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# Monthly Review

## Feed Manufacturing

### A Growth Industry in the Sixth District

**S**eek a growth industry in the Southeast and you will find one in feed manufacturing. Ninety-four new feed mills were built in Sixth District states from 1947 to 1954, and many others were enlarged. In Georgia alone feed companies built at least six major mills in 1954.

Why are feed firms building so many new plants in the South? Because of the seemingly unlimited rise in broiler production and the vast amount of feed needed for it. Only ten years ago broiler sales in District states totaled a modest 47 million birds; last year 481 million were sold, about ten times more. With each bird taking about 2.5 pounds of feed, the 1957 flock ate 1.2 billion pounds, or 600,000 tons.

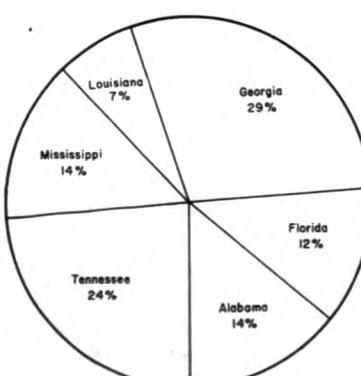
Feed firms had several other incentives for service and growth. Animal agriculture is clearly on the rise here: Farmers now produce more beef, pork, milk, and eggs than they did only a decade ago and they therefore need more mixed feeds. Then too, feed men sought to offset rising transportation costs by building mills near markets for mixed feed rather than near areas where ingredients are produced.

Growth in the feed industry helps both our farm and nonfarm economies. The industry's increased capacity supports broiler output and helps sustain broiler income on farms. Also, feed mills use local labor and make heavy payments for services from railroads, trucking firms, barge lines, ports, grain elevators, and the like. Finally, by serving growers who produce broilers, eggs, beef, and pork, they help food processors such as meat and poultry packers.

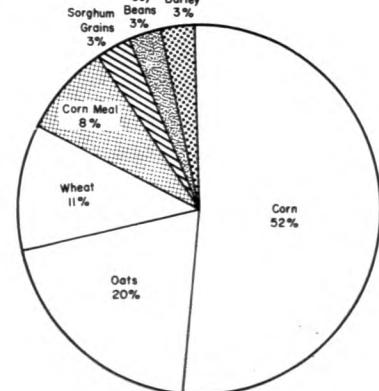
#### Location and Size of Mills

Most District feed manufacturers make one or more prepared feeds for livestock or poultry; they mix corn products, oats, wheat products

**Proportion of 247 Feed Mills  
Making Prepared Animal Feeds  
Sixth District States, 1954**



**Proportion of Grains Used by the  
Mixed Feed Industry in the East South  
Central Region of the U. S., 1947**



like bran and middlings, and other raw materials obtained largely from the Midwest. Millers store their feed ingredients in bins or warehouses, grind or otherwise process some of them, and then mix them by precise formula. Usually feed makers try to maintain production line operations, but many firms rely on batch or job-lot mixing.

Feed mills in the District are concentrated in Tennessee, northern Alabama, and Georgia. These locations are convenient because of the nearby poultry areas that provide the major market for mixed feeds. Two-thirds of the mixed feed tonnage produced in the nation is poultry feed, and the proportion is probably larger in District states. Although most of the tonnage in our region is broiler feed, laying and breeding mash for hens is being used here more and more. Dairy feed and high protein hog supplement, used especially in Tennessee and Georgia, are other important products made in District mills.

Feed makers were also influenced by total costs in selecting a location for their plants. They sought low-cost water transport via the Tennessee River for bulk grains—principally corn, oats, and wheat—which they have to import from the nation's grain belts. Since 54 percent of the poultry mash is made of corn, that waterway is highly useful to these feed men. Corn was barged from St. Louis to Guntersville, Alabama, in April 1953 for \$2.45 per ton; the cost by rail was \$10.68. Trucking from Alabama to Georgia raises millers' costs, but not excessively. Georgia mills get about three-fourths of their corn and one-third of their oats by the barge-truck route.

After World War II, national firms found that they too had to do something about high costs. District feed dealers, who were among their best customers, began mixing their own feeds rather than having mixed feeds shipped from so far away. To meet that competition national firms built mills closer to the market; they offset efficiency of large volume central mills in surplus grain areas with lower transport and distribution costs at mills in the South. Being near their customers they could market fresher feed and operate with smaller inventories, which require less bin and warehouse space. By handling inventories of ingredients locally rather than at distant mills they gained flexibility in mixing operations because smaller stocks enabled them to substitute an ingredient in the event of price changes and the like.

Spurred by both its cost structure and the demand for its products, the feed industry invested 3.4 million dollars in new District plants and expansions in 1947 and 2.7 million in 1954, and probably comparable amounts in intervening years. In 1954, firms in Georgia made the largest investment, 917,000 dollars, which was 150 percent more than they made in 1947. Recent construction includes two 250,000-dollar mills at Flowery Branch and Forest Park, Georgia, and two one-million-dollar mills at Chamblee, Georgia, and Chattanooga, Tennessee.

Investments to modernize or erect plants have to be large nowadays. It takes 17,000 dollars' worth of machinery and equipment, for example, to replace a mill man earning 2,600 dollars a year, according to the United States Department of Agriculture. Even small mills putting out 50 tons per eight-hour day cost between 55,000 and 175,000 dollars. Medium or 150-ton mills cost from

175,000 to a million dollars, and large or 500-ton mills cost a million dollars or more.

Investments since World War II have pushed the feed industry in the District to fair size. Its size is measured in one way by the 56 million dollars in value added through manufacture in 1954. This measure places it below the District's meat packing industry that produced 72 million dollars in value added, but above two other important industries—tobacco manufacture and electrical machinery. By employment, another measure of size, the feed industry fell below tobacco and electrical machinery. The feed industry employed 6,971 people in 1954 and met a payroll totaling 22 million dollars. Workers in the tobacco manufacturing and electrical machinery industries totaled 9,000 and 7,000, respectively.

### **More Efficiency Needed**

Although the feed industry in the District has invested capital in new facilities and has otherwise grown, it is not as efficient as it is elsewhere. Taken broadly, southern mills use 30 to 50 percent more man hours per ton than mills in other regions, according to analyses by the USDA. Since this poor productivity is offset by generally lower wage rates, manufacturing costs of District firms are low enough that they can compete with mills elsewhere. Nevertheless, wage rates are under upward pressure, and if they rise District millers will have to protect their competitive position by using labor more efficiently. The room for improvement is large. Based on an analysis of a national sample, small mills use 5.69 man hours per ton produced, whereas a model small mill uses only 1.80 man hours. Large mills too could do better. They now use 1.90 man hours per ton but could achieve a level of .80 hours. Analysts say that because all mills use two or three times the labor they should, they need to invest more funds to modernize and better equip their plants.

Some investment will be most profitable if made in improving facilities and techniques in warehouses, since labor is used least efficiently there. Warehousing comes to about a third of a mill's total labor cost or twice as much as mixing or mill maintenance costs. Yet warehouse labor is nonproductive almost a third of the working time, according to studies by the USDA. Men wait to unload cars or trucks; they wait to load; they wait for others down the line to complete their jobs. By speeding change-overs in daily operations and loading and unloading and by steady the flow of work, District firms can cut their costs.

Adjusting plant facilities and schedules to cut labor costs, however, is not easy. Often a firm manager must first answer difficult questions: Should I specialize my production, that is, produce only a few feeds? Should I use straight production line mixing to turn out a large but steady flow of one feed or batch mixing that allows me to use labor and materials more flexibly or a combination of line and batch mixing? Can I profitably use bulk delivery to my plant, bulk storage in the plant, and bulk delivery to my patrons if poultry feed is my major item? Can I economically adjust or relocate my equipment to keep my labor fully employed? To find the right answer to these questions is often to reduce operating costs. This

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is true because labor accounts for 60 percent of those costs in a feed mill.

Firms also seek to lower costs by raising tonnage handled. They try to spread their costs for machinery, labor, electricity, trucks, and so on over many tons of feed. Costs can be lowered significantly as volume is gained: Fixed costs at a sample of mills producing less than 5,000 tons a year, for example, were five dollars a ton in 1952, say USDA specialists. They were two dollars a ton at mills mixing 45,000 tons or more. Operating costs at the time were 16 dollars a ton at mills with small volume, but nine dollars a ton at mills with large volume. Small mills, of course, can have management skilled enough to achieve low manufacturing costs and thus compete with large mills. Nevertheless, even small mills do better as they gain volume because volume accounts for almost two-thirds of the variation in labor costs per ton among plants.

Finally, District mills seek to lower costs through their policies on the principal item in their total cost—raw materials. With raw materials accounting for four-fifths of total cost, how cheaply they are bought, stored, and moved helps determine net profits. Mill managers, therefore, strive to make their inventory policy profitable, that is, to keep the rate of turnover high. Small mills generally turn their inventories 10 times a year; large mills 25 times.

### Further Progress Possible

Feed manufacturers seeking lower costs, higher volume, and higher inventory turnover know they must resolve some subsidiary problems that affect their over-all success. A major one is whether to rely more or less on the feed dealer system for marketing their feeds. Trucking feed direct from a plant to farms within a trade area may be the most profitable system for some. For others, bulk delivery may build volume, since fewer and fewer poultry-

men want to wrestle with 100-pound bags of feed. Bulk delivery, however, does not necessarily cut feed handling costs. Then there is the perennial problem of pricing finished goods. Should the small volume items be marked up sufficiently to carry their share of the manufacturing and marketing costs? This matter is especially troublesome to mills producing many feeds.

Finally, District millers speculate about how intensively they should seek higher volume. True, they see opportunity or potential for more sales. The broiler market, for example, evidently is still growing and farmers' mounting interest in laying flocks generates potential sales of laying mash. Rising pork and beef output should also build the feed market.

Although feed makers see those potentials for added business, they are uncertain about how best to get it. They are not sure how far to push financing programs and contract farming. And they wonder about how much emphasis to put on trade credit as a competitive weapon. Those whose business is based on broiler feed can decide most easily. They have had experience with it. They are less decisive, however, about their programs for laying mash and livestock feed. Simply building tonnage without controlling manufacturing costs or the costs of buying, storing, and moving raw materials or the risks on their capital can prove an illusory gain.

Feed firms that have made investments so far have not only benefited themselves but farmers and other businessmen as well. To the extent that feed men justifiably invest funds to lower costs, raise output, and increase over-all efficiency, livestock and poultry producers here gain advantage over those in other areas. To the extent that small mills can cut their costs enough and raise their volume enough to keep them in the competitive struggle for feed sales, our agriculture also is strengthened.

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## Flow of Bank Loans to District Business

The South needs more funds to finance its expanding economy than can be generated within the region. It is necessary, therefore, to supplement funds from its own sources with credit from other parts of the country. These facts are generally recognized, but little is known specifically about how much financing is obtained from sources outside the South, where the funds come from, or to whom they go.

Answers to some questions relating to one phase of the financing of southern economic activity, that is, bank lending to businesses in the South, are now forthcoming. A recent analysis of a survey of commercial bank loans conducted by the Federal Reserve System in October 1955 provides detailed information on the flow of bank loans into and out of that part of the South lying within the Sixth Federal Reserve District—Alabama, Florida, and Georgia, the southern half of Louisiana and Mississippi, and the eastern two-thirds of Tennessee. In addition, data on the location of District borrowers relative to their banks are available for the first time.

The survey showed bank financing of Sixth District businesses is largely provided by District banks, although some businesses, particularly the larger ones, obtain bank funds from outside the District, mainly from New York City. Funds do not flow in only one direction, however, and some District banks extend credit to businesses in cities outside this District. Since more funds flow into the District than flow out, the District as a whole is a net borrower.

### Local Banks Are Major Source of Funds

Do borrowers in the Sixth District patronize banks in their own vicinity or do they go away from home for financing help? In order to answer this question, we placed banks in three groups: those located in the same city, county, or metropolitan area as the borrower, those located outside the county or metropolitan area in which the borrower is situated, and those located outside the District. When borrowers and lenders were grouped in this manner and loans were tabulated by amount, we