,790	9,255	186	0
Total	1,892,588	1,376,124	484,188	22,684	186	9,408
Corn Belt						
Illinois	1,655,156	1,026,732	577,153	50,764	506	0
Indiana	1,253,355	825,922	392,445	33,988	0	0
Iowa	3,562,663	2,284,961	1,122,663	137,632	7,906	9,501
Missouri	810,291	322,567	460,827	7,344	3,554	0
Ohio	497,566	328,445	167,870	1,251	0	0
Total	7,779,031	4,789,628	2,720,957	246,979	11,966	9,501
Northern plains						
Kansas	292,350	199,051	90,287	2,901	111	0
Nebraska	1,505,251	1,204,382	277,561	21,074	2,109	125
North Dakota	34,972	12,403	21,668	900	0	0
South Dakota	306,361	197,376	78,455	8,826	7,995	13,709
Total	2,138,933	1,613,211	467,971	33,701	10,216	13,834
Appalachian						
Kentucky	192,526	110,137	78,888	3,501	0	0
North Carolina	491,457	273,150	217,276	1,031	0	0
Tennessee	160,891	88,058	71,099	1,281	452	0
Virginia	73,401	26,726	46,022	652	0	0
West Virginia	18,841	6,347	12,494	0	0	0
Total	937,115	504,418	425,779	6,465	452	0
Southeast						
Alabama	26,177	9,835	15,885	456	0	0
Florida	34,092	27,728	6,147	217	0	0
Georgia	248,090	179,029	66,283	2,779	0	0
South Carolina	59,298	28,210	30,711	377	0	0
Total	367,657	244,802	119,025	3,829	0	0
Delta states						
Arkansas	143,599	136,339	7,261	0	0	0
Louisiana	15,773	3,132	12,641	0	0	0
Mississippi	7,456	3,855	3,601	0	0	0
Total	166,828	143,326	23,503	0	0	0
Southern Plains						
Oklahoma	120,402	30,624	88,865	913	0	0
Texas	166,325	52,390	106,008	7,764	162	0
Total	286,727	83,014	194,874	8,677	162	0
Mountain						
Arizona	0	0	0	0	0	0
Colorado	79,611	34,299	45,279	32	0	0
Idaho	25,962	10,551	15,410	0	0	0
Montana	37,989	26,026	11,603	360	0	0
Nevada	142	142	0	0	0	0
New Mexico	20,218	0	20,218	0	0	0
Utah	5,227	3,888	1,339	0	0	0
Wyoming	0	0	0	0	0	0
Total	169,148	74,905	93,850	392	0	0
Pacific						
California	161,048	106,281	54,767	0	0	0
Hawaii	10,189	0	0,189	0	0	0
Oregon	11,153	22	11,021	0	0	109
Washington	4,642	1,719	2,923	0	0	0
Total	187,032	108,022	78,900	0	0	109
48 States	14,258,992	9,085,949	4,794,162	323,021	23,009	32,852

Appendix table 29--All other primary feed production: Quantity by form, by state and region, 1984

State and Region	Total primary	Meal	Pellets & crumbles	Cubes	Blocks	Liquid
Tons						
Northeast						
Connecticut	11,281	7,246	4,735	0	0	0
Delaware	5,303	0	5,303	0	0	0
Maine	0	0	0	0	0	0
Maryland	42,671	24,361	18,273	0	0	0
Massachusetts	267	0	248	0	0	0
New Hampshire	40,060	16,111	23,049	900	0	0
New Jersey	66,252	47,366	18,886	0	0	0
New York	149,567	83,263	64,499	1,806	0	0
Pennsylvania	212,790	93,615	118,950	226	0	0
Vermont	72,252	11,467	60,735	0	0	0
Total	601,143	283,483	314,728	2,931	0	0
Lake States						
Michigan	98,129	58,951	16,912	21,262	270	734
Minnesota	224,909	145,093	79,739	78	0	0
Wisconsin	188,571	108,978	76,880	2,713	0	0
Total	511,608	313,021	173,530	24,053	270	734
Corn Belt						
Illinois	191,601	125,154	66,027	25	395	0
Indiana	824,747	278,706	535,776	10,065	200	0
Iowa	179,480	106,855	66,603	2,929	3,092	0
Missouri	160,973	85,138	72,824	2,411	571	0
Ohio	373,005	257,131	115,892	71	0	0
Total	1,729,806	852,985	857,032	15,532	4,258	0
Northern Plains						
Kansas	194,592	77,516	105,014	0	9,839	2,223
Nebraska	90,503	41,980	47,584	47	617	275
North Dakota	26,123	19,297	6,825	0	0	0
South Dakota	33,322	5,131	27,065	395	275	457
Total	344,539	143,924	186,488	442	10,730	2,955
Appalachian						
Kentucky	125,611	57,275	7,435	28,901	0	0
North Carolina	85,815	40,206	41,911	0	3,698	0
Tennessee	58,265	34,593	23,671	0	0	0
Virginia	79,034	32,066	28,505	10,006	8,457	0
West Virginia	21,540	21,540	0	0	0	0
Total	370,265	185,681	133,523	38,906	12,155	0
Southeast						
Alabama	189,863	21,723	167,424	717	0	0
Florida	147,938	66,863	74,899	935	0	5,240
Georgia	9,027	56,643	41,900	13	133	337
South Carolina	20,000	19,934	675	14	0	0
Total	457,451	155,163	284,898	1,680	133	5,577
Delta States						
Arkansas	87,561	35,274	52,295	0	0	0
Louisiana	143,360	95,279	39,095	54	8,422	0
Mississippi	377,351	19,396	357,956	0	0	0
Total	608,281	149,948	449,856	54	8,422	0
Southern Plains						
Oklahoma	261,841	78,664	183,170	468	0	0
Texas	1,079,199	706,789	1,000,089	53,672	16,650	0
Total	1,341,041	785,453	1,183,259	54,140	16,650	0
Mountain						
Arizona	0	0	0	0	0	0
Colorado	330,536	119,353	171,431	33,501	251	0
Idaho	1,428	1,428	0	0	0	0
Montana	13,343	6,676	5,682	985	0	0
Nevada	26,871	13,578	2,920	10,373	0	0
New Mexico	50,792	48,461	1,005	1,326	0	0
Utah	17,801	8,261	9,312	0	228	0
Wyoming	0	0	0	0	0	0
Total	440,771	197,757	196,350	46,186	479	0
Pacific						
California	366,722	308,313	4,308	53,905	0	196
Hawaii	15,414	6,531	8,883	0	0	0
Oregon	57,377	34,727	22,450	0	0	0
Washington	16,647	6,853	7,794	0	0	0
Total	456,161	356,625	43,335	53,905	0	196
48 States Total	6,861,067	3,434,043	3,126,639	231,828	53,097	9,463

Appendix table 30--All formula feed: Production, by method disposition, by state and region, 1984

State and region	Wholesale	Retail	Own livestock	Custom feeding	Custom grind	Custom mix
Tons						
Northeast						
Connecticut	49,946	299,258	0	0		349,204
Delaware	2,004	149,560	381,737	0	240,214	773,515
Maine	90,929	122,794	2,791	0	0	216,514
Maryland	115,277	92,688	1,301,522	0	39,621	1,549,108
Massachusetts	105,000	1,872	0	0	9,418	116,291
New Hampshire	98,248	30,000	0	0	0	128,248
New Jersey	188,871	0	0	0	0	188,871
New York	1,210,501	1,014,800	113,266	14,158	94,689	2,447,579
Pennsylvania	1,111,400	1,156,100	514,655	2,018	206,793	2,001,086
Vermont	297,785	171,311	0	0	6,199	475,496
Total	3,280,148	3,038,683	2,313,970	16,176	596,935	9,245,912
Lake States						
Michigan	653,364	840,026	322,476	15,889	496,206	2,336,961
Minnesota	1,515,892	1,477,776	594,929	55,985	1,081,807	4,680,389
Wisconsin	2,122,061	1,630,479	60,917	643,036	1,978,567	6,435,060
Total	4,291,316	3,911,281	978,322	714,911	3,556,580	13,452,410
Corn Belt						
Illinois	1,960,468	926,760	60,349	0	459,273	3,406,850
Indiana	2,054,525	615,995	409,315	3,912	716,695	3,800,443
Iowa	3,771,123	1,964,268	169,552	10,072	666,370	6,581,384
Missouri	2,133,093	1,590,067	1,203,623	13,960	311,535	4,131,278
Ohio	1,147,239	638,537	108,918	10,143	538,056	2,442,892
Total	11,066,448	4,614,626	1,951,757	38,087	2,691,929	20,362,847
Northern Plains						
Kansas	1,489,421	854,772	922,035	1,777,580	293,343	5,287,150
Nebraska	1,400,330	1,147,198	967,822	247,263	105,325	3,867,938
North Dakota	140,420	140,300	0	0	152,316	433,038
South Dakota	752,461	203,618	23,487	3,764	336,050	1,319,380
Total	3,782,636	2,345,888	1,913,344	1,978,606	887,033	10,907,506
Appalachia						
Kentucky	584,221	300,749	97,637	0	80,705	1,063,311
North Carolina	522,605	333,693	2,083,429	0	170,705	3,110,432
Tennessee	876,642	32,180	445,196	3,013	297,501	1,654,532
Virginia	365,788	364,381	448,575	161	38,580	1,217,485
West Virginia	41,965	89,296	105	0	32,809	154,175
Total	2,391,221	1,120,298	3,074,942	3,175	620,299	7,209,935
Southeast						
Alabama	341,154	81,740	2,033,274	0	3,843	2,460,010
Florida	246,115	614,527	1,491,925	2,618	23,210	2,378,594
Georgia	605,772	959,406	2,815,446	225	73,642	4,454,491
South Carolina	75,349	112,583	322,406	0	723	511,061
Total	1,268,390	1,768,255	6,663,050	3,043	101,417	9,804,156
Delta						
Arkansas	298,452	212,267	2,120,743	0	14,320	2,645,782
Louisiana	478,086	98,859	728,507	0	0	1,305,453
Mississippi	284,890	198,621	1,659,741	2,012	19,056	2,164,320
Total	1,061,428	509,747	4,508,991	2,012	33,376	6,115,555
Southern Plains						
Oklahoma	74,531	381,784	660,015	918,269	50,675	2,753,274
Texas	1,892,480	2,028,615	3,877,326	2,779,282	1,010,537	11,588,241
Total	2,635,012	2,410,399	4,537,341	3,697,551	1,061,212	14,341,515
Mountain						
Arizona	0	67,200	263,283	512,515	0	843,048
Colorado	612,586	999,644	94,933	354,110	31,127	2,092,401
Idaho	29,591	481,447	293,356	160,079	138,235	1,102,700
Montana	141,631	490,460	55,457	67,231	29,954	784,733
Nevada	56,381	10,080	0	5,596	0	72,056
New Mexico	86,062	106,804	89,137	119,778	40,057	441,838
Utah	34,503	203,159	15,856	15,856	39,641	309,016
Wyoming	0	138,037	219	0	1,600	138,716
Total	960,755	2,496,882	812,240	1,235,105	279,474	5,784,517
Pacific						
California	309,710	3,289,883	6,466,099	515,003	15,648	10,644,344
Hawaii	63,817	19,783	0	0	0	83,600
Oregon	360,272	412,282	25,357	0	342	798,253
Washington	9,325	619,903	97,741	109,500	3,192	839,667
Total	743,124	4,341,851	6,589,197	622,509	69,183	12,365,864
48 States Total	31,480,479	26,557,910	33,343,156	8,311,234	9,897,437	109,500,217

Appendix table 31--Dry formula feed: Production by method of distribution, by state and region, 1984

State and region	Wholesale	Retail	Own livestock	Custom feeding	Custom grind and mix	Total
Tons						
Northeast						
Connecticut	49,946	299,258	0	0	0	349,204
Delaware	2,004	149,563	381,737	0	240,214	773,514
Maine	90,929	122,794	2,791	0	0	216,514
Maryland	115,277	92,338	1,301,522	0	39,621	1,548,758
Massachusetts	105,000	1,872	0	0	9,418	116,291
New Hampshire	98,248	30,000	0	0	0	128,248
New Jersey	188,871	0	0	0	0	188,871
New York	1,199,151	1,012,309	113,266	14,158	94,689	2,433,574
Pennsylvania	1,119,867	1,156,063	514,653	2,018	206,793	2,999,393
Vermont	297,785	171,511	0	0	6,199	475,496
Total	3,267,079	3,035,705	2,313,969	16,176	596,935	9,229,864
Lake States						
Michigan	653,364	848,173	322,476	15,889	496,206	2,336,108
Minnesota	1,432,541	1,410,609	94,929	54,699	1,075,376	4,568,254
Wisconsin	2,109,244	1,593,919	60,917	642,299	1,972,591	6,378,969
Total	4,195,249	3,852,701	978,322	712,887	3,544,172	13,283,331
Corn Belt						
Illinois	1,959,953	926,204	60,349	0	456,747	3,403,253
Indiana	2,052,372	615,212	409,315	3,912	716,695	3,797,506
Iowa	3,714,510	1,940,554	169,313	10,072	666,370	6,500,818
Missouri	2,094,473	468,131	1,203,623	13,960	310,576	4,090,763
Ohio	1,146,437	638,537	108,918	10,143	537,724	2,441,758
Total	10,967,744	4,588,638	1,951,518	38,087	2,688,112	20,234,099
Northern Plains						
Kansas	1,392,255	850,589	922,035	1,727,580	293,320	5,185,778
Nebraska	1,334,488	1,136,328	967,822	247,263	105,325	3,791,226
North Dakota	140,423	139,949	0	0	152,316	432,687
South Dakota	738,989	201,306	23,487	3,764	332,136	1,299,681
Total	3,606,155	2,328,172	1,913,344	1,978,606	883,096	10,709,372
Appalachian						
Kentucky	580,831	300,497	97,637	0	80,705	1,059,670
North Carolina	522,605	333,291	2,023,429	0	170,705	3,110,031
Tennessee	866,505	32,150	445,196	3,013	297,501	1,644,365
Virginia	365,788	363,033	448,575	161	38,580	1,216,137
West Virginia	41,965	89,296	105	0	32,809	164,175
Total	2,377,694	1,118,268	3,074,942	3,175	620,299	7,194,378
Southeast						
Alabama	334,227	81,740	2,033,274	0	3,843	2,453,083
Florida	208,715	614,527	1,491,925	2,818	73,210	2,341,194
Georgia	588,994	957,032	2,812,646	225	73,642	4,432,538
South Carolina	75,349	112,583	322,406	0	723	511,061
Total	1,207,285	1,765,882	6,660,250	3,043	101,417	9,737,876
Delta						
Arkansas	298,452	212,267	2,120,743	0	14,320	2,645,782
Louisiana	475,362	97,043	728,507	0	0	1,300,912
Mississippi	260,379	198,363	1,659,741	2,012	19,056	2,139,550
Total	1,034,193	507,673	4,508,991	2,012	33,376	6,086,245
Southern Plains						
Oklahoma	742,531	381,744	660,015	918,269	50,675	2,753,274
Texas	1,814,848	1,994,703	3,796,033	2,752,273	1,010,537	11,368,394
Total	2,557,379	2,376,447	4,456,048	3,670,542	1,061,212	14,121,668
Mountain						
Arizona	0	67,250	263,283	512,515	0	843,048
Colorado	609,889	999,411	94,933	354,110	31,127	2,089,470
Idaho	29,591	309,854	279,079	160,014	135,541	914,145
Montana	139,058	490,460	55,457	67,231	29,954	782,160
Nevada	56,381	10,080	0	5,594	0	72,056
New Mexico	86,062	106,804	89,137	119,778	40,057	441,838
Utah	34,503	203,159	15,856	15,856	7,928	277,303
Wyoming	0	138,037	219	0	460	138,716
Total	955,486	2,325,055	797,964	1,235,165	245,068	5,558,737
Pacific						
California	309,710	3,269,096	6,466,099	513,003	65,648	10,623,557
Hawaii	53,817	19,780	0	0	0	83,600
Oregon	360,272	12,282	25,357	0	342	798,253
Washington	9,325	13,686	97,741	109,506	3,192	833,450
Total	743,124	4,314,847	6,589,197	622,509	69,183	12,338,860
48 States						
Total	30,911,387	26,213,428	33,244,545	8,282,201	9,842,869	103,494,431

Appendix table 32--Liquid formula feed: Production by method of disposition, by state and region, 1984

State and region	Wholesale	Retail	Own livestock	Custom feeding	Custom grind and mix	Total
Tons						
Northeast						
Connecticut	0	0	0	0	0	0
Delaware	0	0	0	0	0	0
Maine	0	0	0	0	0	0
Maryland	0	350	0	0	0	350
Massachusetts	0	0	0	0	0	0
New Hampshire	0	0	0	0	0	0
New Jersey	0	0	0	0	0	0
New York	11,440	2,565	0	0	0	14,005
Pennsylvania	1,630	62	2	0	0	1,693
Vermont	0	0	0	0	0	0
Total	13,070	2,977	2	0	0	16,048
Lake States						
Michigan	0	853	0	0	0	853
Minnesota	83,251	21,167	0	1,286	6,431	112,135
Wisconsin	12,816	36,560	0	738	5,977	56,091
Total	96,068	58,580	0	2,024	12,407	169,079
Corn Belt						
Illinois	515	556	0	0	2,526	3,597
Indiana	2,153	783	0	0	0	2,937
Iowa	56,613	23,714	239	0	0	80,566
Missouri	38,620	936	0	0	959	40,515
Ohio	802	0	0	0	332	1,134
Total	98,703	25,988	239	0	3,817	128,748
North Plains						
Kansas	97,166	4,183	0	0	23	101,372
Nebraska	65,840	10,859	0	0	0	76,712
North Dakota	0	351	0	0	0	351
South Dakota	13,472	2,313	0	0	3,914	19,699
Total	176,481	17,716	0	0	3,937	198,134
Appalachian						
Kentucky	3,389	251	0	0	0	3,641
North Carolina	0	401	0	0	0	401
Tennessee	10,138	29	0	0	0	10,167
Virginia	0	1,348	0	0	0	1,348
West Virginia	0	0	0	0	0	0
Total	13,527	2,030	0	0	0	15,557
Southeast						
Alabama	6,927	0	0	0	0	6,927
Florida	37,400	0	0	0	0	37,400
Georgia	16,779	2,373	2,801	0	0	21,953
South Carolina	0	0	0	0	0	0
Total	61,106	2,373	2,801	0	0	66,280
Delta						
Arkansas	0	0	0	0	0	0
Louisiana	2,724	1,816	0	0	0	4,541
Mississippi	24,512	258	0	0	0	24,770
Total	27,236	2,074	0	0	0	29,310
Southern Plains						
Oklahoma	0	0	0	0	0	0
Texas	77,633	33,913	81,293	27,009	0	219,847
Total	77,633	33,913	81,293	27,009	0	219,847
Mountain						
Arizona	0	0	0	0	0	0
Colorado	2,697	234	0	0	0	2,931
Idaho	0	171,593	14,277	0	2,694	188,564
Montana	2,570	0	0	0	0	2,573
Nevada	0	0	0	0	0	0
New Mexico	0	0	0	0	0	0
Utah	0	0	0	0	31,713	31,713
Wyoming	0	0	0	0	0	0
Total	5,270	171,827	14,277	0	34,407	225,780
Pacific						
California	0	20,787	0	0	0	20,787
Hawaii	0	0	0	0	0	0
Oregon	0	0	0	0	0	0
Washington	0	6,217	0	0	0	6,217
Total	0	27,004	0	0	0	27,004
48 States						
Total	569,093	344,482	98,611	29,053	54,568	1,095,786

Appendix table 33--Labor: Production employees and all employees, average number per establishment and output per employee, by ownership and size interval, Northeast region, 1984

Ownership and size interval	Production employees		All employees	
	Average per establishment	Output per employee	Average per establishment	Output per employee
	Number	Tons	Number	Tons
Corporation				
Up to 999 tons	1.0	299	2.0	150
1,000-9,999 Tons	2.2	1,989	6.2	712
10,000-24,999 Tons	3.9	3,144	11.9	1,032
25,000-49,999 Tons	6.1	4,544	24.9	1,116
50,000-74,999 Tons	9.0	5,542	30.0	1,663
75,000-99,999 Tons	7.5	6,603	28.5	1,738
100,000 Tons and up	19.1	10,920	59.1	3,527
Total	6.3	6,840	20.9	2,063
Partnership				
Up to 999 tons	NA	NA	NA	NA
1,000-9,999 Tons	1.9	1,168	4.8	462
10,000-24,999 Tons	1.0	5,018	1.0	5,018
25,000-49,999 Tons	8.0	2,250	20.0	900
50,000-74,999 Tons	NA	NA	NA	NA
75,000-99,999 Tons	NA	NA	NA	NA
100,000 Tons and up	NA	NA	NA	NA
Total	2.4	1,649	5.8	670
Single owner				
Up to 999 tons	2.5	161	5.5	73
1,000-9,999 Tons	2.5	1,270	7.3	445
10,000-24,999 Tons	3.5	2,362	10.0	827
25,000-49,999 Tons	29.0	876	64.0	397
50,000-74,999 Tons	NA	NA	NA	NA
75,000-99,999 Tons	1.0	22,500	2.0	11,250
100,000 Tons and up	NA	NA	NA	NA
Total	4.0	1,594	10.3	617
Farmer cooperative				
Up to 999 tons	2.5	378	13.8	69
1,000-9,999 Tons	2.0	1,684	7.6	446
10,000-24,999 Tons	2.4	3,811	10.3	906
25,000-49,999 Tons	4.9	5,036	15.6	1,571
50,000-74,999 Tons	7.5	6,679	16.1	3,107
75,000-99,999 Tons	10.0	5,729	15.3	3,757
100,000 Tons and up	15.1	6,379	26.9	2,613
Total	5.4	5,301	14.9	1,068
Total				
Up to 999 tons	1.9	305	7.4	78
1,000-9,999 Tons	2.2	1,653	6.6	544
10,000-24,999 Tons	3.3	3,222	10.8	973
25,000-49,999 Tons	6.7	3,947	27.7	1,115
50,000-74,999 Tons	8.1	6,141	22.1	2,265
75,000-99,999 Tons	7.8	6,381	21.3	2,345
100,000 Tons and up	17.4	9,226	49.6	3,236
Total	5.5	5,767	16.8	1,889

NA = No data available.

Appendix table 34--labor: Production employees and all employees, average number per establishment and output per employee, by ownership and size interval, Lake States region, 1984

Ownership and size interval	Production employees		All employees	
	Average per establishment	Output per employee	Average per establishment	Output per employee
	Number	Tons	Number	Tons
Corporation				
Up to 999 tons	2.6	152	5.4	71
1,000-9,999 Tons	2.7	1,274	6.1	535
10,000-24,999 Tons	3.0	3,031	8.0	1,128
25,000-49,999 Tons	7.7	2,752	17.3	1,223
50,000-74,999 Tons	8.2	4,567	27.8	1,352
75,000-99,999 Tons	9.8	7,061	40.6	1,704
100,000 Tons and up	9.3	14,620	29.5	4,584
Total	4.0	3,766	11.1	1,359
Partnership				
Up to 999 tons	NA	NA	NA	NA
1,000-9,999 Tons	1.9	1,487	3.2	872
10,000-24,999 Tons	1.5	9,533	4.0	3,575
25,000-49,999 Tons	NA	NA	NA	NA
50,000-74,999 Tons	NA	NA	NA	NA
75,000-99,999 Tons	NA	NA	NA	NA
100,000 Tons and up	NA	NA	NA	NA
Total	1.8	2,694	3.4	1,456
Single owner				
Up to 99 tons	2.5	153	3.0	127
1,000-9,999 Tons	1.6	1,791	3.2	928
10,000-24,999 Tons	4.7	1,957	8.5	1,085
25,000-49,999 Tons	2.1	1,842	6.0	614
50,000-74,999 Tons	NA	NA	NA	NA
75,000-99,999 Tons	NA	NA	NA	NA
100,000 Tons and up	34.0	3,000	82.0	1,244
Total	3.8	2,123	7.6	1,070
Farmer cooperative				
Up to 999 tons	1.5	45	8.0	8
1,000-9,999 Tons	2.5	2,653	7.0	951
10,000-24,999 Tons	3.1	3,862	8.9	1,355
25,000-49,999 Tons	5.9	4,869	17.0	1,693
50,000-74,999 Tons	36.3	1,046	68.3	556
75,000-99,999 Tons	2.5	26,400	9.0	7,333
100,000 Tons and up	NA	NA	NA	NA
Total	4.1	3,159	10.6	1,222
Total				
Up to 999 tons	2.4	142	5.5	62
1,000-9,999 Tons	2.4	1,750	5.9	769
10,000-24,999 Tons	3.2	3,171	8.3	1,236
25,000-49,999 Tons	6.6	3,606	16.7	1,434
50,000-74,999 Tons	15.3	2,470	37.9	993
75,000-99,999 Tons	7.7	8,852	31.6	2,163
100,000 Tons and up	14.2	9,056	40.0	3,215
Total	3.9	3,328	10.2	1,284

NA = No data available.

Appendix table 35--Labor: Production employees and all employees, average number per establishment and output per employee, by ownership and size interval, Corn Belt region, 1984

Ownership and size interval	Production employees		All employees	
	Average per establishment	Output per employee	Average per establishment	Output per employee
	Number	Tons	Number	Tons
Corporation				
Up to 999 tons	1.4	399	6.5	83
1,000-9,999 Tons	2.3	1,419	7.0	472
10,000-24,999 Tons	3.5	2,485	11.6	746
25,000-49,999 Tons	6.3	3,84	17.9	1,362
50,000-74,999 Tons	11.6	3,207	29.9	1,241
75,000-99,999 Tons	17.3	3,676	51.5	1,231
100,000 Tons and up	19.8	5,605	49.4	2,250
Total	5.6	3,403	16.2	1,172
Partnership				
Up to 999 tons	2.5	293	4.5	163
1,000-9,999 Tons	3.3	669	4.7	478
10,000-24,999 Tons	3.0	3,467	9.0	1,156
25,000-49,999 Tons	1.0	3,090	5.0	618
50,000-74,999 Tons	NA	NA	NA	NA
75,000-99,999 Tons	NA	NA	NA	NA
100,000 Tons and up	NA	NA	NA	NA
Total	2.7	1,139	5.3	585
Single owner				
Up to 999 tons	1.7	156	4.3	60
1,000-9,999 Tons	1.8	1,289	3.3	694
10,000-24,999 Tons	1.6	2,043	4.6	1,074
25,000-49,999 Tons	NA	NA	NA	NA
50,000-74,999 Tons	5.0	7,036	24.0	1,522
75,000-99,999 Tons	NA	NA	NA	NA
100,000 Tons and up	NA	NA	NA	NA
Total	1.8	2,178	4.4	897
Farmer cooperative				
Up to 999 tons	4.5	497	9.2	244
1,000-9,999 Tons	2.5	1,548	7.7	496
10,000-24,999 Tons	3.7	2,087	10.1	759
25,000-49,999 Tons	6.9	4,030	19.2	1,444
50,000-74,999 Tons	4.7	5,24	15.5	1,519
75,000-99,999 Tons	7.5	5,133	25.0	1,540
100,000 Tons and up	32.0	3,781	59.8	2,025
Total	4.5	2,820	12.0	1,056
Total				
Up to 999 tons	2.4	417	6.8	45
1,000-9,999 Tons	2.3	1,437	5.7	494
10,000-24,999 Tons	3.4	2,383	10.5	766
25,000-49,999 Tons	6.4	3,897	18.0	1,382
50,000-74,999 Tons	9.5	3,537	25.9	1,296
75,000-99,999 Tons	16.2	3,752	48.6	1,249
100,000 Tons and up	22.9	4,967	52.0	2,185
Total	4.9	3,182	13.8	1,130

NA = No data available

Appendix table 36--Labor: Production employees and all employees, average number per establishment and output per employee, by ownership and size interval, Northern Plains region, 1984

Ownership and size interval	Production employees		All employees	
	Average per establishment	Output per employee	Average per establishment	Output per employee
	Number	Tons	Number	Tons
Corporation				
Up to 999 tons	0.9	11,751	4.3	2,419
1,000-9,999 Tons	2.3	2,272	5.3	984
10,000-24,999 Tons	3.0	2,675	8.1	998
25,000-49,999 Tons	5.4	4,695	14.4	1,755
50,000-74,999 Tons	8.8	6,017	29.6	1,790
75,000-99,999 Tons	8.8	7,398	27.0	2,420
100,000 Tons and up	19.4	7,150	39.3	3,526
Total	5.2	5,369	13.4	2,092
Partnership				
Up to 999 tons	1.0	1,100	2.0	550
1,000-9,999 Tons	1.0	696	3.0	272
10,000-24,999 Tons	3.0	7,000	10.0	2,100
25,000-49,999 Tons	1.0	3,400	1.0	3,400
50,000-74,999 Tons	NA	NA	NA	NA
75,000-99,999 Tons	NA	NA	NA	NA
100,000 Tons and up	5.0	29,960	8.0	18,725
Total	2.0	14,724	4.5	6,544
Single owner				
Up to 999 tons	0.7	5,550	2.3	1,586
1,000-9,999 Tons	1.8	1,236	4.2	530
10,000-24,999 Tons	2.0	1,838	6.5	565
25,000-49,999 Tons	NA	NA	NA	NA
50,000-74,999 Tons	NA	NA	NA	NA
75,000-99,999 Tons	NA	NA	NA	NA
100,000 Tons and up	NA	NA	NA	NA
Total	1.5	1,972	4.1	721
Farmer cooperative				
Up to 999 tons	2.3	2,338	6.0	519
1,000-9,999 Tons	1.9	1,575	4.5	646
10,000-24,999 Tons	3.2	2,557	7.2	1,141
25,000-49,999 Tons	3.4	4,596	10.4	1,503
50,000-74,999 Tons	7.0	5,182	11.0	1,814
75,000-99,999 Tons	8.0	4,180	20.0	1,670
100,000 Tons and up	14.0	4,584	42.0	1,525
Total	2.9	2,947	7.3	1,170
Total				
Up to 999 tons	1.5	4,631	4.6	1,480
1,000-9,999 Tons	2.1	1,930	4.8	825
10,000-24,999 Tons	3.1	2,674	7.7	1,068
25,000-49,999 Tons	4.5	4,656	12.4	1,682
50,000-74,999 Tons	8.4	5,868	27.6	1,794
75,000-99,999 Tons	8.7	6,976	26.0	2,338
100,000 Tons and up	17.8	7,487	37.1	3,604
Total	4.1	4,782	10.4	1,874

NA = No data available.

Appendix table 37--Labor: Production employees and all employees, average number per establishment and output per employee, by ownership and size interval, Appalachian region, 1984

Ownership and size interval	Production employees		All employees	
	Average per establishment	Output per employee	Average per establishment	Output per employee
	Number	Tons	Number	Tons
Corporation				
Up to 999 tons	1.8	326	5.3	109
1,000-9,999 Tons	2.6	2,535	7.8	853
10,000-24,999 Tons	3.1	2,389	9.5	772
25,000-49,999 Tons	8.3	2,615	19.7	1,096
50,000-74,999 Tons	6.8	6,427	19.6	2,230
75,000-99,999 Tons	6.3	12,225	23.5	3,251
100,000 Tons and up	17.6	9,045	44.9	3,552
Total	6.7	6,375	18.1	2,346
Partnership				
Up to 999 tons	2.0	40	2.0	40
1,000-9,999 Tons	1.3	1,927	4.8	507
10,000-24,999 Tons	2.3	3,973	6.3	1,430
25,000-49,999 Tons	NA	NA	NA	NA
50,000-74,999 Tons	NA	NA	NA	NA
75,000-99,999 Tons	NA	NA	NA	NA
100,000 Tons and up	NA	NA	NA	NA
Total	1.8	2,842	5.1	989
Single owner				
Up to 999 tons	1.5	68	3.5	29
1,000-9,999 Tons	1.8	380	4.4	547
10,000-24,999 Tons	2.5	520	4.0	325
25,000-49,999 Tons	NA	NA	NA	NA
50,000-74,999 Tons	NA	NA	NA	NA
75,000-99,999 Tons	NA	NA	NA	NA
100,000 Tons and up	2.0	1,050	2.0	1,050
Total	1.8	1,093	4.1	484
Farmer cooperative				
Up to 999 tons	1.0	489	8.0	6
1,000-9,999 Tons	1.5	1,295	4.2	466
10,000-24,999 Tons	7.0	543	7.0	543
25,000-49,999 Tons	6.2	3,450	15.6	1,371
50,000-74,999 Tons	18.0	3,395	27.0	2,263
75,000-99,999 Tons	18.5	2,470	29.0	1,576
100,000 Tons and up	11.9	12,660	26.9	5,678
Total	6.6	7,311	15.4	3,121
Total				
Up to 999 tons	1.4	356	6.0	71
1,000-9,999 Tons	2.1	2,154	6.2	743
10,000-24,999 Tons	2.7	2,542	8.2	837
25,000-49,999 Tons	7.6	2,827	18.4	1,69
50,000-74,999 Tons	7.8	5,772	20.3	2,234
75,000-99,999 Tons	10.3	6,464	25.3	2,612
100,000 Tons and up	15.1	9,950	37.2	4,034
Total	5.7	6,313	14.9	2,416

NA = No data available

Appendix table 38--Labor: Production employees and all employees, average number per establishment and output per employee, by ownership and size interval, Southeast region, 1984

Ownership and size interval	Production employees		All employees	
	Average per establishment	Output per employee	Average per establishment	Output per employee
	Number	Tons	Number	Tons
Corporation				
Up to 999 tons	4.5	72	10.5	31
1,000-9,999 Tons	3.7	973	9.2	387
10,000-24,999 Tons	5.8	1,529	13.9	634
25,000-49,999 Tons	4.4	5,873	12.1	2,135
50,000-74,999 Tons	5.0	6,888	18.4	1,872
75,000-99,999 Tons	9.4	6,524	30.4	2,022
100,000 Tons and up	13.6	13,730	36.4	5,143
Total	7.7	8,974	21.5	3,236
Partnership				
Up to 999 tons	NA	NA	NA	NA
1,000-9,999 Tons	1.0	4,852	2.0	2,426
10,000-24,999 Tons	NA	NA	NA	NA
25,000-49,999 Tons	NA	NA	NA	NA
50,000-74,999 Tons	NA	NA	NA	NA
75,000-99,999 Tons	NA	NA	NA	NA
100,000 Tons and up	8.0	10,867	10.0	8,693
Total	4.5	10,198	7.0	7,649
Single owner				
Up to 999 tons	NA	NA	NA	NA
1,000-9,999 Tons	1.5	2,167	1.5	2,167
10,000-24,999 Tons	NA	NA	NA	NA
25,000-49,999 Tons	NA	NA	NA	NA
50,000-74,999 Tons	2.0	20,800	7.0	5,943
75,000-99,999 Tons	6.0	3,333	18.0	1,111
100,000 Tons and up	7.0	11,143	18.0	4,333
Total	3.6	8,117	9.2	3,176
Farmer cooperative				
Up to 999 tons	NA	NA	NA	NA
1,000-9,999 Tons	2.0	375	2.0	375
10,000-24,999 Tons	12.0	613	15.0	491
25,000-49,999 Tons	1.0	8,437	4.0	2,109
50,000-74,999 Tons	4.8	39,843	12.5	15,140
75,000-99,999 Tons	12.0	6,951	33.0	2,528
100,000 Tons and up	12.9	13,323	29.8	5,767
Total	9.7	14,718	22.3	6,407
Total				
Up to 999 tons	4.5	72	10.5	31
1,000-9,999 Tons	3.0	1,134	6.9	491
10,000-24,999 Tons	6.4	1,340	14.0	617
25,000-49,999 Tons	4.1	5,930	11.4	2,135
50,000-74,999 Tons	4.6	21,105	14.9	6,516
75,000-99,999 Tons	9.3	6,357	29.3	2,023
100,000 Tons and up	12.9	13,471	32.4	5,371
Total	7.8	10,530	20.5	4,023

NA = No data available.

Appendix table 39--Labor: Production employees and all employees, average number per establishment and output per employee, by ownership and size interval, Delta region, 1984

Ownership and size interval	Production employees		All employees	
	Average per establishment	Output per employee	Average per establishment	Output per employee
	Number	Tons	Number	Tons
Corporation				
Up to 999 tons	4.0	75	4.0	75
1,000-9,999 Tons	2.8	1,362	8.8	438
10,000-24,999 Tons	17.7	598	31.7	334
25,000-49,999 Tons	7.6	3,740	20.2	1,390
50,000-74,999 Tons	9.5	4,708	23.8	1,883
75,000-99,999 Tons	6.0	15,508	19.0	4,897
100,000 Tons and up	14.1	11,656	30.8	5,333
Total	8.9	6,840	21.0	2,903
Partnership				
Up to 999 tons	7.0	164	7.0	164
1,000-9,999 Tons	4.0	534	6.0	356
10,000-24,999 Tons	1.0	7,500	5.0	1,500
25,000-49,999 Tons	NA	NA	NA	NA
50,000-74,999 Tons	NA	NA	NA	NA
75,000-99,999 Tons	NA	NA	NA	NA
100,000 Tons and up	NA	NA	NA	NA
Total	1.7	2,157	6.0	599
Single owner				
Up to 999 tons	2.0	100	5.0	40
1,000-9,999 Tons	3.3	323	3.3	323
10,000-24,999 Tons	1.0	862	2.0	431
25,000-49,999 Tons	NA	NA	NA	NA
50,000-74,999 Tons	NA	NA	NA	NA
75,000-99,999 Tons	8.0	9,000	21.0	3,429
100,000 Tons and up	6.0	40,117	10.0	24,070
Total	3.9	11,741	6.0	6,604
Farmer cooperative				
Up to 999 tons	NA	NA	NA	NA
1,000-9,999 Tons	3.6	3,597	14.8	875
10,000-24,999 Tons	4.5	333	9.5	158
25,000-49,999 Tons	6.0	5,137	22.0	1,401
50,000-74,999 Tons	14.0	3,356	23.0	2,043
75,000-99,999 Tons	NA	NA	NA	NA
100,000 Tons and up	12.0	12,133	21.0	6,933
Total	5.9	4,953	16.5	1,779
Total				
Up to 999 tons	2.0	275	5.3	103
1,000-9,999 Tons	3.1	1,747	9.3	528
10,000-24,999 Tons	9.1	673	17.3	356
25,000-49,999 Tons	7.3	3,949	20.6	1,392
50,000-74,999 Tons	10.0	4,498	23.7	1,901
75,000-99,999 Tons	7.0	11,789	20.0	4,897
100,000 Tons and up	13.4	12,534	28.7	5,846
Total	7.6	6,814	18.2	2,850

NA = No data available.

Appendix table 40--Labor: Production employees and all employees, average number per establishment and output per employee, by ownership and size interval, Southern Plains region, 1984

Ownership and size interval	Production employees		All employees	
	Average per establishment	Output per employee	Average per establishment	Output per employee
	Number	Tons	Number	Tons
Corporation				
Up to 999 tons	6.0	83	10.3	48
1,000-9,999 Tons	4.4	1,036	8.6	528
10,000-24,999 Tons	4.8	2,758	9.5	1,379
25,000-49,999 Tons	7.9	4,011	21.4	1,472
50,000-74,999 Tons	9.1	4,699	22.0	1,953
75,000-99,999 Tons	12.3	5,823	36.6	1,956
100,000 Tons and up	20.7	7,345	52.0	2,917
Total	10.2	5,483	25.3	2,221
Partnership				
Up to 999 tons				
1,000-9,999 Tons	3.0	863	5.5	471
10,000-24,999 Tons	2.0	7,520	4.7	3,223
25,000-49,999 Tons	NA	NA	NA	NA
50,000-74,999 Tons	4.0	14,300	10.0	5,720
75,000-99,999 Tons	14.0	9,429	41.0	3,220
100,000 Tons and up	NA	NA	NA	NA
Total	4.3	7,983	10.9	3,151
Single owner				
Up to 999 tons	1.5	550	3.5	236
1,000-9,999 Tons	2.4	1,046	4.8	523
10,000-24,999 Tons	2.0	1,786	6.5	549
25,000-49,999 Tons	NA	NA	NA	NA
50,000-74,999 Tons	NA	NA	NA	NA
75,000-99,999 Tons	5.0	16,623	9.0	9,240
100,000 Tons and up	10.0	13,626	12.0	11,355
Total	2.9	5,507	5.6	2,846
Farmer cooperative				
Up to 999 tons	NA	NA	NA	NA
1,000-9,999 Tons	1.0	3,024	3.5	864
10,000-24,999 Tons	2.7	1,641	7.7	571
25,000-49,999 Tons	6.5	1,634	10.8	2,302
50,000-74,999 Tons	10.0	4,176	22.0	1,898
75,000-99,999 Tons	10.0	4,471	31.0	1,442
100,000 Tons and up	7.0	50,000	8.0	43,750
Total	4.6	8,956	10.1	4,129
Total				
Up to 999 tons	4.2	150	7.6	83
1,000-9,999 Tons	3.5	1,089	6.9	542
10,000-24,999 Tons	3.8	2,968	6.2	1,357
25,000-49,999 Tons	7.6	4,132	19.1	1,638
50,000-74,999 Tons	8.7	5,124	20.7	2,149
75,000-99,999 Tons	11.5	6,614	33.7	2,257
100,000 Tons and up	19.7	8,080	48.6	3,269
Total	8.3	5,770	20.3	2,376

NA = No data available.

Appendix table 41--Labor: Production employees and all employees, average number per establishment and output per employee, by ownership and size interval, Mountain region, 1984

Ownership and size interval	Production employees		All employees	
	Average per establishment	Output per employee	Average per establishment	Output per employee
	Number	Tons	Number	Tons
Corporation				
Up to 999 tons	7.5	48	14.5	25
1,000-9,999 Tons	4.6	1,199	9.3	590
10,000-24,999 Tons	5.8	2,097	13.9	869
25,000-49,999 Tons	5.1	9,724	13.3	3,728
50,000-74,999 Tons	21.3	2,040	39.0	1,116
75,000-99,999 Tons	7.0	5,776	12.3	3,278
100,000 Tons and up	22.0	4,667	44.3	2,316
Total	8.6	3,398	17.6	1,652
Partnership				
Up to 999 tons	3.0	33.0	5.0	20
1,000-9,999 Tons	NA	NA	NA	NA
10,000-24,999 Tons	1.0	16,120	1.0	16,120
25,000-49,999 Tons	3.0	5,000	12.0	1,250
50,000-74,999 Tons	NA	NA	NA	NA
75,000-99,999 Tons	NA	NA	NA	NA
100,000 Tons and up	NA	NA	NA	NA
Total	2.3	4,460	6.0	1,734
Single owner				
Up to 999 tons	NA	NA	NA	NA
1,000-9,999 Tons	2.0	355	3.0	237
10,000-24,999 Tons	2.0	658	7.0	188
25,000-49,999 Tons	NA	NA	NA	NA
50,000-74,999 Tons	NA	NA	NA	NA
75,000-99,999 Tons	NA	NA	NA	NA
100,000 Tons and up	NA	NA	NA	NA
Total	2.0	506	5.0	207
Farmer cooperative				
Up to 999 tons	NA	NA	NA	NA
1,000-9,999 Tons	30.0	200	63.0	95
10,000-24,999 Tons	3.3	3,401	11.3	990
25,000-49,999 Tons	4.0	13,000	21.0	2,476
50,000-74,999 Tons	NA	NA	NA	NA
75,000-99,999 Tons	NA	NA	NA	NA
100,000 Tons and up	13.0	7,308	26.0	3,654
Total	7.0	3,303	18.9	1,223
Total				
Up to 999 tons	6.0	45	11.3	24
1,000-9,999 Tons	6.0	869	12.3	426
10,000-24,999 Tons	4.2	2,668	11.6	970
25,000-49,999 Tons	4.9	9,435	13.2	3,502
50,000-74,999 Tons	18.9	2,372	36.4	1,228
75,000-99,999 Tons	7.0	5,776	12.3	3,278
100,000 Tons and up	19.8	5,101	39.8	2,535
Total	7.8	3,375	16.8	1,559

NA = No data available.

Appendix table 42--Labor: Production employees and all employees, average number per establishment and output per employee, by ownership and size interval, Pacific region, 1984

Ownership and size interval	Production employees		All employees	
	Average per establishment	Output per employee	Average per establishment	Output per employee
	Number	Tons	Number	Tons
Corporation				
Up to 999 tons				
1,000-9,999 Tons	16.0	348	23.7	235
10,000-24,999 Tons	3.8	11,974	8.8	5,170
25,000-49,999 Tons	3.4	8,890	10.6	2,851
50,000-74,999 Tons	14.5	3,623	34.5	1,523
75,000-99,999 Tons	14.0	4,262	31.0	1,925
100,000 Tons and up	9.5	19,559	34.2	5,433
Total	8.9	10,150	24.0	3,776
Partnership				
Up to 999 tons				
1,000-9,999 Tons	3.0	1,000.0	4.0	750
10,000-24,999 Tons	1.0	7,000	4.0	1,750
25,000-49,999 Tons	1.0	31,445	5.0	6,289
50,000-74,999 Tons	NA	NA	NA	NA
75,000-99,999 Tons	NA	NA	NA	NA
100,000 Tons and up	NA	NA	NA	NA
Total	1.7	8,289	4.3	3,188
Single owner				
Up to 999 tons	NA	NA	NA	NA
1,000-9,999 Tons	1.0	13,000	2.0	6,500
10,000-24,999 Tons	NA	NA	NA	NA
25,000-49,999 Tons	NA	NA	NA	NA
50,000-74,999 Tons	NA	NA	NA	NA
75,000-99,999 Tons	NA	NA	NA	NA
100,000 Tons and up	9.0	71,500	76.0	8,467
Total	5.0	65,650	39.0	8,417
Farmer cooperative				
Up to 999 tons	NA	NA	NA	NA
1,000-9,999 Tons	2.0	4,000	10.0	800
10,000-24,999 Tons	2.0	11,625	7.0	3,321
25,000-49,999 Tons	4.7	4,979	12.0	1,936
50,000-74,999 Tons	3.0	12,337	11.0	3,364
75,000-99,999 Tons	NA	NA	NA	NA
100,000 Tons and up	NA	NA	NA	NA
Total	3.5	6,570	10.7	2,156
Total				
Up to 999 tons				
1,000-9,999 Tons	10.6	523	17.0	326
10,000-24,999 Tons	2.9	11,772	7.1	4,750
25,000-49,999 Tons	3.6	7,884	10.4	2,684
50,000-74,999 Tons	10.7	4,440	26.7	1,776
75,000-99,999 Tons	14.0	4,262	31.0	1,925
100,000 Tons and up	9.5	24,054	38.0	5,985
Total	7.3	11,795	21.2	4,079

NA = No data available.

Appendix table 4² -Labor: Production employees and all employees, average number per establishment and output per employee, by ownership and size interval, United States, 1984

Ownership and size interval	Production employees		All employees	
	Average per establishment	Output per employee	Average per establishment	Output per employee
	Number	Tons	Number	Tons
Corporation				
Up to 999 tons	2.3	964	6.1	366
1,000-9,999 Tons	2.9	1,464	7.2	587
10,000-24,999 Tons	3.8	2,699	10.5	966
25,000-49,999 Tons	6.4	4,269	18.0	1,509
50,000-74,999 Tons	10.0	4,310	27.1	1,590
75,000-99,999 Tons	11.5	5,501	35.7	1,776
100,000 Tons and up	17.0	9,452	43.5	3,584
Total	6.4	5,446	17.4	2,014
Partnership				
Up to 999 tons	1.8	354.0	4.2	156
1,000-9,999 Tons	2.0	1,200.0	4.2	582
10,000-24,999 Tons	1.9	6,304	5.1	2,292
25,000-49,999 Tons	2.8	5,067	8.6	1,650
50,000-74,999 Tons	4.0	14,300	10.0	5,720
75,000-99,999 Tons	14.0	9,429	41.0	3,220
100,000 Tons and up	16.5	18,210	9.0	13,152
Total	2.4	5,069	5.6	2,170
Single owner				
Up to 999 tons	1.7	620	3.7	277
1,000-9,999 Tons	2.0	1,291	4.7	613
10,000-24,999 Tons	3.0	2,188	6.8	962
25,000-49,999 Tons	15.5	938.0	35.0	416
50,000-74,999 Tons	3.5	11,162	15.5	2,520
75,000-99,999 Tons	5.0	9,883	12.5	3,953
100,000 Tons and up	11.3	17,685	33.3	6,013
Total	2.9	4,639	6.8	1,966
Farmer cooperative				
Up to 999 tons	2.5	1,036	8.4	304
1,000-9,999 Tons	2.4	1,878	7.1	640
10,000-24,999 Tons	3.3	2,830	9.2	1,006
25,000-49,999 Tons	5.5	4,448	15.5	1,595
50,000-74,999 Tons	9.9	6,156	22.1	2,747
75,000-99,999 Tons	9.8	5,44	20.8	2,550
100,000 Tons and up	15.4	9,181	33.9	4,153
Total	4.6	4,928	12.0	1,900
Total				
Up to 999 tons	2.2	913	6.3	324
1,000-9,999 Tons	2.6	1,555	6.6	607
10,000-24,999 Tons	3.5	2,768	9.5	1,005
25,000-49,999 Tons	6.1	4,243	17.2	1,511
50,000-74,999 Tons	9.8	4,872	25.5	1,874
75,000-99,999 Tons	10.9	5,664	32.0	1,931
100,000 Tons and up	16.3	9,657	40.7	3,865
Total	5.4	5,274	14.5	1,987

Appendix table 44--Feed ingredients used in primary manufacturing: Quantities of specified feed grains used, by state and region, 1984

State and region	Corn	Sorghum	Barley	Oats	Wheat	Other	Total
Total							
Northeast							
Connecticut	124,593	0	11,085	257	0	0	135,935
Delaware	437,854	0	7,072	339	6,349	113	461,727
Maine	62,263	0	2,411	598	0	0	65,272
Maryland	898,215	0	9,664	9,761	14,477	724	932,842
Massachusetts	49,472	0	890	1,643	0	0	52,006
New Hampshire	33,852	0	0	9,571	85	0	43,508
New Jersey	45,097	0	1,735	46,832	867	0	94,531
New York	561,135	0	10,446	51,652	79	5,921	632,133
Pennsylvania	120,140	2,338	31,219	56,055	22,604	27,872	1,260,427
Vermont	105,690	0	10,577	19,476	277	1,900	137,922
Total	3,438,313	2,338	95,399	196,183	41,641	36,529	3,816,104
Lake States							
Michigan	866,956	23	5	26,274	3,830	3,058	900,146
Minnesota	1,469,698	0	2,576	165,033	6,428	17,144	1,677,879
Wisconsin	839,508	0	8,009	82,414	3,922	14,891	948,045
Total	3,176,163	23	27,689	273,721	47,641	36,529	3,526,670
Corn Belt							
Illinois	672,001	11,651	4,823	54,557	28,634	47,635	818,901
Indiana	1,066,223	2,643	6,055	39,949	33,544	18,266	1,166,682
Iowa	1,190,485	11,075	504	44,962	1,676	68,197	1,316,898
Missouri	989,523	560,173	34,867	25,225	52,162	66,697	1,728,598
Ohio	579,523	806	0	113,015	82,026	57,123	832,494
Total	4,497,704	586,349	46,250	277,308	198,043	257,919	5,863,573
Northern Plains							
Kansas	821,214	917,558	125,752	30,810	137,719	152,289	2,187,342
Nebraska	987,071	79,932	2,279	35,407	6,866	55,081	1,166,636
North Dakota	44,974	0	92,339	35,024	21,075	3,324	196,836
South Dakota	88,703	15,768	33,175	37,481	4,011	11,315	190,453
Total	1,941,962	1,013,259	253,645	138,723	171,671	222,008	3,741,267
Appalachian							
Kentucky	276,343	6,687	4,222	24,212	21,698	779	333,440
North Carolina	1,696,757	18,387	19,100	16,777	95,704	2,544	1,849,270
Tennessee	654,125	60,164	149	12,054	16,522	9,664	752,678
Virginia	517,082	245	13,440	10,924	18,500	6,761	566,950
West Virginia	81,359	0	0	21,308	0	0	102,667
Total	3,227,066	85,483	36,911	85,275	152,424	19,247	3,605,006
Southeast							
Alabama	1,110,272	245,605	706	4,711	41,677	24,747	1,427,719
Florida	820,933	15,145	1,443	23,194	106,687	6,786	974,188
Georgia	2,319,276	72,706	1,169	17,554	93,975	12,831	2,518,512
South Carolina	257,669	434	145	2,935	29,556	390	291,128
Total	4,508,150	333,890	4,463	48,394	271,895	44,755	5,211,546
Delta							
Arkansas	1,197,284	409,459	0	19,479	40,344	1,910	1,668,476
Louisiana	443,917	149,534	69	25,852	56,608	12,561	688,512
Mississippi	1,014,864	211,371	0	7,160	87,686	30,518	1,351,600
Total	2,656,065	770,334	69	52,492	184,639	44,989	3,708,588
Southern Plains							
Oklahoma	811,076	358,291	30,113	79,355	293,727	1,374	1,573,935
Texas	2,164,368	2,291,302	83,384	103,183	369,106	222,007	5,237,350
Total	2,975,444	2,649,593	113,497	182,538	662,833	223,381	6,811,285
Mountain							
Arizona	NA	NA	NA	NA	NA	NA	NA
Colorado	613,223	33,321	111,826	91,277	55,117	6,047	910,809
Idaho	150,035	9,844	364,216	17,957	64,363	270	606,684
Montana	43,011	0	182,767	1,952	11,875	10,547	250,150
Nebraska	0	0	472	0	5,855	0	6,327
New Mexico	85,921	148,991	14,352	13,206	68,824	0	331,384
Utah	30,577	66,150	42,355	2,271	23,475	19,985	184,813
Wyoming	NA	NA	NA	NA	NA	NA	NA
Total	922,767	258,306	715,987	126,751	229,509	36,848	2,290,168
Pacific							
California	4,421,749	343,102	1,199,105	43,978	743,798	106,658	6,838,390
Hawaii	NA	NA	NA	NA	NA	NA	NA
Oregon	164,864	537	142,569	107,098	132,603	15,643	563,314
Washington	370,976	0	148,871	6,559	16,222	1,036	493,665
Total	4,958,589	343,639	1,490,545	157,636	892,623	123,337	7,915,369
48 States	32,253,821	6,043,214	2,784,154	1,539,021	2,858,919	1,045,543	46,489,576

Appendix table 45--Feed ingredients used in primary manufacturing:
Oilseed meals used, by state and region, '984

State and region	Soybean Meal	Cottonseed Meal	Other	Total
Tons				
Northeast				
Connecticut	60,115	0	0	60,115
Delaware	131,797	0	0	131,797
Maine	37,781	0	0	37,781
Maryland	241,687	0	18	241,705
Massachusetts	13,117	0	0	13,117
New Hampshire	12,946	0	0	12,946
New Jersey	19,080	0	0	19,080
New York	421,056	4	7,369	428,429
Pennsylvania	619,950	582	12,637	633,169
Vermont	50,886	62	10,073	61,022
Total	1,608,415	649	30,098	1,639,162
Lake States				
Michigan	355,206	660	5,151	361,018
Minnesota	917,360	1,945	28,853	948,158
Wisconsin	2,369,083	33	69,802	2,438,918
Total	3,641,650	2,638	103,806	3,748,093
Corn Belt				
Illinois	848,600	4,507	27,578	880,685
Indiana	921,813	8,240	2,171	932,224
Iowa	1,853,698	3,216	79,678	1,936,592
Missouri	700,862	42,277	20,350	763,490
Ohio	467,050	484	4,167	471,701
Total	4,792,024	58,724	133,915	4,984,662
Northern Plains				
Kansas	294,643	94,028	59,420	448,091
Nebraska	54,165	7,542	88,297	560,004
North Dakota	15,144	0	5,086	20,230
South Dakota	230,857	5	30,653	261,516
Total	1,004,809	101,576	183,456	1,289,841
Appalachian				
Kentucky	160,496	15,445	60	176,001
North Carolina	709,107	2,309	3,953	715,369
Tennessee	246,084	72,658	0	318,743
Virginia	246,738	5	5,697	252,440
West Virginia	21,308	0	0	21,308
Total	1,383,734	90,417	9,710	1,483,861
Southeast				
Alabama	458,102	8,700	4,779	471,581
Florida	277,865	12,611	14,584	305,060
Georgia	842,109	33,634	2,391	878,134
South Carolina	106,788	159	0	106,947
Total	1,684,863	55,104	21,754	1,761,722
Delta				
Arkansas	499,815	27,203	0	527,018
Louisiana	191,745	32,392	0	224,137
Mississippi	398,890	14,233	0	413,123
Total	1,090,449	73,828	0	1,164,278
Southern Plains				
Oklahoma	218,470	62,811	9,389	290,670
Texas	547,954	366,119	46,717	960,790
Total	766,424	428,930	56,106	1,251,460
Mountain				
Arizona	NA	NA	NA	NA
Colorado	98,855	49,175	25,042	173,072
Idaho	44,015	7,139	11,737	62,891
Montana	24,044	1,604	76,465	102,112
Nevada	236	850	0	1,086
New Mexico	2,409	33,924	0	34,333
Utah	41,738	3,979	1,581	47,297
Wyoming	NA	NA	NA	NA
Total	229,296	96,671	115,725	441,692
Pacific				
California	935,090	138,916	10,213	1,084,280
Hawaii	NA	NA	NA	NA
Oregon	29,244	4,134	4,996	38,375
Washington	22,285	0	65,618	87,903
Total	986,619	143,050	80,888	1,210,558
48 States	17,188,503	1,051,587	735,488	18,975,579

NA = No data available for ingredient use

Appendix table 46--Feed ingredients used in primary manufacturing: Quantities of specified grain byproducts used, by state and region, 1984

State and region	Brewers grains	Distillers grains	Corn gluten Meal	Corn gluten feed	Hominy feed	Wheat millfeeds	Soybean millfeeds	Other	Total
Tons									
Northeast									
Connecticut	13,102	1,727	1,960	15,984	8,979	51,704	0	1,153	108,609
Delaware	0	0	76,297	0	0	4,233	423	0	80,953
Maine	6,343	21,875	337	0	19,029	48,788	0	0	96,373
Maryland	5,741	049	102,542	868	0	47,264	7,708	27,531	102,502
Massachusetts	5,224	3,281	3,694	1,547	2,110	22,031	0	1,315	39,201
New Hampshire	1,334	5,409	165	2,000	3,334	45,307	0	978	58,527
New Jersey	3,469	5,204	3,122	4,336	1,214	20,814	0	0	38,159
New York	41,596	192,976	4,653	80,652	117,514	391,691	19,631	11,956	870,675
Pennsylvania	19,397	47,764	45,625	42,244	17,175	142,137	14,085	38,091	364,518
Vermont	9,467	57,367	3,905	5,784	12,214	118,562	0	11,320	218,620
Total	105,673	350,453	250,300	153,417	181,569	892,530	41,852	92,342	2,068,137
Lake States									
Michigan	1,990	0	2,604	4,551	0	77,314	16,609	1,733	104,801
Minnesota	6,324	8,674	43,161	2,386	0	163,467	20,383	43,638	288,033
Wisconsin	45,710	13,059	8,583	1,942	10,719	20,697	12,870	12,021	346,002
Total	54,025	21,733	54,748	8,879	10,719	481,478	49,862	57,392	738,836
Corn Belt									
Illinois	19,931	33,371	19,776	31,327	11,646	271,664	22,675	57,890	468,280
Indiana	18,004	27,122	24,016	57,189	16,239	381,095	37,826	54,598	616,090
Iowa	7,076	40,206	21,012	14,347	28,681	413,471	73,561	127,834	726,188
Missouri	9,671	17,974	6,777	17,505	6,984	427,488	60,551	82,325	617,081
Ohio	8,710	7,258	9,253	33,435	2,688	124,902	57,865	19,796	325,906
Total	63,400	125,932	80,833	153,603	66,239	1,680,620	252,478	342,443	2,765,545
Northern Plains									
Kansas	456	4,683	13,585	16,760	0	370,911	24,738	90,620	521,753
Nebraska	0	5,421	3,748	0	2,223	147,724	13,995	67,560	240,670
North Dakota	8,330	0	0	0	0	5,739	0	17,285	31,354
South Dakota	461	814	1,591	2,621	0	136,191	5,686	28,155	175,519
Total	9,247	10,918	18,924	19,382	2,223	660,565	44,418	203,621	969,257
Appalachian									
Kentucky	6,270	29,927	223	14,420	28,267	203,900	49,413	31,904	364,324
North Carolina	1,397	4,824	62,168	6,444	321	64,849	3,344	8,745	152,093
Tennessee	0	18,326	6,520	7,175	12,129	212,858	13,102	72,129	342,238
Virginia	9,744	14,825	6,244	4,685	16,714	124,569	21,412	1,858	210,051
West Virginia	0	0	0	0	0	0	0	0	0
Total	17,411	67,901	85,156	32,724	57,711	606,176	87,271	114,637	1,068,706
Southeast									
Alabama	1,009	0	19,692	8,004	0	49,804	11,153	16,618	106,280
Florida	11,751	13,726	10,048	2,775	0	50,035	5,466	157,164	392,439
Georgia	74,796	899	77,512	6,952	0	105,804	188,356	31,386	485,703
South Carolina	0	0	4,510	29	0	36,038	4,048	752	45,377
Total	87,556	14,625	112,562	17,760	99,675	241,681	250,022	205,919	1,029,799
Delta									
Arkansas	0	0	10,928	0	3,607	50,956	13,602	50,256	129,349
Louisiana	0	0	1,878	1,677	0	73,567	15,092	41,199	133,413
Mississippi	3,248	0	1,123	879	0	43,348	156	8,399	57,152
Total	3,248	0	13,929	2,556	3,607	172,871	28,850	99,753	324,914
Southern Plains									
Oklahoma	3,886	1,360	12,529	5,344	1,511	305,954	13,505	99,221	443,309
Texas	21,555	7,179	52,964	17,564	20,128	352,777	34,150	701,773	1,208,037
Total	25,441	8,538	65,493	22,907	21,639	658,678	47,655	800,994	1,651,346
Mountain									
Arizona	NA	NA	NA	NA	NA	NA	NA	NA	NA
Colorado	1,147	18,160	200	0	62,635	292,199	0	53,072	427,412
Idaho	0	0	0	0	0	6,490	0	120,028	126,518
Montana	0	0	0	0	0	129,537	632	44,175	174,344
Nevada	0	0	0	0	0	0	0	2,455	2,455
New Mexico	0	1,748	0	0	0	1,226	0	5,809	8,784
Utah	790	0	0	0	0	27,997	0	0	23,787
Wyoming	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total	1,938	19,908	200	0	62,635	452,450	632	225,539	763,301
Pacific									
California	539	8,839	121,648	4,769	24,784	230,253	1,370	162,219	554,461
Hawaii	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oregon	163	11	0	0	224	21,021	0	3,845	25,365
Washington	6,905	3,452	0	0	0	111,855	0	14,845	137,057
Total	7,607	12,404	121,648	4,769	25,008	363,168	1,370	180,910	716,884
48 States	375,545	632,411	603,792	415,995	530,740	6,210,217	404,410	2,323,648	12,096,765

NA = No data available for ingredient use.

Appendix table 47--Feed ingredients used in primary manufacturing: Quantities of specified animal protein ingredients used, by state and region, 1984

State and Region	Meat meal tankage	Meat and bone meal	Fish meal	Poultry byproduct meal	Feather meal	Dried milk products	Total
Tons							
North-east							
Connecticut	0	3,325	565	8,185	0	216	12,292
Delaware	0	32,524	7,054	22,648	0	0	62,226
Maine	0	407	0	102	0	0	508
Maryland	0	25,514	10,455	51,620	707	373	88,669
Massachusetts	0	2,428	56	0	0	0	2,483
New Hampshire	0	625	50	756	0	0	1,431
New Jersey	0	3,469	347	0	0	347	4,163
New York	17	12,584	1,173	7,757	0	1,212	22,741
Pennsylvania	29,020	46,036	10,695	117,687	3,144	2,102	208,683
Vermont	0	3,486	0	1,598	0	26	181
Total	29,036	130,390	30,395	210,352	3,851	4,346	408,377
Lake States							
Michigan	98	65,322	656	0	2,678	2,809	71,653
Minnesota	42,555	203,325	5,757	1,611	1,297	7,718	262,263
Wisconsin	8,722	84,000	2,891	78	0	18,159	113,851
Total	51,376	352,647	9,304	1,689	3,975	28,776	447,767
Corn Belt							
Illinois	1,276	168,329	2,000	0	15	15,274	186,894
Indiana	44	223,234	13,762	8,934	2,058	15,527	263,559
Iowa	12,393	456,708	11,357	49	1,766	61,982	544,255
Missouri	20,719	130,968	16,990	19,250	6,784	6,502	201,212
Ohio	75	105,618	978	8,387	6,312	6,667	128,037
Total	34,507	1,084,856	45,087	36,620	16,935	105,951	1,323,957
Northern Plains							
Kansas	342	101,725	232	3,501	672	4,569	111,041
Nebraska	306,474	120,802	428	9,729	40,070	9,872	487,375
North Dakota	167	2,353	108	0	0	87	2,716
South Dakota	0	72,645	39	0	0	5,267	77,952
Total	306,983	297,525	808	13,230	40,742	19,796	679,083
Appalachian							
Kentucky	5,044	17,475	58	0	1,115	1,843	21,535
North Carolina	2,597	3,340	55,925	28,607	6,624	4,959	142,051
Tennessee	3	30,970	17,622	24,516	4,523	1,985	79,620
Virginia	547	9,063	9,270	6,884	399	1,053	37,217
West Virginia	0	0	0	0	0	0	0
Total	8,191	96,848	82,875	70,007	12,661	9,841	280,423
Southeast							
Alabama	0	94,514	47,355	76,994	16,531	0	235,394
Florida	0	26,300	12,148	21,807	577	13	63,345
Georgia	49,362	67,290	46,038	91,334	7,345	1,650	263,020
South Carolina	0	12,345	7,693	10,053	2,053	494	32,638
Total	49,362	202,949	113,234	200,188	26,507	2,158	594,397
Delta							
Arkansas	0	70,985	21,402	27,012	1,167	115	120,681
Louisiana	0	27,964	24,263	18,411	570	301	71,509
Mississippi	9,368	51,377	69,865	54,471	4,871	228	190,180
Total	9,368	150,326	115,530	99,894	6,608	644	382,370
Southern Plains							
Oklahoma	0	45,962	11,228	7,009	0	1,054	65,253
Texas	12,066	94,541	31,718	30,251	10,965	754	180,295
Total	12,066	140,502	42,946	37,260	10,965	1,809	245,548
Mountain							
Arizona	NA	NA	NA	NA	NA	NA	NA
Colorado	0	28,731	0	768	1,721	70	31,290
Idaho	87	18,249	0	0	0	0	18,334
Montana	0	9,814	0	0	0	110	9,924
Nevada	0	0	0	0	0	47	47
New Mexico	0	8,943	0	0	0	0	8,943
Utah	0	8,021	0	1,998	0	56	10,076
Wyoming	NA	NA	NA	NA	NA	NA	NA
Total	87	73,757	0	2,767	1,721	283	76,615
Pacific							
California	25	403,453	375,432	32,977	136,840	1,657	951,284
Hawaii	NA	NA	NA	NA	NA	NA	NA
Oregon	806	9,959	190	56	0	482	11,493
Washington	0	9,542	0	0	0	242	9,784
Total	1,731	422,954	375,622	33,033	136,840	2,380	972,561
48 States	502,706	2,952,761	815,802	705,041	260,804	175,984	5,413,098

NA = No data available for ingredient use.

Appendix table 48--Feed ingredients used in primary manufacturing: Quantities of specified minerals used, by state and region, 1984

State and region	Calcium	Phosphorus	Salt	Trace minerals	Other	Total
Tons						
Northeast						
Connecticut	19,270	3,325	1,805	228	95	24,724
Delaware	7,252	2,145	1,778	195	0	11,369
Maine	4,538	813	2,533	358	0	8,242
Maryland	13,596	13,091	5,360	1,832	441	34,321
Massachusetts	4,910	194	757	283	912	7,056
New Hampshire	2,304	464	880	134	17	3,800
New Jersey	278	2,706	867	0	0	3,851
New York	52,267	11,206	19,553	13,638	12,623	109,287
Pennsylvania	66,282	37,836	13,463	6,043	12,176	138,800
Vermont	8,455	3,025	3,646	387	2,358	17,870
Total	179,151	74,806	53,642	23,097	28,622	359,319
Lake States						
Michigan	52,557	28,681	16,764	4,406	4,495	106,903
Minnesota	66,364	68,432	32,331	4,130	40,438	211,695
Wisconsin	106,859	90,654	45,661	10,671	27,104	280,948
Total	225,780	187,767	94,756	19,207	72,037	599,546
Loon Belt						
Illinois	100,868	132,330	88,001	21,936	2,517	345,652
Indiana	119,712	88,532	39,569	12,657	2,800	263,266
Iowa	210,183	207,391	117,275	23,327	28,883	587,060
Missouri	64,654	32,922	41,589	3,908	10,667	153,740
Ohio	48,559	27,301	25,505	6,177	6,242	113,784
Total	543,976	488,476	311,939	68,001	51,110	1,463,502
Northern Plains						
Kansas	138,485	53,277	80,568	12,751	19,578	304,659
Nebraska	108,577	54,553	39,561	5,317	7,783	215,734
North Dakota	2,278	2,174	3,124	158	242	7,976
South Dakota	52,773	26,450	30,596	2,287	12,860	124,876
Total	302,056	136,454	153,759	20,513	40,463	653,245
Appalachian						
Kentucky	24,916	11,879	11,500	2,120	2,225	52,639
North Carolina	31,110	29,377	11,291	3,683	33,971	109,431
Tennessee	36,720	14,197	17,746	3,856	6,903	79,421
Virginia	25,111	12,098	6,091	1,104	272	44,677
West Virginia	0	0	387	0	0	387
Total	117,857	67,551	47,014	10,762	43,372	286,556
Southeast						
Alabama	25,504	18,956	3,593	1,317	4,079	58,449
Florida	47,390	13,909	10,477	673	7,716	80,164
Georgia	40,098	38,639	20,416	5,957	10,185	115,295
South Carolina	9,396	4,843	2,035	841	422	17,538
Total	122,388	76,346	41,521	8,787	22,401	271,345
Delta						
Arkansas	45,622	21,871	14,945	1,424	284	84,154
Louisiana	18,013	7,559	36,799	1,642	1,254	65,066
Mississippi	25,446	9,382	10,374	1,294	938	47,434
Total	89,086	38,820	62,117	4,360	2,276	196,654
Southern Plains						
Oklahoma	92,711	15,207	30,744	2,941	6,339	147,942
Texas	233,856	76,831	118,005	12,133	52,452	493,276
Total	326,567	92,037	148,749	15,074	58,790	641,217
Mountain						
Arizona	NA	NA	NA	NA	NA	NA
Colorado	105,984	14,677	36,449	7,109	12,747	176,965
Idaho	33,285	3,537	12,494	216	7,139	56,671
Montana	25,290	7,944	17,135	980	6,991	58,249
Nevada	1,228	1,605	1,333	66	0	4,032
New Mexico	10,556	1,660	4,643	120	0	16,998
Utah	3,775	1,789	4,933	145	9	10,654
Wyoming	NA	NA	NA	NA	NA	NA
Total	180,120	31,212	76,807	8,546	26,886	323,571
Pacific						
California	119,881	29,287	13,547	8,895	19,494	211,103
Hawaii	NA	NA	NA	NA	NA	NA
Oregon	876	4,076	1,868	179	14	7,612
Washington	14,141	2,279	3,725	1,847	9	35,801
Total	134,897	35,642	39,139	10,921	3,16	254,516
48 States	2,221,872	1,229,110	1,029,443	189,269	371,875	5,049,570

NA = No data available for ingredient use.

Appendix table 49--Feed ingredients used in primary manufacturing: Quantities of specified ingredients used, by state and region, 1984

State and region	Fats	Molasses	Sugar	Dehydrated alfalfa	Sun-cured alfalfa
Tons					
Northeast					
Connecticut	1,454	4,766	0	288	0
Delaware	24,241	68	0	0	0
Maine	0	6,672	0	163	0
Maryland	19,945	7,403	3	2,858	0
Massachusetts	240	1,818	0	151	0
New Hampshire	48	4,397	0	3,095	0
New Jersey	347	26,018	35	1,735	0
New York	887	7,247	17	7,514	31
Pennsylvania	19,516	48,197	1,891	19,237	32
Vermont	1,105	23,992	0	4,001	0
Total	67,784	202,978	1,945	39,041	63
Lake States					
Michigan	8,382	18,005	98	12,399	0
Minnesota	54,539	91,849	726	22,590	6,431
Wisconsin	35,908	59,797	17,663	20,353	9,396
Total	98,823	169,651	18,488	55,942	14,827
Corn Belt					
Illinois	27,755	32,703	2,060	41,154	2,271
Indiana	45,709	40,146	2,272	45,616	0
Iowa	64,003	115,667	16,417	93,035	1,764
Missouri	55,248	94,372	1,297	36,540	9,108
Ohio	16,129	42,666	694	13,790	11,736
Total	206,376	325,549	22,739	230,135	24,879
Northern Plains					
Kansas	22,059	100,144	941	85,361	193,420
Nebraska	35,607	36,224	2,393	57,160	17,555
North Dakota	104	5,935	8	991	53,104
South Dakota	4,234	21,246	3,976	15,684	37,954
Total	62,003	163,552	7,269	159,196	302,034
Appalachian					
Kentucky	2,864	29,865	51	5,914	0
North Carolina	55,439	8,154	275	4,322	742
Tennessee	19,449	26,517	47	7,565	50
Virginia	19,711	16,267	28	6,565	416
West Virginia	0	1,550	0	0	0
Total	97,463	82,352	926	24,365	1,218
Southeast					
Alabama	75,608	6,708	3	1,607	0
Florida	63,983	62,514	3	5,115	0
Georgia	77,078	42,631	183	10,910	414
South Carolina	9,682	5,117	9	280	489
Total	227,152	116,971	197	17,912	903
Delta					
Arkansas	59,039	12,759	42	6,514	0
Louisiana	23,737	45,289	5	9,115	0
Mississippi	27,033	22,437	0	6,042	0
Total	119,810	80,485	47	21,672	0
Southern Plains					
Oklahoma	18,840	39,954	14	78,096	5,279
Texas	204,775	248,033	5,692	97,446	266,339
Total	223,635	287,986	5,706	175,542	271,619
Mountain					
Arizona	NA	NA	NA	NA	NA
Colorado	4,460	50,817	10	69,999	141,135
Idaho	0	123,230	0	15,815	10,763
Montana	4,197	18,042	9	6,377	63,206
Nevada	38	567	0	0	57,303
New Mexico	2,489	7,348	0	7,333	2,294
Utah	3,626	3,775	4	0	10,628
Wyoming	NA	NA	NA	NA	NA
Total	14,810	203,779	23	99,524	285,330
Pacific					
California	210,217	127,557	0	15,239	173,862
Hawaii	NA	NA	NA	NA	NA
Oregon	1,774	9,930	60	67	10,916
Washington	7,38	25,730	3	0	15,204
Total	219,375	164,218	64	15,306	199,982
48 States	1,337,237	1,797,520	57,304	838,636	1,100,855

NA = No data available for ingredient use.

Appendix Table 49 cont.--Feed ingredients used in primary manufacturing
Quantities of specified ingredients used, by state and region,

State and region	Liquid whey	Urea	Beet Pulp	Citrus Pulp	Total
Tons					
Northeast					
Connecticut	0	360	40	0	6,909
Delaware	0	7	0	0	24,716
Maine	0	81	0	0	6,916
Maryland	0	74	28	0	26,068
Massachusetts	0	0	0	0	2,209
New Hampshire	0	18	402	0	7,960
New Jersey	0	37	867	0	29,088
New York	10	2,269	3,205	352	93,532
Pennsylvania	0	3,086	2,939	169	95,167
Vermont	0	127	3,518	0	32,793
Total	51	6,108	11,109	521	325,358
Lake States					
Michigan	0	3,695	103	0	42,761
Minnesota	12,055	12,418	4,289	0	204,897
Wisconsin	1,863	5,981	10,781	0	170,343
Total	22,918	22,094	15,253	0	418,062
Corn Belt					
Illinois	0	12,706	6,105	0	122,754
Indiana	0	9,791	8,607	35	151,675
Iowa	6,317	31,552	9,513	0	338,295
Missouri	177	15,113	61	0	211,915
Ohio	27	5,715	656	0	91,413
Total	6,521	74,877	24,941	35	916,052
Northern Plains					
Kansas	1,733	57,953	5	0	456,617
Nebraska	0	30,925	1,289	0	181,153
North Dakota	0	550	325	0	51,018
South Dakota	0	9,835	6	0	92,945
Total	1,794	94,263	1,624	0	791,734
Appalachian					
Kentucky	0	2,062	0	53	40,809
North Carolina	0	299	28	0	69,458
Tennessee	15	2,216	0	0	56,254
Virginia	0	786	2	0	43,774
West Virginia	0	0	0	0	1,550
Total	15	5,363	229	53	211,885
Southeast					
Alabama	0	490	0	299	6,715
Florida	0	6,453	0	283,581	421,549
Georgia	0	4,562	16	7,267	143,861
South Carolina	0	55	0	0	15,632
Total	0	11,559	16	291,147	665,857
Delta					
Arkansas	0	685	8	0	89,049
Louisiana	0	5,384	0	0	83,530
Mississippi	0	1,966	0	0	57,479
Total	0	6,070	8	0	172,579
Southern Plains					
Oklahoma	0	20,121	0	0	162,304
Texas	0	79,139	16,122	1,408	918,974
Total	0	99,260	16,122	1,408	1,081,278
Mountain					
Arizona	NA	NA	NA	NA	NA
Colorado	0	37,796	2,085	0	306,302
Idaho	2,163	6,707	8,978	0	167,656
Montana	0	9,438	7,559	0	108,829
Nevada	0	94	0	0	58,002
New Mexico	0	391	665	0	20,521
Utah	0	1,090	8,866	0	27,990
Wyoming	NA	NA	NA	NA	NA
Total	2,163	55,516	28,155	0	629,300
Pacific					
California	1,481	13,355	62,874	0	605,601
Hawaii	NA	NA	NA	NA	NA
Oregon	0	90	5,644	0	27,481
Washington	0	456	22,005	0	70,873
Total	1,481	13,901	90,628	0	704,954
48 States	34,943	139,010	188,086	293,164	976,999

NA = No data available for ingredient use.

Appendix table 5C--Feed ingredients used in primary manufacturing: Quantities of vitamins, drugs, premixes, and other microingredients, by state and region, 1984

State and region	Vitamins	Drugs	Other micro-ingredient	Flavors	Premixes	Total
Tons						
Northeast						
Connecticut	196	89	114	0	222	621
Delaware	226	301	0	7	195	728
Maine	2	0	0	0	6	8
Maryland	1,907	699	3,939	1	4,646	11,192
Massachusetts	7	31	0	0	180	219
New Hampshire	27	3	16	0	30	76
New Jersey	0	0	0	0	0	0
New York	6,035	87	8,956	2	7,123	22,203
Pennsylvania	2,755	2,574	719	96	28,991	35,235
Vermont	253	54	55	122	1,605	2,088
Total	11,407	3,938	13,799	229	42,997	72,369
Lake States						
Michigan	1,335	716	1,246	267	55,254	58,818
Minnesota	4,088	5,611	5,112	389	8,875	24,075
Wisconsin	2,907	1,373	3,479	822	32,612	41,593
Total	8,330	8,201	9,836	1,478	96,742	124,506
Corn Belt						
Illinois	4,773	6,717	11,465	347	10,430	33,733
Indiana	5,889	1,796	10,105	778	19,136	37,704
Iowa	11,922	13,564	17,057	1,345	19,526	63,412
Missouri	2,228	1,779	5,952	260	19,447	29,665
Ohio	769	1,484	22	27	12,763	15,064
Total	25,581	25,339	44,600	2,756	81,302	179,579
Northwestern Plains						
Kansas	1,658	3,736	1,998	221	33,883	41,496
Nebraska	1,732	4,526	944	109	25,017	32,328
North Dakota	300	167	0	12	991	1,470
South Dakota	910	2,911	5,011	60	4,646	13,539
Total	4,600	11,339	7,952	403	64,538	87,832
Appalachian						
Kentucky	2,073	580	78	11	1,910	4,652
North Carolina	6,388	5,353	4,964	20	4,502	21,228
Tennessee	3,865	3,981	393	36	7,032	15,306
Virginia	713	792	1,216	24	6,539	9,291
West Virginia	0	0	0	0	387	387
Total	13,039	10,711	6,652	91	20,370	50,864
Southeast						
Alabama	84	3,129	63,767	0	582	67,363
Florida	33	429	20,891	16	9,696	31,755
Georgia	4,287	5,818	3,791	45	12,435	26,375
South Carolina	202	379	81	20	1,119	1,801
Total	6,490	9,755	88,530	31	23,832	128,694
Delta						
Arkansas	1,299	1,481	4,957	15	3,522	11,274
Louisiana	917	1,350	2,077	42	347	4,734
Mississippi	2,487	1,346	11,717	3	952	16,532
Total	4,703	4,177	18,811	60	4,778	32,539
Southern Plains						
Oklahoma	671	2,327	8,929	241	3,799	22,967
Texas	669	9,859	6,936	315	144,799	168,578
Total	1,340	12,186	15,866	556	148,598	191,545
Mountain						
Arizona	NA	NA	NA	NA	NA	NA
Colorado	1,132	2,165	0	5	35,446	38,749
Idaho	454	108	0	0	3,581	4,143
Montana	623	614	2,529	0	9,126	12,892
Nevada	4	9	23	4	66	106
New Mexico	271	29	26	8	540	874
Utah	42	49	0	5	787	883
Wyoming	NA	NA	NA	NA	NA	NA
Total	2,527	2,974	2,578	22	49,546	57,647
Pacific						
California	6,125	860	111	17	114,115	121,229
Hawaii	NA	NA	NA	NA	NA	NA
Oregon	190	67	22	4	475	759
Washington	735	55	0	0	3,794	4,585
Total	7,051	983	133	22	118,384	126,573
48 States	98,072	89,603	208,768	5,698	651,007	1,053,228

NA = No data available for ingredient use.

Appendix table 51--Inshipments of feed ingredients: Percent received by mode of transportation by state and region, 1984

State and region	Company truck	Other truck	Total truck	Rail	Barge
Percent					
Northeast					
Connecticut	3.0	8.0	11.0	85.0	0.0
Delaware	5.0	78.0	83.0	17.0	0.0
Maine	0.0	7.0	7.0	93.0	0.0
Maryland	12.9	65.3	77.2	21.8	0.0
Massachusetts	60.0	40.0	100.0	0.0	0.0
New Hampshire	6.0	21.0	27.0	73.0	0.0
New Jersey	0.0	30.0	30.0	70.0	0.0
New York	7.1	41.4	48.5	51.5	0.0
Pennsylvania	7.1	54.5	61.6	38.4	0.0
Vermont	4.7	19.0	24.3	67.3	8.4
Total	7.9	47.5	55.4	43.6	1.0
Lake States					
Michigan	17.2	45.5	62.6	37.4	0.0
Minnesota	16.3	79.3	96.7	4.3	0.0
Wisconsin	18.2	60.6	78.8	21.2	0.0
Total	17.5	66.0	83.5	16.5	0.0
Corn Belt					
Illinois	14.0	70.0	84.0	16.0	0.0
Indiana	23.2	67.4	90.5	9.5	0.0
Iowa	19.0	71.0	90.0	10.0	0.0
Missouri	7.9	57.4	64.4	34.7	0.0
Ohio	30.5	53.7	85.3	15.8	0.0
Total	17.2	65.7	81.8	17.2	0.0
Northern Plains					
Kansas	8.1	81.8	89.9	9.1	1.0
Nebraska	20.8	68.3	89.1	9.9	1.0
North Dakota	26.2	69.0	95.2	4.8	0.0
South Dakota	21.2	74.7	96.0	4.0	0.0
Total	14.0	76.0	90.0	9.0	1.0
Appalachian					
Kentucky	10.1	57.0	67.1	32.3	0.0
North Carolina	1.0	34.0	35.0	56.0	0.0
Tennessee	7.0	34.8	41.8	47.2	11.2
Virginia	1.0	26.3	27.3	72.7	0.0
West Virginia	5.0	41.0	46.0	54.0	0.0
Total	8.2	35.7	43.9	53.1	3.1
Southeast					
Alabama	2.3	32.2	34.5	43.7	21.8
Florida	6.1	23.2	29.3	70.7	0.0
Georgia	5.1	24.2	29.3	70.7	0.0
South Carolina	11.0	70.0	81.0	9.0	0.0
Total	5.2	27.1	32.3	63.5	4.2
Delta					
Arkansas	5.0	50.0	55.0	45.0	0.0
Louisiana	8.0	42.0	50.0	48.0	2.0
Mississippi	5.0	22.8	27.7	70.3	2.0
Total	5.0	36.0	41.0	58.0	1.0
Southern Plains					
Oklahoma	3.0	67.3	70.3	29.7	0.0
Texas	10.2	64.3	74.5	25.5	0.0
Total	8.2	65.3	73.5	26.5	0.0
Mountain					
Arizona	0.0	58.0	58.0	42.0	0.0
Colorado	27.0	64.0	91.0	9.0	0.0
Idaho	31.7	62.4	94.1	5.9	0.0
Montana	4.0	92.0	96.0	4.0	0.0
Nevada	90.0	10.0	100.0	0.0	0.0
New Mexico	26.0	60.0	86.0	14.0	0.0
Utah	2.2	95.6	97.8	2.2	0.0
Wyoming	80.0	20.0	100.0	0.0	0.0
Total	23.3	65.6	90.0	11.1	0.0
Pacific					
California	14.0	45.0	59.0	41.0	0.0
Hawaii	0.0	0.0	0.0	0.0	100.0
Oregon	13.0	53.0	66.0	34.0	0.0
Washington	2.5	45.7	48.1	51.9	0.0
Total	13.3	44.9	58.2	39.8	2.0
48 States	10.3	50.5	60.8	33.1	1.0

Appendix table 52--Outshipments of formula feed: Percent shipped by mode of transportation, 1984

State and region	Company truck	Customer truck	Other truck	Total truck	Rail	Barge
	Percent					
Northeast						
Connecticut	88.00	6.00	6.00	100.00	0.00	0.00
Delaware	71.40	28.60	0.00	100.00	0.00	0.00
Maine	92.33	6.56	0.00	98.89	1.11	0.00
Maryland	94.07	3.40	2.53	100.00	0.00	0.00
Massachusetts	96.00	4.00	0.00	100.00	0.00	0.00
New Hampshire	53.32	12.11	32.08	97.51	2.49	0.00
New Jersey	0.00	30.00	60.00	90.00	10.00	0.00
New York	70.74	17.37	8.77	96.87	3.12	0.00
Pennsylvania	52.00	32.52	15.19	99.69	0.30	0.00
Vermont	49.25	25.39	7.52	82.17	12.84	4.99
Total	67.05	20.14	9.40	96.59	1.99	1.42
Lake States						
Michigan	58.33	31.34	10.33	100.01	0.00	0.00
Minnesota	67.24	20.77	11.01	99.02	0.24	0.73
Wisconsin	45.74	46.68	7.58	100.00	0.00	0.00
Total	56.57	33.61	9.40	99.58	0.10	0.32
Corn Belt						
Illinois	41.95	40.00	17.63	99.76	0.24	0.00
Indiana	37.97	31.01	29.27	98.25	1.75	0.00
Iowa	44.68	37.48	17.84	100.00	0.00	0.00
Missouri	38.30	38.57	19.29	96.16	3.84	0.00
Ohio	53.30	35.14	6.52	94.97	5.04	0.00
Total	42.37	37.01	18.94	98.31	1.69	0.00
Northern Plains						
Kansas	57.75	27.74	14.41	99.91	0.09	0.00
Nebraska	47.29	22.40	21.17	96.86	1.87	1.27
North Dakota	40.57	33.36	23.29	97.22	2.78	0.00
South Dakota	48.56	44.42	6.80	99.78	0.22	0.00
Total	52.87	29.59	16.30	98.75	0.78	0.45
Appalachian						
Kentucky	53.71	33.56	10.84	98.13	1.87	0.00
North Carolina	81.69	14.13	2.25	98.28	1.72	0.00
Tennessee	15.06	61.06	23.09	99.22	0.79	0.00
Virginia	48.72	28.64	22.64	100.00	0.00	0.00
West Virginia	76.67	10.82	4.51	100.00	0.00	0.00
Total	58.90	28.85	11.00	98.75	1.26	0.00
Southeast						
Alabama	71.84	17.17	6.70	96.51	3.49	0.00
Florida	78.09	5.14	16.65	99.89	0.11	0.00
Georgia	84.51	8.32	4.45	97.27	2.73	0.00
South Carolina	97.82	2.18	0.00	100.00	0.00	0.00
Total	80.74	10.25	6.50	97.50	2.51	0.00
Delta States						
Arkansas	60.81	8.07	30.55	99.38	0.62	0.00
Louisiana	65.30	25.49	5.20	95.99	2.20	1.81
Mississippi	93.97	3.50	1.33	98.80	1.20	0.00
Total	77.12	8.70	12.74	98.56	1.15	0.29
Southern Plains						
Oklahoma	49.95	35.04	14.63	99.64	0.37	0.00
Texas	72.05	16.54	7.39	95.98	4.02	0.00
Total	67.43	20.41	8.90	96.74	3.26	0.00
Mountain						
Arizona	98.47	1.53	0.00	100.00	0.00	0.00
Colorado	36.42	38.79	23.76	98.96	1.04	0.00
Idaho	88.49	9.86	1.65	100.00	0.00	0.00
Montana	45.96	33.15	20.88	100.00	0.00	0.00
Nevada	35.56	27.78	36.67	100.00	0.00	0.00
New Mexico	87.34	8.44	4.22	100.00	0.00	0.00
Utah	26.81	62.67	4.52	100.00	0.00	0.00
Wyoming	NA	NA	NA	NA	NA	NA
Total	55.97	31.33	12.37	99.69	0.33	0.00
Pacific						
California	92.65	7.80	3.55	100.00	0.00	0.00
Hawaii	50.00	20.00	0.00	70.00	0.00	30.00
Oregon	70.89	12.42	14.82	98.14	1.87	0.00
Washington	90.31	9.40	0.29	100.00	0.00	0.00
Total	89.20	12.59	4.39	99.18	0.20	0.62
48 States						
Total	65.10	21.61	10.90	97.62	1.62	0.76

Appendix table 53--Outshipments of formula feed: Average distances shipped by mode of transportation, by state and region, 1984

State and region	Company truck	Customer truck	Other truck	Total truck	Rail	Barge	Weighted Average
Percent							
Northeast							
Connecticut	40	10	50	39	-	0	39
Delaware	41	29	0	38	0	0	38
Maine	76	72	0	76	100	0	75
Maryland	25	29	58	26	0	0	26
Massachusetts	77	15	0	75	0	0	75
New Hampshire	88	135	120	105	120	0	105
New Jersey	0	80	160	133	300	0	150
New York	40	37	49	40	0	0	38
Pennsylvania	56	53	151	69	900	0	70
Vermont	58	41	275	73	92	0	72
Total	44	46	131	53	117	0	53
Lake States							
Michigan	30	59	100	46	0	0	46
Minnesota	44	54	82	50	0	0	50
Wisconsin	73	48	109	64	0	0	63
Total	53	51	94	56	0	0	55
Corn Belt							
Illinois	64	66	137	78	360	0	77
Indiana	107	61	84	86	97	0	85
Iowa	69	53	96	67	0	0	67
Missouri	64	65	116	75	79	0	75
Ohio	92	87	112	91	350	0	104
Total	74	61	103	75	144	0	75
Northern Plains							
Kansas	37	65	98	54	150	0	51
Nebraska	48	72	147	77	750	441	94
North Dakota	82	43	337	130	700	0	124
South Dakota	121	38	122	84	60	0	84
Total	48	63	128	66	692	441	71
Appalachian							
Kentucky	45	72	119	62	100	0	63
North Carolina	34	50	63	37	140	0	38
Tennessee	42	57	67	57	105	0	51
Virginia	30	44	87	47	0	0	47
West Virginia	45	17	60	40	0	0	40
Total	35	55	70	46	129	0	45
Southeast							
Alabama	50	43	71	50	250	0	60
Florida	51	44	50	50	31	0	56
Georgia	41	55	172	48	155	0	49
South Carolina	34	25	0	53	0	0	53
Total	45	49	104	49	188	0	54
Delta States							
Arkansas	25	43	36	30	150	0	31
Louisiana	35	91	268	63	155	0	65
Mississippi	55	87	439	61	788	0	70
Total	43	74	72	50	465	0	35
Southern Plains							
Oklahoma	29	160	0	88	95	0	88
Texas	52	78	80	59	263	0	62
Total	48	110	91	65	259	0	67
Mountain							
Arizona	4	0	0	4	0	0	4
Colorado	26	118	218	108	300	0	97
Idaho	22	12	100	22	0	0	22
Montana	63	53	51	37	0	0	57
Nevada	250	300	300	282	0	0	254
New Mexico	158	183	250	164	0	0	164
Utah	9	33	150	32	0	0	32
Wyoming	0	0	0	0	0	0	0
Total	64	82	197	87	300	0	83
Pacific							
California	28	30	157	33	0	0	29
Hawaii	20	20	0	20	0	150	59
Oregon	88	51	156	94	300	0	98
Washington	17	26	200	18	0	0	18
Total	32	34	157	38	300	150	35
48 States							
Total	46	62	106	57	213	30	58