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PRODUCTION *and* SALE *of* MILK *for* MANUFACTURE *in* ALABAMA'S PIEDMONT AREA

AGRICULTURAL EXPERIMENT STATION
***of the* ALABAMA POLYTECHNIC INSTITUTE**
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PRODUCTION *and* SALE *of* MILK *for* MANUFACTURE *in* ALABAMA'S PIEDMONT AREA*

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PRODUCTION of milk for manufacturing purposes is an important phase of agriculture in Alabama and throughout the South. Chief among the products manufactured are cheese, condensed whole milk, butter, and ice-cream mix.

In 1943, a milk plant was established in the Piedmont Area of Alabama. Milk routes for this plant center largely in the Piedmont but branch out into portions of the Upper Coastal Plains Area. Cotton has long been the principal cash crop produced in this area. This plant, however, provides a market for an additional product from farms in the area. As a result, many farmers have had and continue to have an opportunity to further diversify their farming operations.

It is recognized that dairying is a farm enterprise well-adapted to certain farms in the Piedmont while on other farms different enterprises prove more profitable.

In general, high quality roughages can be produced on most farms in the area. Grain production is limited. Much of the land must be kept in grasses and legumes for erosion control. The dairy cow is an efficient utilizer of roughages and other types of feed. Under reasonably good management, returns for feed fed

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to dairy cows are high compared with returns for feed fed to other kinds of livestock.

Labor requirements are high and regular for dairying, and records have shown returns per hour of labor to be low as compared with other farm enterprises. However, dairying provides an opportunity to sell farm labor, even though at a low price, which might not otherwise be sold. In addition, probably as much labor can be sold per dollar invested in dairying as in any other enterprise. Farm labor in the Piedmont, in general, has been fairly plentiful, although in recent years strong competition from opportunities for off-farm work has made inroads into the farm labor supply.

In view of these considerations, it appears that dairying might well be a very important farm enterprise in the Piedmont. Progress in this direction, however, has been rather slow in some respects.

This study was initiated to see how farmers on milk routes in the area have woven the production of manufacturing milk in with the rest of their farm business. It attempts to point up some of the important factors affecting the sale of milk as well as to explore some of the factors that may influence future production and sale of milk for manufacture in this area.

The PIEDMONT AREA[1]

In general the Piedmont is hilly. Soils are sandy or clay loams with red or dark brownish-red subsoils. Numerous streams provide ample water for livestock farming. Although early settlers recognized the Piedmont as a potential livestock area, cotton became the major income producer.

Serious erosion has occurred in most of the area. Hillsides are steep, often broken by bench terraces, and frequently spotted with numerous rocks. Fields are irregular in shape. The use of tractor-drawn machinery is difficult and costly in much of the area. Most farms have few good fences. However, during the period 1940-50, significant changes occurred in the area.

Number of farms decreased 14 per cent from 1940 to 1950 (Ap-

[1] Data for this study were obtained from rural residents along milk routes in 10 counties: Chambers, Chilton, Clay, Cleburne, Coosa, Elmore, Lee, Macon, Randolph, and Tallapoosa. Although from a physiographic standpoint, parts of these counties are not in the Piedmont Area, figures for these counties are included because of the location of milk routes.

pendix Table 1). Farms operated by nonwhite farmers decreased more in total and percentagewise than did the number of farms operated by white farmers. Size of farms increased an average of 12 acres, while acres in cropland harvested decreased 40 per cent. Total land pastured increased 11 per cent. A tremendous decrease occurred in percentage of tenants. A large part of this decline was accounted for by the decrease in number of share tenants and croppers.

Acreages of cotton, corn, and all hay showed a decrease. The proportion of farms producing cotton declined from 92 to 60 per cent. Numbers of cattle and calves as well as hogs increased. Little change occurred in number of milk cows.

These figures show that types of agriculture in the Piedmont have changed rather drastically in the past 10 years. They also suggest that certain changes must have occurred in population and in the ways in which people gain their livelihood.

From 1940 to 1950, rural farm population in the area declined 35 per cent. However, total population remained fairly constant. Rural farm persons per farm and the number of workers employed in agriculture showed substantial decreases during this 10-year period. The increase in industrialization of the area has brought with it non-farm job opportunities. Many, taking advantage of these opportunities, have given up farming. Others continue to farm although additional work is found in non-farm industries. An increasing proportion of the total population has chosen to live in rural areas as shown by an increase of 34 per cent in rural non-farm population from 1940 to 1950, while total population changed very little. Rural farm population made up 62 per cent of the total population in 1940 and only 41 per cent in 1950. On the other hand, rural non-farm population amounted to 23 per cent in 1940 and 32 per cent of the total population in 1950.

The SAMPLE

Selection

Representatives of the milk company and others helped in plotting all milk routes in the area on large county maps. Then, each route was divided into segments of approximately seven houses. Counties were divided into rather broad general areas and a certain number of segments were drawn at random in each of these areas.

Enumerators visited each house included in the randomly

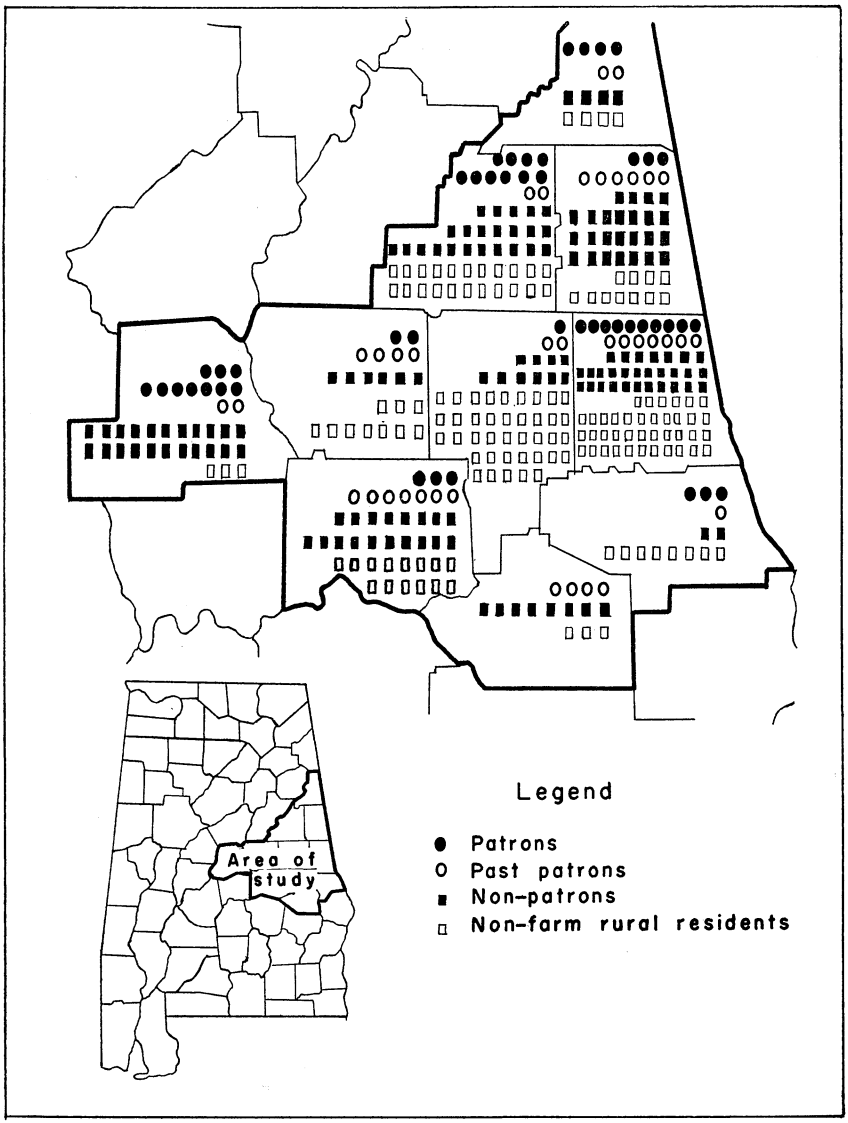

FIGURE 1. Sample of farm and non-farm rural residents on milk routes, Piedmont Area of Alabama, 1952.

drawn segments. The sample was composed of farm and non-farm residents along milk routes. If the rural resident did not operate or rent out more than 3 acres, if the family head was a hired man or non-farm worker, and if no cattle were kept in 1951,

very brief non-farm information was recorded on the survey schedule. Otherwise, rather complete information on farming, in particular as it pertained to dairying, was recorded.

Figure 1 shows, by counties, the number of farm and non-farm respondents included in the survey.

Representativeness

Records were obtained from 230 farmers and 153 non-farm rural resident.

In some respects, farms included in the sample were fairly representative of all farms in the area (Table 1). However, they were selected to represent farms on milk routes. Both groups had the same average acreage of corn and cotton. But farms in the sample were, on the average, 22 acres smaller than all farms.

Farms on milk routes reported an average of 3.0 dairy cows as compared with 1.8 for all farms. Also, a larger proportion of farms on routes had dairy cows. A smaller proportion of farmers on milk routes were tenants and a larger proportion were white operators. A much larger percentage of farms on milk routes had tractors than of all farms in these counties.

Based on the sample, 2 residents out of 5 along the milk routes were non-farm. This group had an average of 2.1 acres of land.

TABLE 1. COMPARISON OF FARMS INCLUDED IN SAMPLE WITH ALL FARMS, PIEDMONT AREA OF ALABAMA, 1952

	Unit	230 farms in sample	All farms[1]
Farms	*Number*	230	24,891
Average size of farms	*Acres*	85	107
Tenants of all farm operators	*Per cent*	28	36
White operators of all operators	*Per cent*	82	71
Farms reporting dairy cows	*Per cent*	85	70
Dairy cows per farm	*Number*	3.0	1.8
Proportion of farms with dairy cows reporting milk sold	*Per cent*	28	11
Milk sales per year per farm	*Gallons*	581	160
Farm reporting open permanent pasture	*Per cent*	79	33
Open permanent pasture per farm	*Acres*	17	8
Farms reporting corn	*Per cent*	83	79
Corn per farm	*Acres*	10	10
Farms reporting cotton	*Per cent*	57	60
Cotton per farm	*Acres*	6	6
Farm operators working off farm 100 days or more	*Per cent*	35	31
Farms with tractors	*Per cent*	23	11

[1] Based on 1950 Census data.

TABLE 2. OCCUPATIONS OF NON-FARM RURAL RESIDENTS ON MILK ROUTES, PIEDMONT AREA OF ALABAMA, 1952

Occupation	Proportion of total		
	White	Colored	All
	Per cent	*Per cent*	*Per cent*
Textile mill worker	22	3	19
None (retired, pensioned, or disabled)	17	6	14
Wood or lumber industry worker	7	34	13
Laborer (including farm worker)	2	30	8
Merchant or store operator	8	0	6
Farmer	5	6	5
Carpenter, painter, or construction worker	4	0	3
Truck driver	3	0	3
Other or combination of occupations listed	32	21	29
TOTAL	100	100	100

There was little difference in the proportion of white residents – 82 per cent for farmers and 76 per cent for non-farmers.

Occupations of non-farm residents were varied as shown in Table 2. Work in textile mills and wood or lumber industries occupied a third of the heads of families. An additional eighth were retired or disabled, hence, unoccupied. In addition, many heads and members of families reported off-farm work in fields similar to those listed. Only 72 per cent of the farmers considered farming as their major occupation.

DIFFERENCES ASSOCIATED *with* PATRON STATUS *of* FARMERS

The 230 farmers on milk routes were classified as patrons, past patrons, and non-patrons of the milk plant (Table 3). Patrons were those selling manufacturing milk to the plant at the time of interview.[2]

TABLE 3. CLASSIFICATION OF 230 FARMS ON MILK ROUTES, PIEDMONT AREA OF ALABAMA, 1952

Patron status	Farms	Proportion of total	Farmers selling milk for manufacture in 1951
	Number	*Per cent*	*Number*
Patrons	46	20	45
Past patrons	37	16	8
Non-patrons	147	64	0
TOTAL	230	100	53

[2] All except one patron, who had just started selling, sold manufacturing milk in 1951. Also in 1951, only two patrons reported sales of milk on a local basis in addition to that sold for manufacturing purposes.

Only 1 out of 5 farmers on milk routes sold milk for manufacture. Considering all residents on milk routes in rural areas, only 1 out of slightly more than 8 was a patron in 1952.

Sixteen per cent of the farmers interviewed had sold manufacturing milk at some time in the past. Thirty per cent of the past patrons sold milk in 1951; three-fourths of these sold manufacturing milk and one-fourth sold fluid milk.

Non-patrons were those who were not selling and never had sold manufacturing milk. Less than 2 per cent of the farmers in this group sold fluid milk in 1951.

Production, Sale, and Use of Milk

Milk sold amounted to almost 80 per cent of that produced on patron farms, 50 per cent on past patron, and 14 per cent on non-patron farms (Table 4). Almost all the milk sold by patrons went to the milk plant. Of the past patrons selling milk in 1951, almost 50 per cent of the quantity sold went to the milk plant.

TABLE 4. PRODUCTION AND DISPOSITION OF MILK BY PATRON STATUS, 230 FARMS ON MILK ROUTES, PIEDMONT AREA OF ALABAMA, 1951

Item	Unit	46 patrons	37 past patrons	147 non-patrons
Whole milk sold:				
Sellers	*Number*	46	11	2
Average amound sold per day	*Gallons*	7.1	1.8	[1]
Butter sold:				
Sellers	*Number*	4	9	16
Average amount sold per week	*Pounds*	.2	1.0	.7
Milk used in home:				
Farmers reporting	*Number*	45	36	119
Average amount per day	*Gallons*	1.3	1.5	1.1
Average amount per person per day	*Pints*	2.6	3.8	2.4
Milk fed to calves:				
Farmers reporting	*Number*	20	14	42
Average amount per day	*Gallons*	.9	.9	.3
Summary (per farm, all farms):				
Milk sold annually[2]	*Pounds*	22,483	6,380	565
Milk used in home and/or fed	*Pounds*	5,735	6,293	3,462
Total produced	*Pounds*	28,218	12,673	4,027
Dairy cows (mainly to be milked):				
Farmers reporting	*Number*	46	35	112
Average per farm	*Number*	5.7	2.4	1.0
Annual production per cow[3]	*Pounds*	5,171	4,933	3,841

[1] Less than 0.1 gallon.
[2] Includes milk equivalent of butter sold.
[3] Average production per dairy cow (kept mainly to be milked) on a per farm reporting basis.

No sales of cream were reported for 1951. In total, only 29 or less than 13 per cent of all farmers on milk routes reported the sale of butter. Past patrons averaged selling the largest quantity per week.

Almost 90 per cent of the farmers reported the use of milk in their homes, the largest average amount per day being reported by past patrons. On a per person basis, past patrons used 3.8 pints per day as compared with 2.4 for non-patrons. These amounts were well above the 0.6 pint per capita average daily sales of all bottled milk products for Alabama in 1949.[3] White families used an average of 2.9 pints per person per day as compared with 1.9 for negro families. Owners also used more milk per person per day than tenants – 2.9 against 2.1 pints.

Forty-three per cent of the patrons, 38 per cent of the past patrons, and 28 per cent of the non-patrons reported milk fed to calves. For all farms, the average amount fed daily was 0.5 gallon.

Livestock *and* Poultry

A significant difference existed in the number of dairy cows on farms of patrons, past patrons, and non-patrons (Table 4 and Appendix Table 2). The number of dairy cows kept mainly to be milked varied from 2 to 28 with an average of 5.7 for patrons.[4] Most past patrons had only 1 or 2 cows with the exception of one farmer who had 20 and who sold fluid milk. Twenty-four per cent of the non-patrons did not have a dairy cow and more than half had only one dairy cow which was kept primarily for production of milk for the household.

Farmers who were patrons also had, on the average, more dairy heifers 1 year old and over and, in addition, raised more dairy heifer calves than did the other groups. Patrons had 2.6 dairy cows for each heifer 1 year old and over, past patrons 2.4, and non-patrons 3.8.

The greatest average number of beef cows was on farms of past patrons even though only one-third of this group reported beef cows. Past patrons also vealed or raised more calves for beef

[3] William, S. W. "Supplies and Use of Milk in Alabama." A.P.I. Agricultural Experiment Station Bulletin No. 282. June 1952.

[4] In 1948, a study was made of production and sale of milk for manufacture on one milk route in parts of Russell, Lee, and Chambers counties. The average number of all dairy cows per patron farm was found to be 5.8 and for non-patrons, 1.0. See Cox, C. B. "Factors Related to Production and Sale of Milk for Manufacture." A.P.I. Agricultural Experiment Station Circular No. 96. May 1950.

than did other groups. Apparently beef cattle were not numerous on farms in the area due to farms being rather small and farmers having limited capital with which to get into the beef business.

Poultry production, including broilers, was most important on farms of patrons.

In general, livestock numbers were greater on farms of patrons and past patrons. A total of 32 farms or about 14 per cent in all groups did not have cattle of any kind in 1951. Most of these were non-patrons.

Land Use, Size of Farms, and Crop Yields

A slightly larger percentage of patrons than of others produced cotton in 1951 (Appendix Table 3). However, past patrons and non-patrons had considerably more acreage in cotton, on the average, than did patrons. There was not a great difference in corn acreage between groups.

Grazing and hay crops were most prominent, as expected, on farms of patrons. Sericea and winter grazing crops occupied the greatest acreages, and the largest proportion of farmers reported having these crops. Twenty-two per cent of the patrons reported alfalfa as compared with 10 per cent reporting along one milk route in Russell, Lee, and Chambers counties in 1948. In total, patrons had a 35 per cent greater acreage of hay and grazing crops than did past patrons and 169 per cent greater acreage than did non-patrons.

The acreage of open permanent pasture was greatest on farms of patrons and past patrons. Furthermore, almost all patrons had permanent pastures. Woods pasture differed little in acreage between groups.

Past patrons had more than three times as much idle cropland as did patrons, although there was little difference in average size of farms for these two groups. This suggests that patrons may have gone further in utilizing their land for crops or developing pastures.

The percentage of all land used for crops differed little among groups even though the proportion in hay and grazing crops was greatest on farms of patrons and past patrons (Table 5). Patrons and past patrons used a slightly larger percentage of their land for open permanent pasture than did non-patrons. Also, the proportions of the farm idle, in woods not pastured, and in farmstead area were least on farms of patrons.

TABLE 5. PROPORTION OF LAND IN CROPS, PERMANENT PASTURE, IDLE, AND OTHER USES, ACCORDING TO PATRON STATUS, 230 FARMS ON MILK ROUTES, PIEDMONT AREA OF ALABAMA, 1951

Land use	Proportion of total acreage		
	46 patrons	37 past patrons	147 non-patrons
	Per cent	*Per cent*	*Per cent*
Row crops	18	19	24
Hay or grazing crops	16	12	9
Other crops (as reported)	1	1	1
All crops	35	32	34
Open permanent pasture	22	21	17
Woods pasture	26	25	29
Total permanent pasture	48	46	46
All other[1]	13	9	9
Idle cropland	4	13	11
TOTAL	100	100	100

[1] Includes farmstead area, woods not pastured, and idle land other than idle cropland.

TABLE 6. CROP YIELDS ACCORDING TO PATRON STATUS, 230 FARMS ON MILK ROUTES, PIEDMONT AREA OF ALABAMA, 1951

Crop	Unit	Average yield per acre		
		46 patrons	37 past patrons	147 non-patrons
Cotton (lint)	*Pounds*	383	360	355
Corn	*Bushels*	27	21	18
Alfalfa hay	*Tons*	2.1	1.5	1.9
Sericea hay	*Tons*	1.2	.8	.7

Crop yields were greatest on farms of patrons (Table 6). Patrons made almost 0.5 ton per acre more alfalfa hay than the average for past and non-patrons. The same relationship in yields existed for sericea hay. Patrons' corn yields were 29 per cent greater than those of past patrons and 50 per cent greater than those of non-patrons.

Farm Practices

Fifty-seven per cent of all farmers stated they were breeding their dairy cows to beef-type bulls. This practice was most prevalent for past patrons and non-patrons (Appendix Table 4). However, 2 out of every 5 farmers selling milk to the milk plant followed this practice. Only 10 per cent of all farmers with dairy cows used artificial breeding.

In no group of farms did as many as 3 out of 4 farmers put up hay in 1950. However, 72 per cent of the patrons said they put

up an average of 4.9 tons per farm. Eighty-eight per cent of this group compared to 76 per cent for all groups said the quantity put up was sufficient. The unusual winter of 1951 may have resulted in more than the usual proportion of farmers reporting "not enough" hay. The quantity of hay reported amounted to approximately 0.5 ton per hay-consuming animal unit on each of the three groups of farms.

Except for non-patrons, the proportion of farmers planting winter grazing crops in 1950-51 compared to 1951-52 did not differ greatly. Also, there was little difference in the average acreage planted and the proportion of total crop acres used for winter grazing crops in each group of farms.

Farmers who sold milk to the milk plant, in general, had applied lime, fertilized, seeded, and mowed a larger acreage of open permanent pasture than had others. On the other hand, the proportion of their total open permanent pasture on which these practices were carried out did not differ greatly from that for non-patrons in most cases. Proportionally, past patrons seemed to do less fertilizing, seeding, and mowing permanent pastures than patrons. However, no group used these treatments on as much as 40 per cent of the pastures.

Feed Purchased *for* Dairy Cows

One hundred thirty-nine or 60 per cent of the farmers purchased some feed for dairy cows. Per farm, past patrons purchased more feed than did patrons or non-patrons (Appendix Table 5); however, there was little difference in purchases per dairy cow between past and non-patrons. Patrons purchased approximately half as much feed per dairy cow as did others.

On a T.D.N.[5] basis, 17 per cent of the patron purchases were hay, compared with 33 per cent for past patrons, and 28 per cent for non-patrons. For all farms, 26 per cent of the T.D.N. purchased was hay (Appendix Table 6). Since farmers in the Piedmont Area of Alabama have a greater advantage in growing grazing and hay crops than grains, it is usually to their advantage to produce as much of their hay requirement as possible. In addition, hay is bulky relative to value; therefore, costs of transporting hay are high as compared with the cost of transporting more concentrated products.

[5] Total digestible nutrients. Pounds of feed purchased were converted to a T.D.N. basis by assuming concentrates to be 70 per cent T.D.N. and hay and cottonseed hulls 45 per cent T.D.N.

A larger proportion of patrons than others purchased concentrates for dairy cows. However, there was little difference between patron status groups in percentage of farmers purchasing hay. As an average, 15 per cent of all farmers purchased hay and 56 per cent purchased concentrates for dairy cows in 1951.

A majority of farmers said their purchases of feed in 1951 were about the same as usual. Only 9 per cent reported purchases less than usual. Fourteen per cent said their purchases of concentrates were greater than usual and 30 per cent said their purchases of hay were greater than usual. Those buying more feed than usual gave as their reason the severe winter of 1950-51.

Machinery *and* Equipment

Approximately one-third of the patrons and one-third of the past patrons owned a tractor, tractor plow, and disk harrow (Appendix Table 7). Only 17 per cent of the non-patrons owned these items. Except for mowing machines and hay rakes, other pieces of tractor machinery and equipment were owned by a very small proportion of farmers.

Several farmers rented or hired the use of various pieces or items of machinery and equipment, the most common being tractors and tractor-drawn plows and harrows.

Labor Supply *and* Personnel

Total number of persons per family averaged 4.1 for patrons, 3.8 for past patrons, and 4.2 for non-patrons (Appendix Table 8). There was very little difference between groups in the average number of persons over 12 years of age who could milk and who were regularly available for such work. In all three groups, about 75 per cent of the persons over 12 years of age could milk and were regularly available.

Work off the farm by heads and members of the family took a considerable portion of time. In total, patrons reported an average of 3.9 months work off the farm in 1951, past patrons 7.0, and non-patrons 5.6. (See Appendix Table 9 for a breakdown by number of months.) Types of work in which these farmers engaged were similar to those shown in Table 2 for non-farm rural residents. A much smaller proportion of patrons and members of their families worked off the farm than did past and non-patrons.

Despite work off the farm, there was left an average of more than two full-time men per farm on a man-equivalent basis, for each group of farms. This number appears sufficient considering

the size and type of farming carried on and assuming a reasonable degree of labor efficiency.

Tenure *and* Color

Seventy-two per cent of all farmers in the sample were owner operators. Patrons and past patrons included a considerably higher percentage of owners than non-patrons (Appendix Table 10). Thirty-five per cent of the non-patrons were cash, standing rent, or share tenants. Only three croppers appeared in the sample; all were non-patrons.

Only 40 out of 230 farmers on milk routes were colored (Appendix Table 11). Fifty-three per cent of the tenants and only 4 per cent of the owners were colored. Eighty-four per cent of the tenants were non-patrons. Colored farmers comprised a larger part of the non-patron group than of the past patron or patron group.

VOLUME *of* SALES *and* SELLERS

It has been pointed out that agriculture in the Piedmont has changed during the past several years. Development of dairying as a major farm enterprise on certain farms has been significant. In total, what changes have occurred in number of farmers producing manufacturing milk and in the quantity produced? Data in this section are presented for the purpose of showing the development and status of manufacturing milk production in the Piedmont Area.

Total Sales, Patrons, *and* Sales *per* Patron

Total volume of manufacturing milk sold annually from 1946 through 1952 increased in all years except 1951 (Figure 2). No doubt this exception was due largely to the unfavorable winter of 1950-51. After the decline in 1951, an increase in sales during 1952 brought the total for the year up to the 1950 level. Over this 7-year period, sales by farmers to the milk plant increased an average of 10 per cent per year. Sales in 1952 were more than twice as great as sales in 1946. Future changes in production and sales of milk for manufacture will depend to a large extent upon farmers' alternative uses of land, capital, and labor, including opportunities for off-farm employment.

Number of farmers selling milk to the milk plant increased 57 per cent from 1946 to 1950 (Figure 3). A decline of 11 per cent

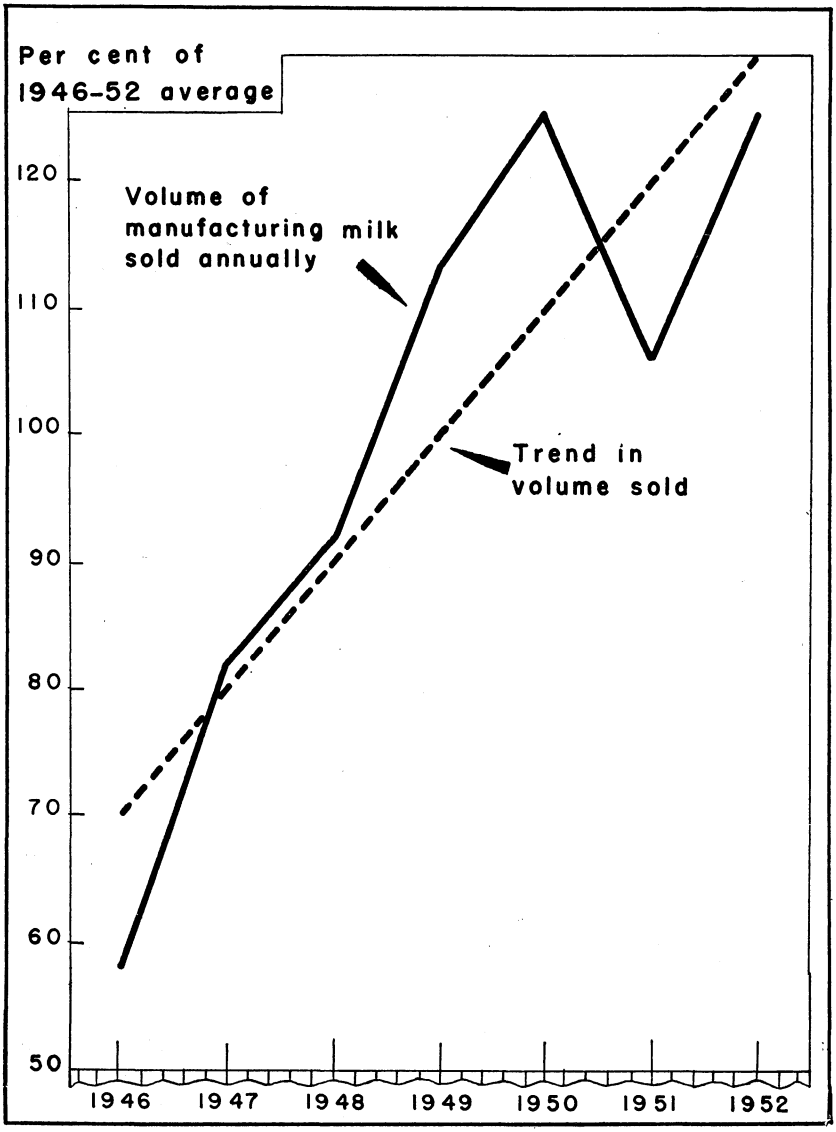

FIGURE 2. Volume of manufacturing milk sold annually to the milk plant in the Piedmont Area of Alabama as a percentage of average for the period, 1946-52.

occurred in 1951; however, in 1952, number of patrons increased 15 per cent. Thus, the average number of farmers selling milk in 1952 was slightly less than the number selling in 1950.

Pounds of milk sold per patron per year followed a similar pat-

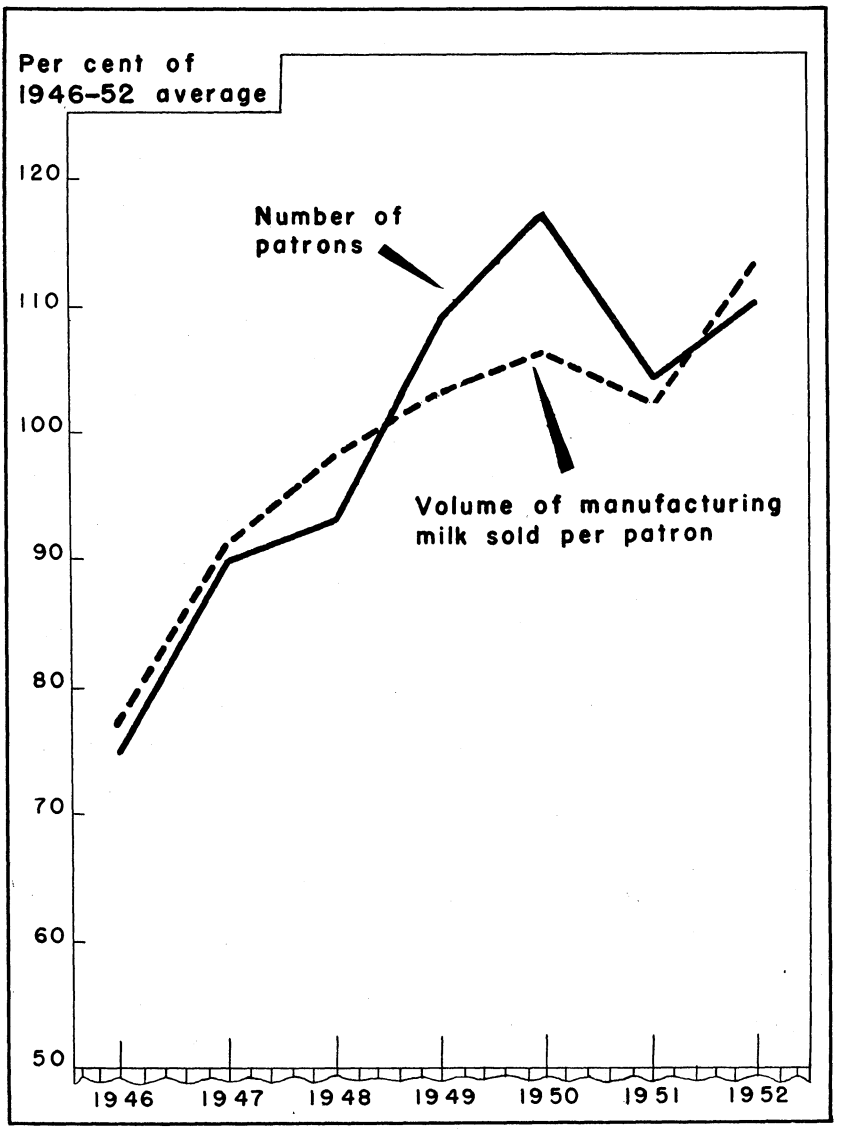

FIGURE 3. Number of patrons and volume of manufacturing milk sold per patron to the milk plant in the Piedmont Area of Alabama as a percentage of average for the period, 1946-52.

tern to that of sales and number of patrons. Number of patrons and sales per patron increased approximately 7 per cent per year over the 7-year period. In 1952, the amount sold per patron was 146 per cent of the amount sold per patron in 1946.

Seasonality of Sales and Patrons

From 1946 through 1952, a regular seasonal pattern of sales existed (Figure 4). The same was true for number of patrons and sales per patron (Figure 5).

Low months of sales were usually January and February, and high months were May, June, July, and August. By 2-week periods, either December 1-15, February 1-15, or February 16-28 was usually the low period in sales (Table 7). The highest periods of sales most often came during the last 2 weeks in May or in July. Sales during the peak 2-week periods were from 2½ to 3½ times as great as were sales during the low periods from 1946 to 1952.

Based on monthly averages for the 7 years, 1946-52, sales for the months of May, June, July, and August made up 47 per cent of total sales. Sales during November, December, January, and February comprised only 22 per cent of total sales. Over the years, May has been the month of highest sales; January and February have been the lowest months in sales (Figure 6). June and July have been the months for the greatest number of patrons; January and February have been the months with fewest patrons.

Sales per patron did not differ greatly from November through February, as an average, over the 7-year period. Just as with total sales, the peak in sales per patron occurred in May which, on the average, was 1.8 times the sales per patron for the months of November through February.

During the 7 years, the low 2-week period in number of patrons always occurred between the first of December and last of February (Table 8). July 16-31 most often has been the high 2-week period. Number of patrons during the high 2 weeks aver-

TABLE 7. HIGH AND LOW 2-WEEK PERIODS IN SALES TO THE MILK PLANT, PIEDMONT AREA OF ALABAMA, 1946-52

Year	Low 2 weeks in pounds of milk sold	High 2 weeks in pounds of milk sold	Sales during high 2-week period as a percentage of sales for low 2-week period
	Dates	*Dates*	*Per cent*
1946	Dec. 1-15	June 1-15	257
1947	Feb. 1-15	July 16-31	351
1948	Feb. 1-15	July 16-31	317
1949	Feb. 16-28	May 16-31	252
1950	Dec. 1-15	May 16-31	275
1951	Feb. 16-28	July 16-31	267
1952	Jan. 1-15	May 16-31	271

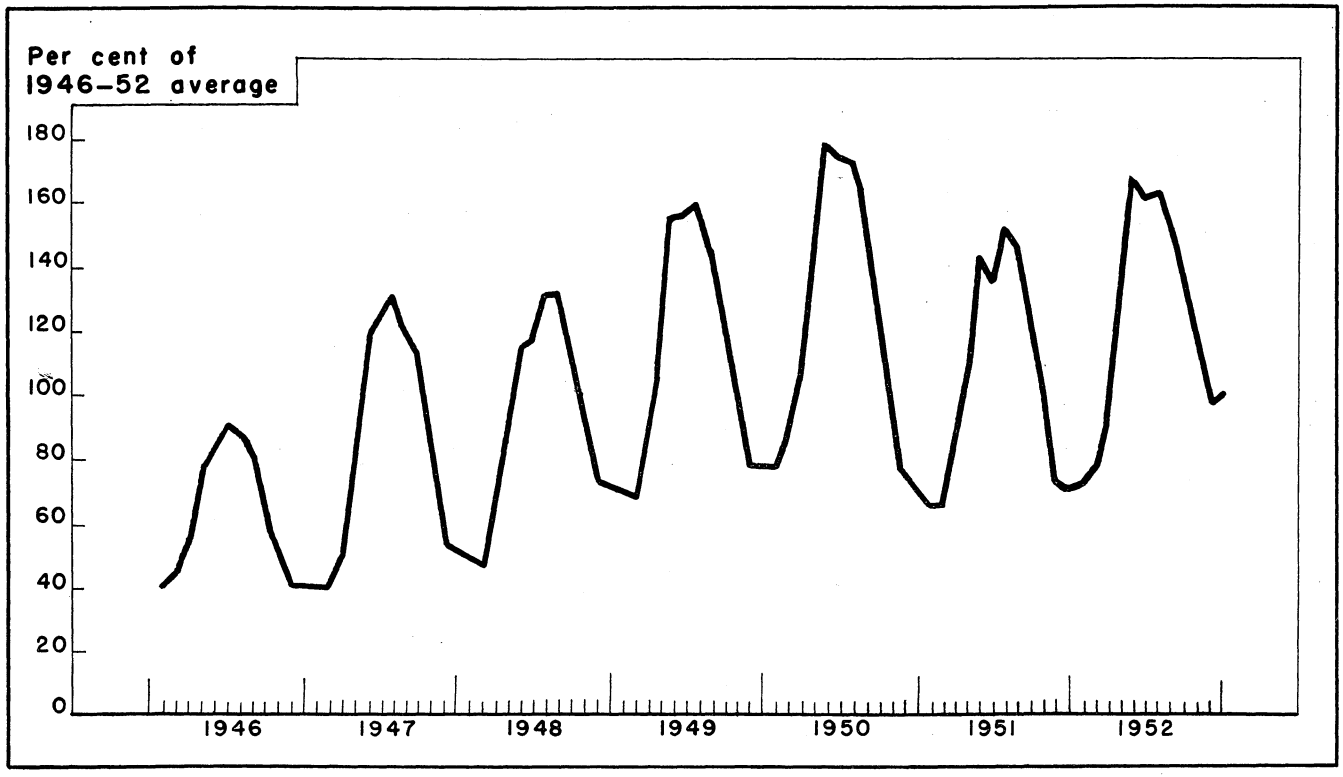

FIGURE 4. Volume of manufacturing milk sold each month to the plant in the Piedmont Area of Alabama as a percentage of average for the period, 1946-52.

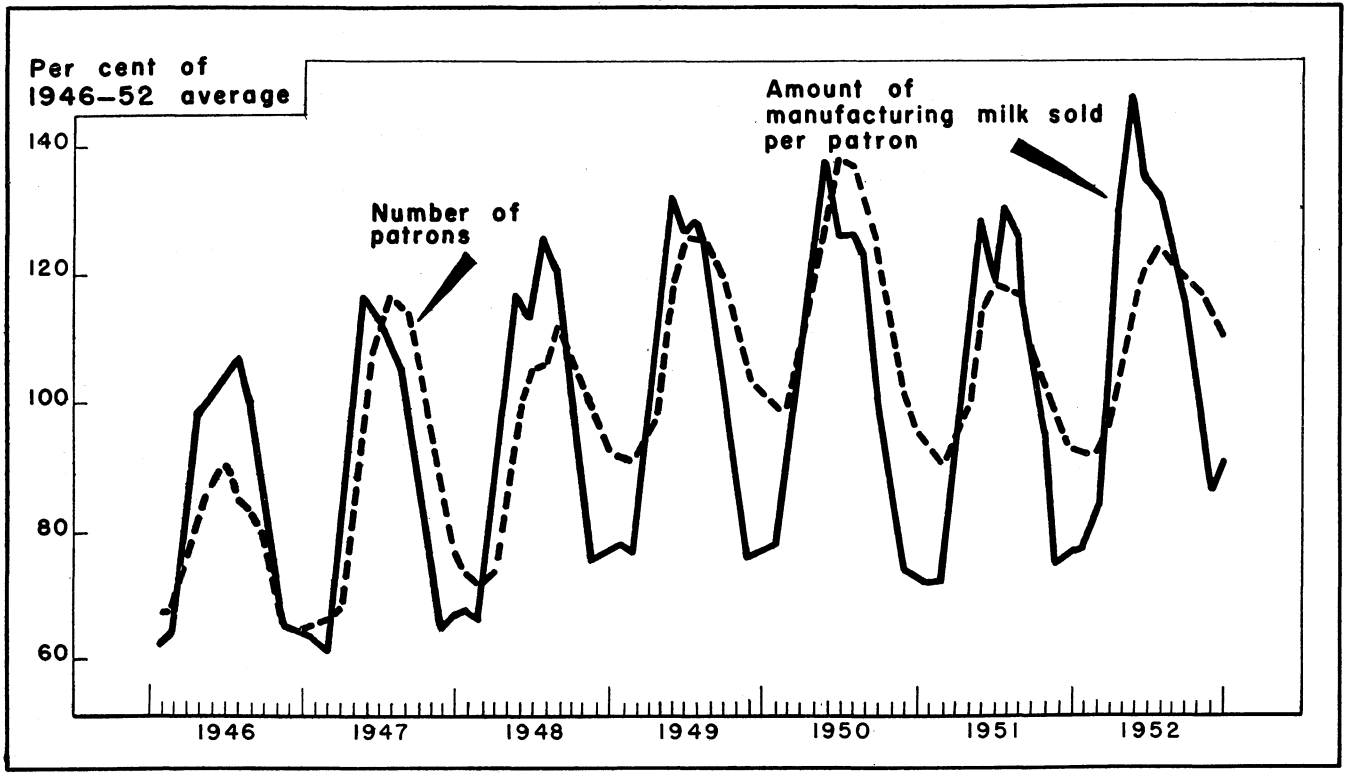

FIGURE 5. Number of patrons and volume of manufacturing milk sold per patron per month to the milk plant in the Piedmont Area of Alabama as a percentage of average for the period, 1946-52.

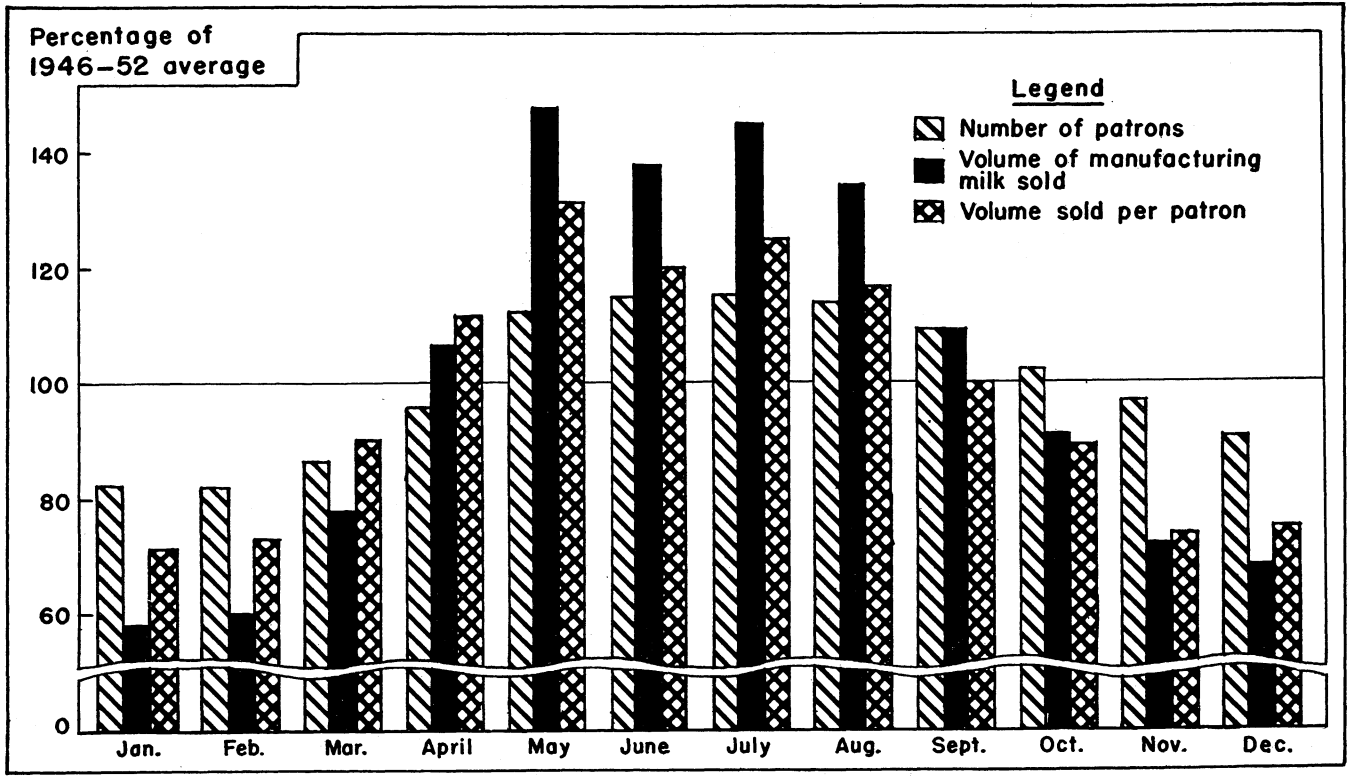

FIGURE 6. Average number of patrons, volume of manufacturing milk sold, and volume of sales per patron, by months, to the milk plant in the Piedmont Area of Alabama, as a percentage of average over the period 1946-52.

TABLE 8. HIGH AND LOW 2-WEEK PERIODS IN NUMBER OF PATRONS SELLING TO THE MILK PLANT, PIEDMONT AREA OF ALABAMA, 1946-52

Year	Low 2 weeks in number of patrons	High 2 weeks in number of patrons	Number of patrons during high 2-week period as a percentage of the number for the low 2-week period
	Dates	*Dates*	*Per cent*
1946	Dec. 1-15	June 1-15	145
1947	Jan. 16-31	July 16-31	183
1948	Feb. 16-29	Aug. 16-31	158
1949	Jan. 1-15	July 16-31	140
1950	Dec. 16-31	June 16-30	149
1951	Feb. 16-28	July 16-31	133
1952	Jan. 1-15	July 1-15	137

aged 1½ times the number prevailing during the low 2 weeks. There appears to be some evidence of less fluctuation in number of patrons during the last 2 years of the period as compared with earlier years. Apparently some progress has been made in keeping patrons who produce and sell milk on a year-round basis.

The 46 patrons included in the study showed a similar pattern for number selling during various months of 1951. More than 90 per cent sold milk from May through December compared to 70 per cent who sold in January and February. Only 64 per cent of the 46 patrons sold milk during all months of 1951. Farmers who sold milk all months of 1951 averaged selling 11.0 gallons per day as compared with 4.4 gallons per day for those who sold only part of the year. Average production per cow on farms of year-round sellers was 5,183 pounds and 4,636 on farms from which milk was not sold on a 12-month basis.

Low 2-week periods of sales per patron occurred January 1-15 in 3 years out of 7 (Table 9). High 2-week periods were May 16-31 in 4 out of 7 years. There has been little change in the percentage difference from low to high since 1946.

TABLE 9. HIGH AND LOW 2-WEEK PERIODS IN SALES PER PATRON TO THE MILK PLANT, PIEDMONT AREA OF ALABAMA, 1946-52

Year	Low 2 weeks in pounds sold per patron	High 2 weeks in pounds sold per patron	Sales per patron during high 2 weeks as a percentage of sales per patron during low 2 weeks
	Dates	*Dates*	*Per cent*
1946	Jan. 1-15	July 16-31	195
1947	Feb. 1-15	May 16-31	203
1948	Feb. 1-15	July 16-31	209
1949	Nov. 16-30	May 16-31	192
1950	Nov. 16-30	May 16-31	209
1951	Jan. 1-15	July 16-31	205
1952	Jan. 1-15	May 16-31	211

PRICES RECEIVED *for* MANUFACTURING MILK

The trend in prices received by producers for manufacturing milk, 4 per cent butterfat basis, was upward for the period 1950 through 1952 (Figure 7). The average price received during 1951 was 24 per cent above the 1950 price, and in 1952 was 5 per cent above the 1951 average. Months of highest prices received were usually September through May.

Prices received for milk should be considered in light of prices received for alternative products which might be produced. If the price of manufacturing milk increased enough relative to prices received for beef cattle, at some point in the increase certain farmers would change from producing beef to milk. The same is true for certain other products. As shown in Figure 7, since 1950, prices received for manufacturing milk increased rela-

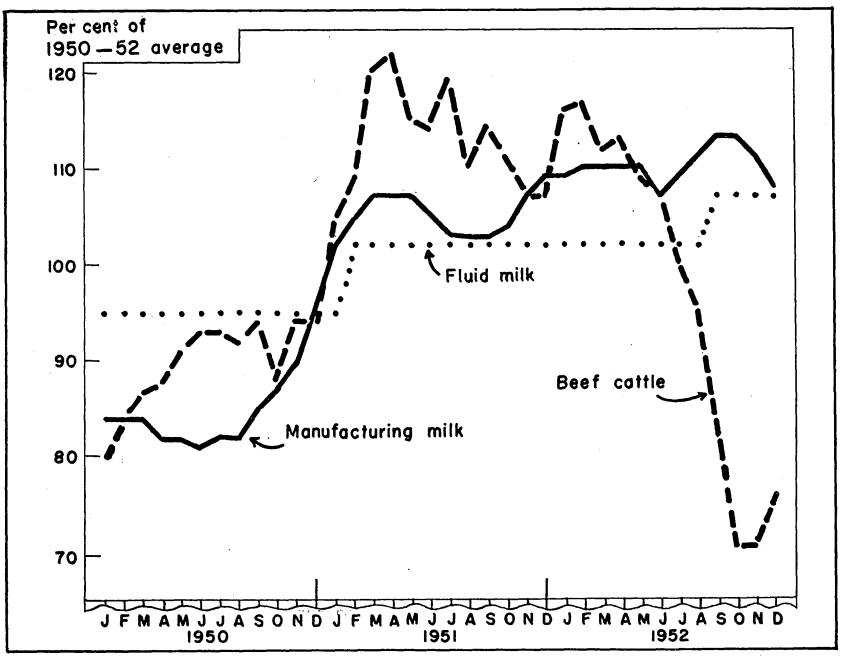

FIGURE 7. Prices received for manufacturing milk, fluid milk, and beef cattle as a percentage of average for the period, 1950-52. (Prices used were those paid for 4 per cent milk by the milk plant in the Piedmont Area of Alabama, for fluid milk with base fat content in Birmingham, Alabama, and average prices received by Alabama farmers for beef cattle.)

tive to prices paid for fluid milk.[6] Manufacturing milk prices also increased relative to beef cattle prices. A decided change occurred after February 1952 when beef cattle prices started dropping. The future relationship of prices received for manufacturing milk to prices received by farmers for other products will be the resultant of many economic forces.

FACTORS RELATED *to* SALES *of* MILK

Based on an analysis of the information obtained from farmers on milk routes, a number of factors appeared to be related to sales of milk for manufacture. However, only the most important are discussed in this section.

Five variables, (1) number of dairy cows kept primarily for milk, (2) production per cow, (3) acres of forage crops (including open permanent pasture), (4) acres of winter grazing, and (5) age of the operator, were found to be important in explaining the variation in sales of milk for manufacture.[7] The most important of these factors were the first two.[8] Sales of milk tended to increase as all variables increased except age of the operator. Older farm operators generally sold less milk per day. These findings are based on analyses of records for 55 sellers who reported the quantity of milk sold in 1951.

Number *of* Cows *and* Production Per Cow

Considering only number of dairy cows kept primarily for milk as a factor associated with sales, on the average, sales increased 1.17 gallons per day per farm for each additional cow (Figure 8). Therefore, if a farmer added only one cow, of the quality presently in herds, sales for the year would be increased by more than 3,000 pounds of milk per farm. This quantity is 18 per cent of the average amount sold by 46 patrons in 1951.

Production per cow was studied alone to determine its degree of relationship to sales (Figure 9). For each 1,000 pounds in-

[6] Prices used in the comparison were those paid for 4 per cent milk by the milk plant in the Piedmont Area, those paid for fluid milk with base fat content in Birmingham, Alabama, and average prices received by Alabama farmers for beef cattle.

[7] Ninety-six per cent of the variation in sales was explained by these factors; therefore, the multiple correlation coefficient was .98 which is highly significant.

[8] Standard partial regression coefficients for the factors listed in the order above were (1) .7658, (2) .4906, (3) .1746, (4) .0727, and (5) -.3525.

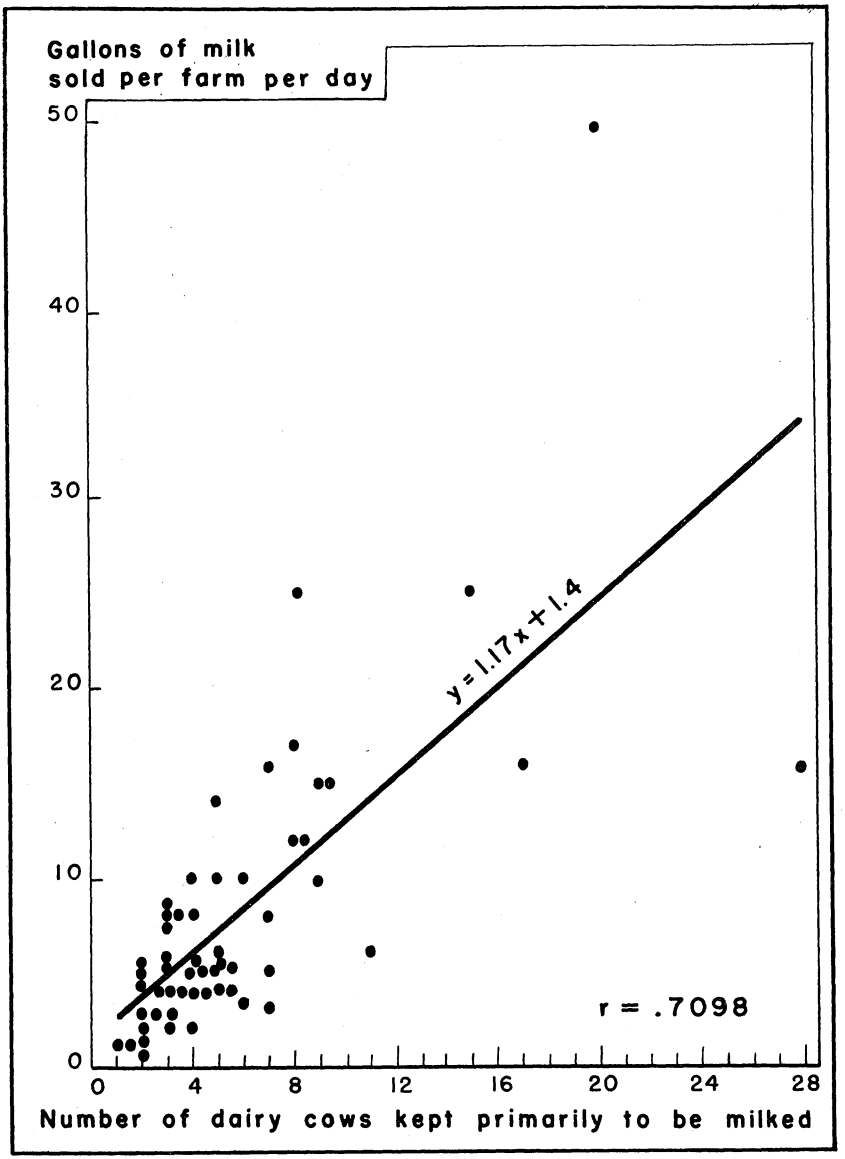

FIGURE 8. Relationship of number of dairy cows kept primarily for milk to volume of milk sold per day per farm, 55 farmers reporting sales in the Piedmont Area of Alabama, 1951.

crease in production per cow, sales per farm increased an average of 1.3 gallons per day. This points up the importance of a

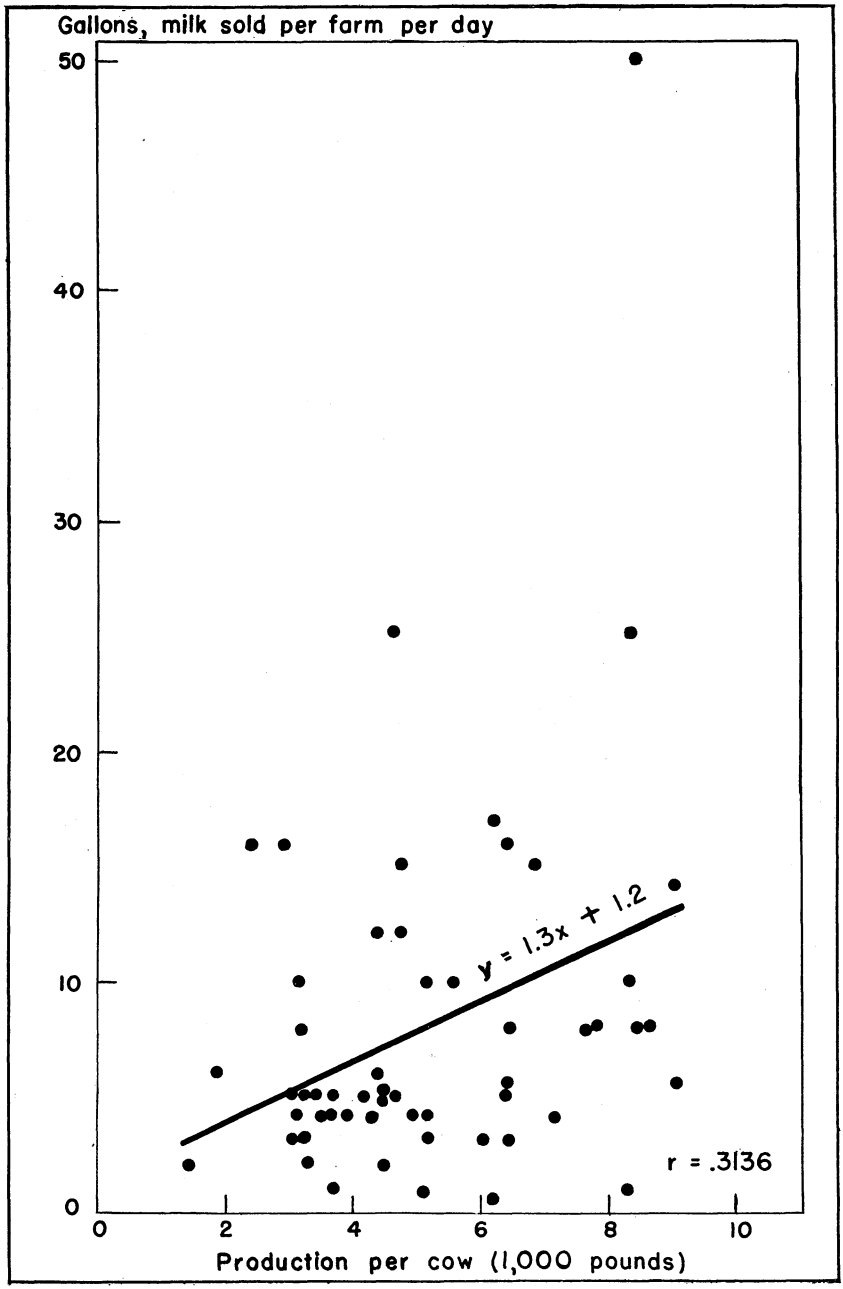

FIGURE 9. Relationship of production per cow to sales of milk, 55 farmers reporting sales in the Piedmont Area of Alabama, 1951.

high level of production per cow. For example, suppose a farmer has 10 cows producing 6,000 pounds of milk per cow per year. By wise management, possibly he is able to increase production per cow from 6,000 to 7,000 pounds. Also, assume the increase in production came partly from careful culling, so the herd was reduced from 10 to 9 cows.[9] Now the farmer produces a total of 63,000 pounds of milk compared to 60,000 pounds previously, or an annual increase of 3,000 pounds. If all this quantity were sold, this would amount to an increase in sales of approximately 1 gallon per day. Furthermore, certain costs would be less per unit

TABLE 10. RELATIONSHIP OF NUMBER OF DAIRY COWS KEPT PRIMARILY FOR MILK AND PRODUCTION PER COW TO AVERAGE DAILY SALES OF MILK, 230 FARMS ON MILK ROUTES, PIEDMONT AREA OF ALABAMA, 1951

Average production per cow per year	Total farms	Sales	
		Farms reporting	Amount per day
Pounds	*Number*	*Number*	*Gallons*
(Less than 2 dairy cows kept primarily for milk)			
Less than 3,500	65	0	0.0
3,500-6,499	49	1	[1]
6,500 and over	11	1	0.1
Total or average	125	2	[1]
(2-3 dairy cows kept primarily for milk)			
Less than 3,500	35	1	0.1
3,500-6,499	26	14	1.9
6,500 and over	11	6	3.8
Total or average	72	21	1.3
(4 or more dairy cows kept primarily for milk)			
Less than 3,500	13	12	6.4
3,500-6,499	15	15	10.2
6,500 and over	5	5	22.8
Total or average	33	32	10.6
(All farms)			
Less than 3,500	113	13	0.8
3,500-6,499	90	30	2.3
6,500 and over	27	12	5.8
Total or average	230	55	1.9

[1] Less than 0.1 gallon.

[9] Increase in size of herd was associated with a decrease in average production per cow.

of milk produced, and, in addition, there would be one less cow on which costs would be incurred.

Importance of production per cow and number of cows is also evident in Table 10, based on data from 230 farms. As number of cows increased, at any given level of production per cow, average daily sales increased. Also, as production per cow increased, with a given number of cows, sales increased. Greatest average daily sales occurred on farms with the greatest number of cows and highest producing cows.

Factors Associated *with* Number *of* Cows

Farmers probably consider many things in reaching a decision regarding size of the dairy herd. Feed supply, quality of feed, facilities, labor supply, skill of labor, as well as prices received for the product, are more than likely taken into account when making a decision on number of cows.

According to the data for 55 farms, acres of open permanent pasture was one of the most important factors associated with number of dairy cows kept primarily to be milked (Figure 10). Acres of all forage crops, including acres of permanent pasture, were also used in the analysis but were not as closely associated with number of dairy cows as acres of open permanent pasture alone. Total acres operated and percentage of land in forage crops showed some degree of relationship to number of dairy cows. However, total acres of winter grazing in 1950-51, labor supply available for farm work, and age of the operator, did not show a close relationship to number of cows kept primarily for milk.

As an average, for each 10-acre increase in open permanent pasture per farm, farmers selling milk added slightly more than one dairy cow to their herd. This takes into consideration other kinds of livestock which also utilized open permanent pasture.

An increase in number of dairy cows kept for milk was also associated with an increase in size of farms up to a certain level. Afterward, size did not increase proportionally with number of cows (Table 11). Farmers with the greatest number of dairy cows tended to veal or raise the most calves for beef. The amount of hay put up per farm in 1950 increased with size of herd but decreased per forage-consuming animal unit. Acres of winter grazing per farm and purchases of feed increased considerably as number of cows increased.

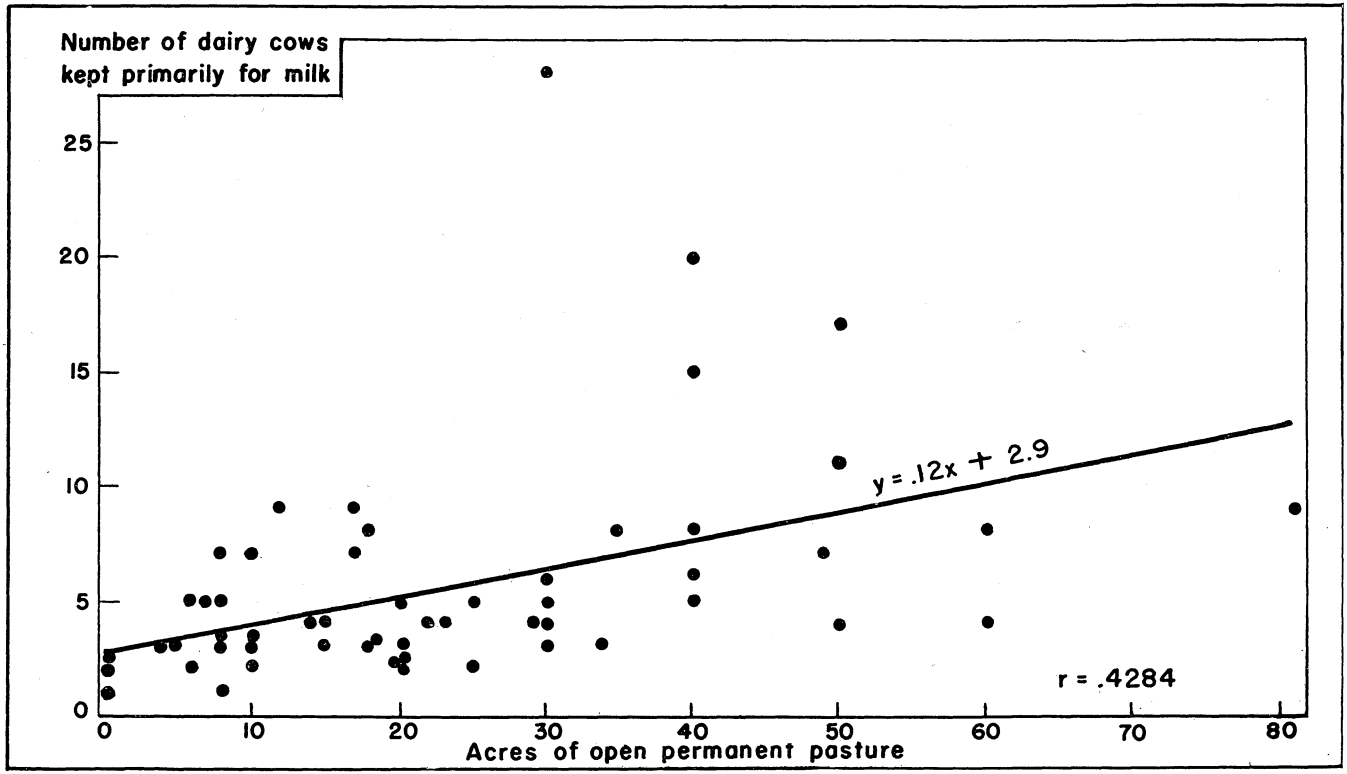

FIGURE 10. Relationship of acres in open permanent pasture to number of dairy cows kept primarily for milk, 55 sellers on milk routes in the Piedmont Area of Alabama, 1951.

TABLE 11. RELATIONSHIP OF NUMBER OF COWS KEPT PRIMARILY FOR MILK TO VARIOUS ASPECTS OF FARM ORGANIZATION AND PRACTICES, FARMS OF 55 SELLERS ON MILK ROUTES, PIEDMONT AREA OF ALABAMA, 1951

Item	Unit	Number of dairy cows			All farms
		1-3	4-7	8 and over	
Farms	*No.*	23	21	11	55
Dairy cows for milk	*No.*	2.4	5.1	12.9	5.5
All dairy cows	*No.*	3.6	5.7	14.2	6.5
Dairy heifers 1 year old and over	*No.*	1.7	2.0	5.3	2.6
Calves vealed or raised for beef	*No.*	2.0	3.0	3.5	2.7
Milk sold per day	*Gal.*	4.2	7.4	17.6	8.1
Production per cow	*Lb.*	5,996	4,656	4,616	5,208
Size of farm	*Ac.*	85	114	123	104
Total crops	*Ac.*	30	42	50	37
Men for work on farm	*M.E.*[1]	2.0	2.7	2.9	2.5
Persons over 12 years of age who could milk and were available	*No.*	2.0	2.6	2.4	2.3
Farmers owning tractor	*Pct.*	17	48	45	35
Open permanent pasture:					
Farms reporting	*Pct.*	87	100	100	96
Per farm	*Ac.*	16	25	41	24
Per forage-consuming animal unit[2]	*Ac.*	2.4	3.3	2.4	2.7
Proportion of farm land	*Pct.*	16	22	34	23
Forage crops:[3]					
Farms reporting	*Pct.*	96	100	100	98
Per farm	*Ac.*	36	57	89	55
Per forage-consuming animal unit[2]	*Ac.*	6.4	7.5	5.2	6.4
Proportion of farm land	*Pct.*	42	50	73	51
Hay put up in 1950:					
Farms reporting	*Pct.*	70	67	64	67
Per farm	*T.*	4	5	6	5
Per forage-consuming animal unit[2]	*T.*	.8	.6	.3	.6
Total winter grazing, 1950-51:					
Farms reporting	*Pct.*	61	81	81	73
Per farm	*Ac.*	4	9	17	9
Per forage-consuming animal unit[2]	*Ac.*	.7	1.2	1.0	1.0
All feed purchased for dairy cows:					
Per farm	*T.D.N.*	1,056	3,130	15,756	4,788
Per dairy cow	*T.D.N.*	296	548	1,111	736

[1] "Man-equivalent" of all labor on the farm available for farm work. One man-equivalent equals 1 man for 12 months.

[2] Excludes workstock.

[3] Includes forage crops grown for hay or grazing in addition to open permanent pasture.

Factors Associated *with* Production Per Cow

Of the factors measured, the most important factor associated with production per cow appeared to be the quantity of roughages purchased. Number of cows kept for milk and purchases of concentrates were not as closely associated with production per cow as were purchases of roughages. Again, the severe winter of 1950-51 probably was a factor. In most cases, purchases of roughages probably were necessary for a satisfactory level of production. Otherwise, production per cow was not maintained. Farms on which roughages were purchased in 1951 showed an average production of almost 500 pounds more milk per cow than did farms on which no roughages were purchased (Table 12).

Farmers who did not purchase roughages had a slightly greater acreage of winter grazing crops and put up an average of 1.4 tons more hay per farm than did farmers who purchased roughages in 1951. Farmers who did not purchase roughages purchased somewhat less concentrates than did others.

TABLE 12. THE RELATIONSHIP OF PURCHASES OF ROUGHAGES TO VARIOUS FACTORS, FARMS OF 55 SELLERS ON MILK ROUTES, PIEDMONT AREA OF ALABAMA, 1951

Item	Unit	Averages for farms on which		All farms
		Roughages were not purchased	Roughages were purchased	
Farms	*No.*	40	15	55
Production per cow	*Lb.*	5,086	5,534	5,208
Cows for milk	*No.*	5.6	5.4	5.5
Milk sold per day	*Gal.*	7.6	9.5	8.1
Corn	*Ac.*	13.0	10.8	12.4
Cotton	*Ac.*	3.5	7.9	4.7
Forage crops	*Ac.*	57	48	55
Proportion of land in forage crops	*Pct.*	52	49	51
Open permanent pasture	*Ac.*	24.1	21.6	23.5
Winter grazing, 1950-51	*Ac.*	9.0	7.6	8.6
Hay put up in 1950	*T.*	5.2	3.8	4.8
Purchases of feed for dairy cows:				
Concentrates	*T.D.N.*	2,205	6,134	3,277
Roughages	*T.D.N.*	0	5,541	1,511

Size *of* Farm

One of the over-all limitations on production of milk is size of farm in terms of acres of open permanent pasture and cropland. The importance of size was evident in the previous discussions. Larger farms had more dairy cows and other kinds of livestock

(Appendix Table 12). The percentage of farmers reporting dairy and beef cattle increased as size of farm increased. Almost 90 per cent of the farmers with 101 acres or more were owner operators compared to 53 per cent for farmers with less than 50 acres.

As size of farm increased the average acreage in corn, forage crops, and permanent pasture increased. Also, the proportion of land in forage crops increased as size of farm increased. Although this was true, the proportion that hay purchases were of total digestible nutrients purchased also increased.

Only 10 per cent of the farmers on farms of less than 50 acres sold milk compared to 40 per cent of those with 101 acres or more. Farmers in the largest size group sold an average of 11,416 pounds of milk per year compared to only 933 pounds for farms in the smallest size group.

Labor Supply

Total labor available for work on the farm did not appear to be as closely related to production and sale of milk as did several other factors. However, the average number of dairy cows for milk increased somewhat as total man equivalents increased on farms selling milk. Sales of milk averaged 7.0 gallons per day for farms with less than 3 man equivalents compared to 10.5 gallons per day for farms with 3 man equivalents or more. Sellers with

TABLE 13. NUMBER OF PERSONS OVER 12 YEARS OF AGE WHO COULD MILK AND WERE REGULARLY AVAILABLE RELATED TO SIZE OF DAIRY AND BEEF ENTERPRISES, 55 SELLERS ON MILK ROUTES, PIEDMONT AREA OF ALABAMA, 1951

Item	Unit	Number of persons over 12 years of age who could milk and were regularly available			All farms
		Less than 2	2	3 or more	
Farms	*Number*	9	26	19	54[1]
Dairy cows for milk	*Number*	4.2	6.3	5.3	5.5
Dairy heifer calves raised	*Number*	3.2	3.0	2.0	2.7
Calves vealed or raised for beef	*Number*	2.3	2.9	2.6	2.7
Beef cows	*Number*	1.3	.8	.6	.8
Farmers using beef bulls on dairy cows	*Per cent*	67	35	32	40
Hay put up in 1950	*Tons*	1.4	4.8	6.5	4.8
Milk sales per day	*Gallons*	6.7	9.1	7.6	8.1
Size of farm	*Acres*	141	108	104	104

[1] Number of persons over 12 years of age who could milk and were regularly available was not reported in one case.

the equivalent of 3 or more men put up more than twice the average quantity of hay as on farms with less than 3 men in 1950.

Number of persons over 12 years of age who could milk and were regularly available was not closely related to sales of milk (Table 13). However, beef cattle were apparently given more emphasis on farms with the fewest number of persons available for milking cows.

Work Off *the* Farm

Farms of sellers for which there was 0.1 man equivalent[10] or more work off the farm by the operator or members of his family sold an average of 1.9 gallons of milk per day less than did farms for which no off-farm work was reported (Table 14). Production per cow was considerably higher for the latter group.

For all farms, 35 per cent of the operators worked off the farm 3 or more months during 1951. Only 1 out of every 5 farmers in this group reported sales of milk – the average was 1.2 gallons per day. About 1 out of 4 farm operators working off the farm less than 3 months reported selling milk. These farmers averaged selling 2.4 gallons of milk per day.

TABLE 14. RELATIONSHIP OF WORK OFF THE FARM TO VARIOUS FACTORS, 55 SELLERS ON MILK ROUTES, PIEDMONT AREA OF ALABAMA, 1951

Item	Unit	Man-equivalent of work off farm by all members of family		All farms
		None	0.1 or more[1]	
Farms	*No.*	31	24	55
Work off farm by all members of family	*M.E.*	.0	1.0	.4
Total labor for farm work	*M.E.*	2.7	2.2	2.5
Age of head of family	*Yr.*	53	47	50
Cows for milk	*No.*	5.2	6.0	5.5
Milk sold per day	*Gal.*	8.9	7.0	8.1
Production per cow	*Lb.*	5,610	4,689	5,208
Cotton	*Ac.*	3	7	5
Forage crops	*Ac.*	48	64	55
Size of farm	*Ac.*	101	108	104
Farmers owning tractor	*Pct.*	29	42	35

[1] 0.1 man-equivalent equals 1.2 months work by 1 man.

Tractor Ownership

Sellers who owned a tractor sold an average of 2.4 gallons of milk per day more than did those who did not own a tractor

[10] Equal to 1.2 months work off the farm by 1 man.

TABLE 15. DIFFERENCES IN SALES OF MILK AND OTHER FACTORS BETWEEN FARMERS WHO OWNED A TRACTOR AND THOSE WHO DID NOT OWN A TRACTOR, 55 SELLERS ON MILK ROUTES, PIEDMONT AREA OF ALABAMA, 1952

Item	Unit	Sellers of milk who		All farms
		Owned a tractor	Did not own a tractor	
Sellers	*Number*	19	36	55
Size of farm	*Acres*	131	90	104
Owner operators	*Per cent*	95	83	87
Age of head of family	*Years*	45	53	50
Milk sold per day	*Gallons*	9.7	7.3	8.1
Production per cow	*Pounds*	4,668	5,493	5,208
Cows kept primarily for milk	*Number*	7.4	4.6	5.5
Beef cows	*Number*	1.6	.4	.8
Cotton	*Acres*	7	4	5
Corn	*Acres*	18	9	12
Total winter grazing, 1950-51	*Acres*	13	6	9
Total winter grazing, 1951-52	*Acres*	8	7	7
Total crops	*Acres*	55	28	37
Forage crops	*Acres*	72	46	55
Proportion of land in forage crops	*Per cent*	54	49	51
Hay put up in 1950	*Tons*	8.1	3.1	4.8
Open permanent pasture:				
Total	*Acres*	27	22	24
Fertilized in past 5 years	*Acres*	8	4	5
Seeded in past 5 years	*Acres*	8	4	5
Fertilized in 1951	*Acres*	4	2	3

(Table 15). Larger farms with more cotton, corn, winter grazing, and other forage crops were associated with tractor ownership. Also, farmers with tractors had the greatest number of dairy and beef cows. They put up considerably more hay in 1950 and improved a larger area of permanent pasture than did farmers without tractors.

Age of Farm Operator

Farmers from 45 to 55 years of age sold the greatest amount of milk daily (Appendix Table 13). Twenty-eight per cent of the farmers in this age group reported selling milk compared to 18 per cent of those who were younger and 23 per cent of those who were older. Farmers 40 to 55 years of age had almost twice as many dairy cows for milk as did other age groups, but production per cow tended to decrease as average age of the operator increased.

The percentage owner operators, size of farm, number of beef cows, and acreage of forage crops increased with age of the operator. Gallons of milk per day used in the house and the percentage owning tractors decreased, on the average, as age of the operator increased.

Color *and* Tenure

No doubt factors associated with color and tenure are important in their effect on production and sale of milk. Although a conclusion based on a very small sample often invites error, it appears that a group of white owner operators can be expected to sell more milk than colored owners, and white tenants more than colored tenants (Table 16).

Other differences existed according to color and tenure which support the above statement. Farms of white owner operators were considerably larger than those of colored owner operators (Table 17). Still smaller were farms of white tenants followed in size by those of colored tenants. Number of dairy cows, proportion of farmers owning tractors, acres of permanent pasture, amount of feed purchased for dairy cows, acres of forage crops, and proportion of land in forage crops decreased in the same order.

Although smallest in size, farms of colored operators, both owners and tenants, had the largest labor force. Colored farmers also did less work off the farm than did others (Appendix Table 14). With the fewest numbers of livestock, yet a greater acreage of cotton, they failed more than did white operators in year-round utilization of labor.

Relatively stable tenure is essential for almost any kind of livestock program. Owner operators reported being on their farm an average of 13 years compared to 3 years for tenants.

TABLE 16. RELATIONSHIP OF COLOR AND TENURE TO SALES OF MILK, 230 FARMS ON MILK ROUTES, PIEDMONT AREA OF ALABAMA, 1951

Tenure	White farm operators			Colored farm operators		
	Number of farms		Average amount sold per day	Number of farms		Average amount sold per day
	Total	Selling milk		Total	Selling milk	
	Number	*Number*	*Gallons*	*Number*	*Number*	*Gallons*
Owners	158	46	2.6	6	2	1.0
Tenants	29	4	.8	34	3	.4
TOTAL OR AVERAGE	187	50	2.3	40[1]	5	.4

[1] Tenure for 1 farm operator and color for 2 were not reported.

TABLE 17. DIFFERENCES BETWEEN FARMS BY COLOR AND TENURE OF OPERATOR, 230 FARMS ON MILK ROUTES, PIEDMONT AREA OF ALABAMA, 1951

Item	Unit	Owner operators			Tenants		
		White	Colored	All	White	Colored	All
Farms	*No.*	158	6	164[1]	29	34	63[1]
Size	*Ac.*	99	78	99	55	46	50
Time operator on this farm	*Yr.*	14	12	13	4	3	3
Labor for farm work	*M.E.*	2.0	2.5	2.1	2.4	2.7	2.6
Persons over 12 years of age who could milk and were available	*No.*	1.9	2.8	2.0	2.2	3.1	2.7
Farmers owning tractor	*Pct.*	32	17	31	10	0	5
Cows for milk	*No.*	2.6	2.3	2.6	1.6	1.0	1.3
Farmers reporting cows for milk	*Pct.*	89	83	88	86	62	73
Dairy heifers 1 year and over	*No.*	1.4	.5	1.4	.4	.3	.4
Dairy heifer calves raised	*No.*	1.4	1.5	1.4	.7	.5	.6
Beef cows	*No.*	2.1	.0	2.0	.3	.1	.2
Calves vealed or raised for beef	*No.*	2.5	.5	2.4	.6	.2	.4
Use beef bulls on dairy cows	*Pct.*	50	17	49	38	35	36
Milk sold per day	*Gal.*	2.6	1.0	2.5	.8	.4	.6
Farmers reporting milk sold	*Pct.*	29	33	29	14	9	11
Milk used in house per person per day	*Pt.*	2.9	2.1	2.9	2.5	1.9	2.2
Production per cow	*Lb.*	4,334	2,992	4,288	4,224	4,443	4,324
Cotton	*Ac.*	5	6	5	5	14	10
Farmers reporting cotton	*Pct.*	42	83	44	76	100	89
Corn	*Ac.*	10	6	10	11	12	12
Winter grazing, 1950-51	*Ac.*	7	2	6	1	1	1
Open permanent pasture	*Ac.*	21	13	21	9	5	7
Hay put up, 1950	*T.*	3.4	2.6	3.4	3.3	.9	2.0
Feed purchased for dairy cows	*T.D.N.*	2,882	1,124	2,818	968	185	546
Forage crops	*Ac.*	49	30	49	17	11	14
Proportion of land in forage crops	*Pct.*	46	43	46	25	14	19

[1] Tenure of 1 farm operator and color of 2 were not reported.

Similar differences associated with tenure as discussed above, though in some cases not as pronounced, existed between owners and tenants who sold milk in 1951 (Appendix Table 15).

COMPARISONS *and* FUTURE SALES

Those selling milk for manufacturing purposes in the spring of 1952 in addition to those not selling were asked several questions related to sales and possibilities for increased sales. Farmers' opinions or estimates were recorded and are presented in this section.

1951 Compared to 1950, and 1952 Compared to 1951

Only 42 per cent of the 46 patrons stated that the amount of milk they sold in 1951 was greater than the amount sold in 1950 (Table 18). Fifty-eight per cent said that they would sell more in 1952 than 1951. Probably one reason for less than half the patrons reporting increases in 1951 was due to the severe winter in 1950-51. Also, much of the anticipated increase in 1952 may not have materialized due to an extremely dry summer and fall.

According to a record of sales by farmers to the milk plant, sales in 1951 were 15 per cent less than in 1950. In 1952, sales increased 17 per cent over the amount sold in 1951 and were approximately the same as those in 1950.

TABLE 18. PATRONS' ESTIMATE OF AMOUNT OF MILK SOLD IN 1951 COMPARED TO 1950 AND 1952 COMPARED TO 1951, 46 SELLERS OF MANUFACTURING MILK, PIEDMONT AREA OF ALABAMA

Patrons' estimate of amount sold	Proportion reporting	
	1951 compared to 1950	1952 compared to 1951
	Per cent	*Per cent*
Much more	26	20
Some more	16	38
About same	26	38
Some less	29	2
Much less	3	2

Most of the patrons who reported increased sales in 1951 and 1952 added cows to their herds or were able to increase feed production. A number of farmers said that they had better cows than previously. Those reporting decreased sales mentioned weather with its resulting feed shortages. In addition, several patrons reported that the shortage of labor and increased opportunities for work off the farm were causes contributing to decreased sales.

Reasons for Differences in Sales

Reasons reported for patrons not selling more milk and for non-patrons not selling milk for manufacture were similar. Both groups said that too few cows, low producers, lack of feed and facilities, or a combination of these things, were responsible for their not selling milk or not increasing sales (Table 19).

Financial problems of acquiring good cows were mentioned in several cases. Lack of labor was the second most important reason given by patrons for not having greater sales. Apparently lack

TABLE 19. REASONS REPORTED FOR PATRONS NOT SELLING MORE MILK AND NON-PATRONS NOT SELLING MILK FOR MANUFACTURE, 193 FARMS ON MILK ROUTES, PIEDMONT AREA OF ALABAMA, 1952

Reason reported	Proportion reporting	
	46 patrons	147 non-patrons
	Per cent	*Per cent*
Too few cows, low producing cows, or lack of land, pasture, feed, and facilities	37	39
Lack of labor	13	3
Price received for milk too low	11	7
Age, disability, or bad health	4	7
Work off farm more profitable	2	8
Other farm enterprises more profitable[1]	2	7
Not interested	0	8
Combination of reasons listed	0	9
Other	0	1
Not reported	31	11

[1] Only 1 patron and 10 non-patrons reported beef cattle production or selling of veal calves as reasons for not selling more or not selling milk.

of labor was not as important with non-patrons. A fairly small proportion of each group specifically mentioned prices received for milk as a reason for not selling or increasing sales. However, there is considerable evidence that farmers considered the production of milk for manufacture as a low profit enterprise. Fifteen per cent of the patrons and 22 per cent of the non-patrons gave reasons concerning profitableness (price too low, work off farm more profitable, and other farm enterprises more profitable). In addition, many famers probably did not acquire good cows and develop pastures because they felt that resulting profits would be low.

The major reason given by past patrons for not continuing to sell milk was that they did not have milk in excess of that required for home use:

REASON REPORTED	PROPORTION REPORTING
	Per cent
Not enough milk to sell[1]	25
Lack of labor or labor difficulties	19
Price of milk too low	17
Beef cattle production more profitable	8
Milk route discontinued or moved	6
Quit to sell Grade A milk	3
Combination of reasons above	14
Reason not reported	8

[1] Due to dry cows, low producers, lack of feed and pasture, and in one case, due to cows eating objectionable weeds and mushrooms.

Only 6 out of 22 owners[11] with tenants or croppers encouraged the sale of milk. A total of 61 tenants and 3 croppers were included in the study. Twenty-six per cent of the tenants and croppers reported that their landlord encouraged them to sell milk.

Reasons why owners encouraged their tenants or croppers to sell milk were primarily "to increase income," "labor and know-how are available to supervise and assist tenants," and "helps make for more stable tenure." The chief reasons given for not encouraging the sale of milk were "other enterprises more profitable," "no interest by the tenant," and "landlord not able to finance."

Twenty-one out of 49 tenants and croppers stated that they wanted to sell manufacturing milk in order to acquire additional income. Eight of these were encouraged by their landlord to sell milk. About half the tenants and croppers said that they did not want to sell manufacturing milk for these reasons:

Reason reported	Proportion reporting
	Per cent
No cows, too few cows, or lack of feed	47
Short on labor and work off farm more attractive	21
Poor health, age, or disability	12
Not interested in selling milk	12
Other farm enterprises more profitable	4
Plan to move off milk route	4

These reasons were very similar to those reported by past patrons for not continuing to sell milk; however, the number one reason is more pronounced with tenants and croppers. Also, a somewhat larger proportion of tenants and croppers were not interested in selling milk.

Tenants and landlords face numerous problems in the production and sale of milk. One of the biggest problems centers in financing the dairy enterprise together with an ample acreage of forage crops and pasture. Sixty per cent of the tenants and croppers compared to 18 per cent of the owners stated that their chief problems concerned "no cows, too few cows, low producers, cows too high in price, or not financially able to buy cows or improve pasture" (Table 20). A much larger proportion of owners than tenants or croppers did not report a problem or stated that they had no problems in connection with selling manufacturing milk.

[11] In total, 165 out of 230 farmers included in the study were owner operators.

TABLE 20. PROBLEMS IN SELLING MANUFACTURING MILK AS REPORTED BY 22 OWNERS WITH TENANTS OR CROPPERS AND 49 TENANTS OR CROPPERS ON MILK ROUTES, PIEDMONT AREA OF ALABAMA, 1952

Problem	Proportion reporting	
	Owners	Tenants or croppers
	Per cent	*Per cent*
No cows, too few cows, low producers, cows too high in price, or not financially able to buy cows or improve pasture	18	60
No problems or not reported	58	22
Short on labor and work off farm more attractive	0	2
Poor health, age, or disability	5	2
Not interested in selling milk	9	0
Other farm enterprises more profitable	5	2
Unstable tenure	5	2
Not enough land	0	2
Milk too cheap	0	2
Combination of problems listed	0	6

Almost all of the tenants and croppers who wanted to sell milk gave as their problem the first item in Table 20.

Future Sales

Out of 37 past patrons, 18 said that they would consider selling milk for manufacture in the future. Forty-four of 147 non-patrons indicated their willingness to sell manufacturing milk. In total, 34 per cent of the farmers not selling milk for manufacture in the spring of 1952 said that they would consider selling.[12]

This would amount to a 135 per cent increase over 1951 in number of patrons. A comparable increase in quantity of milk sold might be expected if new sellers averaged selling about the same amount per year as present patrons. However, all those who said that they would consider selling did not give a definite date as to when they could start (Table 21). Half of the potential sellers said that the date was indefinite or did not report when they could start selling. Fifteen[13] of the 62 potential sellers said that they would start in 1952. Based on the sample, this would amount to a 33 per cent increase in number of patrons over 1951. Actually, the average number of patrons increased only 6 per cent

[12] In 1948, a study of farms along a milk route in the Piedmont and Upper Coastal Plains areas of Alabama indicated that 22 per cent of the non-patrons planned to sell milk in the near future.

[13] None of the 15 were past patrons.

TABLE 21. TIME REPORTED WHEN 62 POTENTIAL SELLERS COULD START SELLING MILK FOR MANUFACTURE, PIEDMONT AREA OF ALABAMA, 1952

When could start selling milk	Proportion reporting
	Per cent
1952	24
1953	16
As soon as pasture developed, get cows, or additional help	8
As soon as price of milk increases	2
Indefinite or not reported	50

from 1951 to 1952 while volume of milk sold increased 12 per cent.

No doubt, the actual increase in number of patrons was less than that reported due to the extremely dry summer of 1952. During January and February, 1953, number of patrons increased an average of 13 per cent over the same months in 1952. Sales for January and February, 1953, were 14 per cent above those of January and February, 1952.

As for the long-time increase in number of patrons and sales, reasonable growth may be expected. From 1946 through 1950 a steady upward trend prevailed in total sales (Figure 2). In the future, increases in sales probably will not be as great proportionally as those which have occurred in the past.

A number of things that could be done to help sellers sell more milk and to help non-sellers start selling were reported (Table 22). The chief measure suggested was assistance, usually financial, in getting more cows or better cows, facilities, machinery, equipment, labor, and feed, including pastures. This points up the need for bankers and others in the finance field to work closely with farmers interested in dairying.

TABLE 22. THINGS REPORTED WHICH CAN BE DONE TO HELP SELLERS SELL MORE MILK AND NON-SELLERS GET STARTED SELLING MILK, 230 FARMS ON MILK ROUTES, PIEDMONT AREA OF ALABAMA, 1952

Item reported	Proportion reporting	
	Sellers	Non-sellers
	Per cent	*Per cent*
Assistance in getting more or better cows, facilities, machinery, equipment, labor and feed, including pasture[1]	30	21
Nothing or don't know what can be done	17	20
Raise price of milk	11	2
Provide additional "know how" or stimulation	0	1
Combination of items listed	4	3
Not reported	38	53

[1] Usually reported as financial assistance.

TABLE 23. ADVANTAGES OF SELLING MILK FOR MANUFACTURE AS REPORTED BY 46 PATRONS ON MILK ROUTES, PIEDMONT AREA OF ALABAMA, 1952

Advantage reported	Proportion of patrons reporting
	Per cent
Means of increasing income	47
Source of regular income	32
Way of marketing surplus milk	9
Not reported	12

Of second importance was the fact many farmers did not know what could be done to increase sales. Apparently this group, in addition to those not reporting, were not interested in greater sales of milk. A smaller precentage of patrons than non-patrons indicated that nothing could be done, they did not know what could be done, or they did not report what could be done to increase sales or to get non-sellers started selling.

Apparently, most patrons[14] realize the advantages (Table 23) of selling manufacturing milk. The most important advantages were that selling manufacturing milk afforded a means of increasing income and provided a source of regular income.

SUMMARY *and* CONCLUSIONS

Summary

This study is mainly an analysis of farm organization as it relates to the production and sale of milk for manufacture in Alabama's Piedmont Area. Data were obtained from 230 farmers and 153 non-farm rural residents on milk routes. Also, information on trends and growth of the manufacturing milk industry in the area, prices received for manufacturing milk, farmer's attitudes and opinions regarding the sale of milk, and future plans are included.

During the past several years many changes have taken place in the Piedmont's agriculture. Number of tenants decreased 47 per cent from 1940 to 1950. Most of this decrease was accounted for in the decline of share tenants and croppers. The proportion of farms producing cotton decreased from 92 per cent in 1940 to 60 per cent in 1950. Acreages of both cotton and corn declined during this period while total land pastured increased 11 per cent. Little change occurred in number of milk cows on farms. Rural

[14] Only 6 out of 46 patrons failed to report an advantage in selling manufacturing milk.

farm population dropped 35 per cent while rural non-farm population increased 34 per cent from 1940 to 1950.

According to the sample of farms studied, 2 residents out of 5 along milk routes in the Piedmont were non-farm. These people worked in textile mills, wood or lumber industries, and various other kinds of industries. Fourteen per cent were retired, disabled, or pensioned.

Only 1 out of 5 farmers on milk routes sold manufacturing milk in the spring of 1952. Therefore, out of all residents on milk routes only 1 out of slightly more than 8 sold milk. Sixteen per cent of the farmers had sold milk for manufacture prior to 1952, and 64 per cent had never sold milk for manufacture.

Patrons of the milk plant in the Piedmont Area sold an average of 7.1 gallons of whole milk per day in 1951. This was 80 per cent of total production. Very little butter and no cream were reported sold by patrons, past patrons, or non-patrons. An average of 2.7 pints of milk per person per day was used in the home.

Patrons reported an average of almost 6 cows kept primarily for milk, past patrons 2, and non-patrons 1, in 1951. Average annual production per cow for the three groups was 5,171, 4,933, and 3,841 pounds of milk, respectively. In general, livestock numbers were greatest on farms of patrons and past patrons. The greatest average number of beef cows was on farms of past patrons even though only one-third of this group reported beef cows.

Patrons had the greatest proportion of their land in hay or grazing crops. Past patrons and non-patrons had an average of almost 3.5 acres more cotton than patrons. Sericea lespedeza and winter grazing crops, including oats, accounted for the greatest average acreage of forage crops on all farms. Only 22 per cent of the patrons reported alfalfa. Crop yields were highest on farms of patrons.

Fifty-seven per cent of the farmers reported breeding their dairy cows to beef-type bulls. Only 44 per cent of the patrons reported this practice compared to 70 per cent of the past patrons and 58 per cent of the non-patrons. Only 10 per cent of all farmers with dairy cows were using artificial breeding.

There was little difference between groups of farms in amount of hay put up in 1950 per forage-consuming animal unit; the over-all average was 0.5 ton.

Sixty per cent of the farmers purchased feed for dairy cows. One-fourth of the digestible nutrients purchased was hay. In

total, patrons purchased about half as much feed per dairy cow as past or non-patrons.

There was little difference between groups in average number of persons over 12 years of age who could milk and who were regularly available. However, work off the farm by members of patron families averaged 3.9 months compared to 7.0 months for past patrons and 5.6 months for non-patrons in 1951.

A considerably larger proportion of patrons and past patrons were owner operators than were non-patrons. In all, 72 per cent of all farmers in the sample were owner operators. Only 40 out of 230 farmers in the sample were colored. Three-fourths of the colored farm operators were tenants and non-patrons. Only 12 per cent of the colored farmers sold milk in 1951.

Total sales of manufacturing milk, number of patrons, and sales per patron to the milk plant in the area increased in all years from 1946 to 1952 except in 1951. Over this 7-year period, a 10 per cent average annual increase in sales prevailed. Number of patrons increased 48 per cent and pounds of milk sold per patron increased 46 per cent from 1946 to 1952. As an average, sales for the months of May through August made up 47 per cent of total sales as compared with 22 per cent for November through February. May has been the month of highest total sales; January and February have been the lowest months in sales. June and July have been months of greatest number of patrons; January and February have had the fewest patrons. Sales per patron did not differ greatly from November through February. As an average for 7 years, the peak in sales per patron occurred in May which was 1.8 times the sales per patron for the months of November through February.

The trend in prices which Piedmont farmers received for manufacturing milk was upward from 1950 through 1952. These prices also increased relative to prices paid for beef cattle and prices paid for fluid milk.

Number of cows kept primarily for milk and average production per cow were the two most important variables associated with sales of manufacturing milk. Acres in open permanent pasture was the most important factor associated with number of dairy cows, whereas quantity of roughages purchased was most closely associated with average production per cow in 1951.

As size of farms increased, livestock numbers, including dairy cows, increased. The average acreage of corn, forage crops, and

open permanent pasture as well as the percentage of land in forage crops increased with size of farm.

Total labor available for work on the farm did not appear to be as closely related to the sale of milk as did several other factors. Thirty-five per cent of the farm operators worked off the farm 3 or more months in 1951. These sold an average of 1.2 gallons of milk per day compared to an average of 2.4 gallons per day sold by operators who worked off the farm less than 3 months.

The most important reasons reported for patrons not selling more milk, non-patrons not selling, and for past patrons not continuing to sell milk were lack of cows, low producing cows, and lack of land, pasture, feed, and facilities. In total, 34 per cent of the farmers not selling milk for manufacture in the spring of 1952 said that they would consider selling. Half of these did not report a date on which they would try to start selling milk. Twenty-four per cent said they would start in 1952 and 16 per cent stated that they would start in 1953.

Conclusions

1. Although rather drastic adjustments in types of farming have taken place in the Piedmont Area during the past several years, still further changes appear probable and desirable. Production of milk for manufacture is an important farm enterprise on many farms in the area. Increasing importance of this enterprise will depend, to a large extent, on alternative uses of roughages produced and opportunities for off-farm employment.

2. Farms in the area from which manufacturing milk is being sold are above average in size. These farms have a larger acreage of crops and pasture, a greater number of livestock, and make higher yields than most farms in the area. A larger than average percentage of these farms have tractors. However, livestock farming is relatively new to many farmers in this group. Better organization of farms and more efficient operators are possible in many cases. In order to produce and sell milk at prices comparable with those received for manufacturing milk by farmers in such surplus milk-producing states as Wisconsin and Minnesota, Alabama's Piedmont farmers must become low-cost producers. The greatest opportunities for becoming more efficient appear to be from (1) increasing size of the dairy herd, (2) keeping only cows with a high level of production, (3) providing increased

quantities of forage and roughages, and (4) improving work methods and use of labor.

3. Over the 7-year period during which sales of manufacturing milk were studied, there is evidence that fluctuations in number of farmers selling milk to the milk plant have decreased. Opportunity exists for further progress in achieving more nearly year-round, uniform production per patron selling milk. Field representatives of the milk plant and others working with farmers in the area can assist and encourage dairymen to adopt good practices and, in general, make their dairy enterprises more profitable.

4. For most profitable operation of a milk plant, a relatively large volume of milk must be produced and sold in a given area. Farmers producing and selling milk must be fairly concentrated on milk routes. At present, this is not the case in the Piedmont Area as indicated by the survey – 1 seller of manufacturing milk out of 8 resides on the milk routes, as an average. Therefore, considerable effort seems justified toward achieving more concentrated production.

5. Potential producers as well as present producers of manufacturing milk face numerous problems. Assistance, usually financial, in getting additional cows or better cows, facilities, machinery, labor, and feed, including pastures, was most often reported by farmers as necessary on their part for production or for greater production of milk. This points up the need for bankers and various representatives of credit agencies to work closely with farmers who have farms adapted to dairying and who have the managerial ability and desire to make dairying one of their major farm enterprises.

APPENDIX

APPENDIX TABLE 1. IMPORTANT CHANGES IN PIEDMONT AREA OF ALABAMA FROM 1940 TO 1950[1]

Item	Unit	1940	1950	Percentage change
Farms	*Number*	29,025	24,891	–14
Nonwhite farm operators	*Number*	9,770	7,340	–25
Tenants	*Number*	16,934	8,988	–47
Tenants of all farm operators	*Per cent*	58	36	
Share tenants and croppers	*Number*	9,188	4,885	–47
Cropland harvested	*Acres*	895,981	536,560	–40
Total land pastured	*Acres*	856,213[2]	954,201	11
Cotton	*Acres*	255,685	161,644	–37
Farms reporting cotton	*Per cent*	92	60	
Corn	*Acres*	464,560	259,867	–44
All hay (excluding sorghum hay)	*Acres*	55,631	48,714	–12
Farms with tractors	*Per cent*	1	11	
All cattle and calves	*Number*	94,672	134,098	42
Farms reporting cattle and calves	*Per cent*	82	76	
Milk cows	*Number*	44,944	43,764	–3
Farms reporting milk cows	*Per cent*	80	70	
Hogs	*Number*	61,778	69,649	13
Total population	*Persons*	273,538	268,919	–2
Rural farm population	*Persons*	168,355	110,200	–35
Rural non-farm population	*Persons*	64,087	86,135	34
Rural farm persons per farm	*Persons*	5.8	4.4	–24
Employed workers in agriculture	*Persons*	44,794	25,704	–43
Proportion of total employed, employed in agriculture	*Per cent*	48	27	
Proportion of rural farm population employed, employed in agriculture	*Per cent*	81	61	

[1] Census data for 1940 and 1950. Counties included were Chambers, Chilton, Clay, Cleburne, Coosa, Elmore, Lee, Macon, Randolph, and Tallapoosa.

[2] For 1945. Comparable figures to those reported in 1950 could not be obtained from the 1940 Census.

APPENDIX TABLE 2. LIVESTOCK ORGANIZATION ACCORDING TO PATRON STATUS, 230 FARMS ON MILK ROUTES, PIEDMONT AREA OF ALABAMA, 1951

Kind of livestock or poultry	46 patrons		37 past patrons		147 non-patrons	
	Proportion of farms reporting	Average number per farm	Proportion of farms reporting	Average number per farm	Proportion of farms reporting	Average number per farm
	Pct.	*No.*	*Pct.*	*No.*	*Pct*	*No.*
All dairy cows	100	6.5	97	4.6	77	1.5
Dairy cows mainly for milk	100	5.7	95	2.4	76	1.0
Dairy cows mainly to nurse calves	24	.8	41	2.2	15	.5
Dairy heifers 1 year old and over	72	2.5	57	1.9	31	.4
Dairy heifer calves	76	2.6	59	1.8	36	.6
Raised from own cows	76	2.5	59	1.6	34	.5
Purchased	49	.1	5	.2	5	.1
Beef cows	28	.9	32	2.6	12	1.4
Calves vealed or raised for beef	61	2.5	57	3.2	27	1.2
From own cows	59	2.0	57	2.9	27	1.2
Purchased	13	.5	8	.3	1	[1]
Weaned beef feeders bought	2	.1	8	.4	0	.0
Brood sows	30	.4	22	.5	15	.2
Pigs raised	54	3.6	54	5.2	54	2.3
Laying hens	93	57	92	24	87	26
Chickens raised	52	53	57	38	53	22
Broilers raised	26	1,154	19	115	10	33

[1] Less than 0.1.

APPENDIX TABLE 3. LAND USE ACCORDING TO PATRON STATUS, 230 FARMS ON MILK ROUTES, PIEDMONT AREA OF ALABAMA, 1951

Crop or land use	46 patrons		37 past patrons		147 non-patrons	
	Proportion of farms reporting	Average area per farm	Proportion of farms reporting	Average area per farm	Proportion of farms reporting	Average area per farm
	Pct.	*Acres*	*Pct.*	*Acres*	*Pct.*	*Acres*
Cotton	59	4.0	51	7.8	57	7.0
Corn	89	12.9	70	11.4	83	9.5
Grain sorghum	20	.6	5	.2	5	[1]
Alfalfa	22	.7	11	.2	2	[1]
Kudzu	41	2.8	22	1.6	19	1.2
Sericea	67	5.0	59	5.8	24	2.0
Oats (1950-51)	48	3.0	38	2.1	23	1.6
Other winter grazing (1950-51)	65	6.0	38	3.3	18	1.7
Truck crops (garden)	93	2.5	89	1.6	74	1.3
Other crops	28	1.2	14	1.6	18	.6
Total crops	98	38.7	92	35.6	97	24.9
Double cropped	39	4.2	11	1.6	11	2.0
Acres in crops	98	34.5	92	34.0	97	22.9
Idle cropland	28	4.4	54	14.8	52	8.5
Open permanent pasture	98	24.0	89	23.9	71	12.6
Woods pasture	93	28.9	84	27.1	64	21.6
All other	50	14.6	46	10.3	47	6.7
ACRES OPERATED	100	106.4	100	110.1	100	72.3

[1] Less than 0.1 acre.

APPENDIX TABLE 4. COMPARISON OF BREEDING, HAY, AND GRAZING CROP PRACTICES BY PATRON STATUS, 230 FARMS ON MILK ROUTES, PIEDMONT AREA OF ALABAMA, 1952

Practice	Unit	46 patrons	37 past patrons	147 non-patrons
Farmers using beef bulls on dairy cows	*Per cent*	44	70	58
Farms using artificial breeding	*Per cent*	13	14	6
Hay put up in 1950:				
Farmers reporting	*Per cent*	72	57	34
Average per farm	*Tons*	4.9	4.2	2.0
Average per forage-consuming animal unit	*Tons*	.6	.5	.6
Farmers reporting this amount "enough"	*Per cent*	88	71	70
Winter grazing crops planted, 1950-51:				
Farmers reporting	*Per cent*	76	59	9
Average per farm	*Acres*	9.0	5.4	3.3
Average per forage-consuming animal unit	*Acres*	1.0	.6	1.0
Proportion of total crop acres	*Per cent*	26	16	14
Winter grazing crops planted, 1951-52:				
Farmers reporting	*Per cent*	74	62	24
Average per farm	*Acres*	7.8	5.9	3.7
Average per forage-consuming animal unit	*Acres*	.9	.7	1.2
Proportion of total crop acres	*Per cent*	23	18	16
Applying lime, slag, or phosphate on permanent pasture in past 5 years:				
Farmers reporting	*Per cent*	41	43	19
Average area covered per farm	*Acres*	5.7	4.0	4.2
Part covered	*Per cent*	24	17	33
Fertilizing permanent pasture in 1951:				
Farmers reporting	*Per cent*	33	22	12
Average area per farm	*Acres*	3.1	2.9	1.7
Part fertilized	*Per cent*	13	12	13
Seeding permanent pasture in past 5 years:				
Farmers reporting	*Per cent*	52	46	18
Average area per farm	*Acres*	6.0	3.6	3.4
Part seeded	*Per cent*	25	15	27
Mowing permanent pasture in 1951:				
Farmers reporting	*Per cent*	26	8	6
Average area per farm	*Acres*	4.7	.9	2.7
Part mowed	*Per cent*	20	4	21

APPENDIX TABLE 5. FEED PURCHASES FOR DAIRY COWS ACCORDING TO PATRON STATUS, 230 FARMS ON MILK ROUTES, PIEDMONT AREA OF ALABAMA, 1951

Feed purchased	Unit	46 patrons	37 past patrons	147 non-patrons
Dairy ration:				
Farmers reporting	*Per cent*	24	22	22
Average per farm	*Pounds*	737	1,668	288
Average per dairy cow	*Pounds*	114	359	191
Cottonseed meal or soybean meal:				
Farmers reporting	*Per cent*	61	43	33
Average per farm	*Pounds*	1,341	1,351	478
Average per dairy cow	*Pounds*	208	291	316
Cottonseed hulls:				
Farmers reporting	*Per cent*	13	14	14
Average per farm	*Pounds*	465	435	312
Average per dairy cow	*Pounds*	72	94	207
Corn:				
Farmers reporting	*Per cent*	15	11	9
Average per farm	*Bushels*	16	10	6
Average per dairy cow	*Bushels*	2.5	2.2	3.9
Total concentrates purchased:				
Farmers reporting	*Per cent*	78	59	48
Average per farm	*Pounds*	2,737	4,204	1,517
Average per dairy cow	*Pounds*	579	904	1,005
Hay purchased:				
Farmers reporting	*Per cent*	17	14	15
Average per farm	*Pounds*	1,141	3,054	869
Average per dairy cow	*Pounds*	177	657	576
All feed purchased:				
Farmers reporting	*Per cent*	80	68	52
Average per farm	*T.D.N.*[1]	3,013	4,208	1,375
Average per dairy cow	*T.D.N.*	467	905	911

[1] Total digestible nutrients. Pounds of feed were converted to a T.D.N. basis by assuming concentrates to be 70 per cent T.D.N. and hay and cottonseed hulls 45 per cent T.D.N.

APPENDIX TABLE 6. AMOUNT OF FEED PURCHASED FOR DAIRY COWS BY KIND OF FEED, ALL FARMS AND PATRONS ON MILK ROUTES, PIEDMONT AREA OF ALABAMA, 1951

Kind of feed	46 patrons			230 farms		
	Total amount		Proportion of total T.D.N.	Total amount		Proportion of total T.D.N.
	Pounds	*T.D.N.*	*Per cent*	*Pounds*	*T.D.N.*	*Per cent*
Cottonseed meal or soybean meal	61,700	43,190	31	181,900	127,330	26
Hay	52,500	23,625	17	293,300	131,985	26
Corn	54,900	38,430	28	147,300	103,110	21
Dairy ration	33,912	23,738	17	137,912	96,538	19
Cottonseed hulls	21,400	9,630	7	83,400	37,530	8
Total	224,412	138,613	100	843,812	496,493	100
Average per farm	4,879	3,013	--	3,669	2,159	--
Average per dairy cow	756	467	--	1,221	719	--
Concentrates	150,512	105,358	76	467,112	326,978	66
Average per farm	3,272	2,290	--	2,031	1,422	--
Average per dairy cow	507	355	--	676	473	--
Hay and cottonseed hulls	73,900	33,255	24	376,700	169,515	34
Average per farm	1,607	723	--	1,638	737	--
Average per dairy cow	249	112	--	545	246	--

APPENDIX TABLE 7. PROPORTION OF FARMERS REPORTING MACHINERY AND EQUIPMENT AVAILABLE ACCORDING TO PATRON STATUS, 230 FARMS ON MILK ROUTES, PIEDMONT AREA OF ALABAMA, 1952

Machinery and equipment	46 patrons		37 past patrons		147 non-patrons	
	Owned	Hired or rented	Owned	Hired or rented	Owned	Hired or rented
	Pct.	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*
Tractor	35	28	35	27	17	26
Tractor plow	35	28	35	24	17	25
Tractor disk harrow	35	26	35	27	16	25
Fertilizer spreader	13	7	6	16	9	11
Mowing machine	52	17	43	8	19	16
Hay rake	44	17	43	8	18	13
Roller or cultipacker	7	2	11	0	5	1
Grain drill	2	4	5	3	4	3
Combine	2	4	3	0	1	3
Milking machine	4	2	5	0	0	0

APPENDIX TABLE 8. LABOR SUPPLY AND PERSONNEL ACCORDING TO PATRON STATUS, 230 FARMS ON MILK ROUTES, PIEDMONT AREA OF ALABAMA, 1951

Item	Unit	46 patrons	37 past patrons	147 non-patrons
Average size of family	*No.*	4.1	3.8	4.2
Persons over 12 years of age in family:				
Average per farm	*No.*	3.2	2.9	2.9
Who could milk and were regularly available:				
Farms reporting	*Pct.*	91	89	86
Average per farm	*No.*	2.3	2.3	2.1
Work off farm by head of family:				
Farms reporting	*Pct.*	30	43	44
Average time per year	*Mo.*	2.5	3.8	3.8
Work off farm by any member of family:				
Farms reporting	*Pct.*	37	57	48
Average time per year	*Mo.*	3.9	7.0	5.6
Labor available for work on farm	*M.E.*[1]	2.5	2.1	2.1
Average age of farm operator	*Yr.*	49	48	50
Average time lived on this farm	*Yr.*	16	24	10

[1] Man-equivalent—all labor available in terms of work 1 man can do on a full-time basis.

APPENDIX TABLE 9. NUMBER OF MONTHS' WORK OFF THE FARM ACCORDING TO PATRON STATUS, 230 FARMS ON MILK ROUTES, PIEDMONT AREA OF ALABAMA, 1951

Patron status and range in total months' work off farm	Head of family		Other members of family		Total	
	Number of farms reporting	Average number of months	Number of farms reporting	Average number of months	Number of farms reporting	Average number of months
	Number	*Number*	*Number*	*Number*	*Number*	*Number*
Patrons:						
Less than 2	3	1.0	0	0.0	3	1.0
2-8	0	.0	1	2.0	1	2.0
9 and over	11	10.3	5	12.6[1]	13	13.5[1]
Total or average	14	8.3	6	10.8	17	10.6
Average for 46 farms		2.5		1.4		3.9
Past patrons:						
Less than 2	0	0.0	0	0.0	0	0.0
2-8	4	6.2	1	3.0	5	5.6
9 and over	12	9.8	10	11.3	16	14.4[1]
Total or average	16	8.9	11	10.5	21	12.3
Average for 37 farms		3.8		3.2		7.0
Non-patrons:						
Less than 2	3	1.3	0	0.0	3	1.3
2-8	16	4.6	2	3.5	17	4.7
9 and over	45	10.5	21	12.3[1]	51	14.5[1]
Total or average	64	8.7	23	11.5	71	11.6
Average for 147 farms		3.8		1.8		5.6
All farms:						
Less than 2	6	1.2	0	0.0	6	1.2
2-8	20	4.9	4	3.0	23	4.8
9 and over	68	10.5	36	10.6	80	14.3[1]
Total or average	94	8.7	40	11.2	109	11.6
Average for 230 farms		3.6		1.9		5.5

[1] More than 1 member of family working off the farm and number of months worked were such that averages were greater than 12 months.

APPENDIX TABLE 10. TENURE OF FARMERS ACCORDING TO PATRON STATUS, 230 FARMS ON MILK ROUTES, PIEDMONT AREA OF ALABAMA, 1952

Tenure	46 patrons		37 past patrons		147 non-patrons	
	Number	Proportion	Number	Proportion	Number	Proportion
	Number	*Per cent*	*Number*	*Per cent*	*Number*	*Per cent*
Owner	41	89	32	87	92	63
Cash or standing rent tenant	4	9	3	8	21	14
Share tenant	1	2	2	5	30	21
Cropper	0	0	0	0	3	2
TOTAL	46	100	37	100	146[1]	100

[1] Tenure for 1 non-patron was not reported.

APPENDIX TABLE 11. TENURE AND COLOR OF FARM OPERATORS ACCORDING TO PATRON STATUS, 230 FARMS ON MILK ROUTES, PIEDMONT AREA OF ALABAMA, 1952

Tenure and color	46 patrons	37 past patrons	147 non-patrons	All
	Number	*Number*	*Number*	*Number*
Owners:				
White	39	31	88	158
Colored	2	1	3	6
Total	41	32	91[1]	164[1]
Tenants:				
White	3	3	23	29
Colored	2	2	30	34
Total	5	5	53[1]	63[1]
Owners and tenants:				
White	42	34	112	188
Colored	4	3	33	40
TOTAL	46	37	145[1]	228[1]

[1] Tenure not reported for 1 non-patron and color not reported for 1 owner and for 1 tenant who were non-patrons.

APPENDIX TABLE 12. RELATIONSHIP OF ACRES OPERATED TO FARM ORGANIZATION AND PRACTICES, 230 FARMS ON MILK ROUTES, PIEDMONT AREA OF ALABAMA, 1951

Item	Unit	Acres operated			All farms
		Less than 50	50-100	101 or more	
Farms	*No.*	83	87	60	230
Proportion of all farms	*Pct.*	36	38	26	100
Average size	*Ac.*	28	71	184	85
Owner operators	*Pct.*	53	78	88	72
Time operator on this farm	*Yr.*	11	11	21	14
Farmers owning tractor	*Pct.*	7	24	45	23
Men to work on farm	*M.E.*	2.0	2.1	2.5	2.2
Work off farm	*M.E.*	.5	.4	.4	.5
Persons over 12 years of age who could milk and were available	*No.*	2.2	2.1	2.2	2.2
Cotton	*Ac.*	5	5	10	6
Farms producing cotton	*Pct.*	59	60	48	57
Corn	*Ac.*	7	10	15	10
Forage crops[1]	*Ac.*	9	30	94	39
Land in forage crops	*Pct.*	31	42	51	46
Land in crops	*Ac.*	16	24	46	27
Proportion of land in crops	*Ac.*	56	34	25	32
Open permanent pasture	*Ac.*	5	14	37	17
Proportion of land in open perm. pasture	*Pct.*	16	19	20	20
Idle cropland	*Ac.*	3	8	18	9
Proportion idle cropland is of total	*Pct.*	9	12	10	10
Dairy cows	*No.*	1.4	2.7	5.6	3.0
Farms reporting dairy cows	*Pct.*	70	91	97	85
Dairy cows mainly for milk	*No.*	1.0	2.3	3.7	2.2
Dairy heifers 1 year old and over	*No.*	.5	1.1	2.0	1.1
Dairy heifer calves raised	*No.*	.6	1.4	1.6	1.2
Beef cows	*No.*	.1	1.0	4.3	1.5
Farms reporting beef cows	*Pct.*	2	25	30	18
Farmers using beef bulls on dairy cows	*Pct.*	36	48	52	45
Calves vealed or raised for beef	*No.*	.5	1.5	4.1	1.8
Brood sows	*No.*	.2	.3	.4	.3
Hens	*No.*	20	31	49	32
Hay put up in 1950	*T.*	.6	2.7	6.6	3.0
Farms reporting hay put up in 1950	*Pct.*	24	52	65	45
Winter grazing crops, 1950-51	*Ac.*	1	4	11	5
Farms reporting winter grazing crops, 1950-51	*Pct.*	23	53	63	45
Winter grazing crops, 1951-52	*Ac.*	1	15	12	5
Farms reporting winter grazing crops, 1951-52	*Pct.*	17	49	62	41

(Continued)

APPENDIX TABLE 12 *(Continued).* RELATIONSHIP OF ACRES OPERATED TO FARM ORGANIZATION AND PRACTICES, 230 FARMS ON MILK ROUTES, PIEDMONT AREA OF ALABAMA, 1951

Item	Unit	Acres operated			All farms
		Less than 50	50-100	101 or more	
Feed purchased for dairy cows:					
Concentrates—Amount	*T.D.N.*	426	1,347	2,907	1,422
Farmers reporting	*Pct.*	42	60	68	56
Roughages—Amount	*T.D.N.*	120	675	1,681	737
Farmers reporting	*Pct.*	23	29	25	26
Concentrates and roughages—Amount	*T.D.N.*	546	2,022	4,588	2,159
Farmers reporting	*Pct.*	47	67	70	60
Proportion hay is of total T.D.N. purchased	*Pct.*	22	33	37	34
Farms reporting milk sold	*Pct.*	10	26	40	24
Milk sold per day	*Gal.*	.4	1.7	4.4	1.9
Production per cow	*Lb.*	3,888	4,354	4,627	4,296

[1] Includes forage crops grown as a crop for hay or grazing in addition to open permanent pasture.

APPENDIX TABLE 13. AGE OF FARM OPERATORS RELATED TO VARIOUS FACTORS, 230 FARMS ON MILK ROUTES, PIEDMONT AREA OF ALABAMA, 1951

Item	Unit	Age of operators			All farms
		Less than 40	40-55	56 and over	
Farm operators	*Number*	57	90	81	228[1]
Average age	*Years*	33	46	65	50
Time on this farm	*Years*	6	11	22	14
Owner operators	*Per cent*	65	69	79	72
Farmers owning tractor	*Per cent*	30	26	15	23
Size of farm	*Acres*	73	86	93	85
Cotton	*Acres*	6	10	3	6
Corn	*Acres*	10	12	8	10
Forage crops[2]	*Acres*	35	36	44	39
All crops	*Acres*	28	30	22	27
Proportion of land in crops	*Per cent*	38	35	24	32
Open permanent pasture	*Acres*	14	16	20	17
Idle cropland	*Acres*	6	7	13	9
Proportion idle cropland is of total	*Per cent*	8	8	14	10
Dairy cows kept for milk	*Number*	1.9	2.7	1.7	2.2
Beef cows	*Number*	1.1	1.5	1.8	1.5
Brood sows	*Number*	.4	.4	.2	.3
Pigs raised	*Number*	3.8	3.4	1.8	3.0
Hens	*Number*	24	37	30	31
Milk sold per day	*Gallons*	1.6	2.8	1.2	1.9
Milk used per person per day	*Pints*	2.8	2.4	3.0	2.7
Milk production per cow	*Pounds*	4,606	4,410	3,970	4,296

[1] Two farmers did not report their ages.
[2] Includes forage crops grown as a crop for hay or grazing in addition to open permanent pasture.

APPENDIX TABLE 14. DIFFERENCES BETWEEN FARMS BY COLOR OF OPERATOR, 230 FARMS ON MILK ROUTES, PIEDMONT AREA OF ALABAMA, 1951

Item	Unit	Averages for farms of		All farms
		White operators	Colored operators	
Farms	*No.*	188	40	228[1]
Size	*Ac.*	92	51	85
Proportion tenants	*Pct.*	15	85	28
Time on this farm	*Yr.*	15	6	14
Labor for work on farm	*M.E.*	2.2	2.6	2.2
Work off farm	*M.E.*	.5	.3	.5
Proportion operators reporting work off farm	*Pct.*	44	28	41
Dairy cows for milk	*No.*	2.4	1.2	2.2
Farms reporting dairy cows	*Pct.*	89	65	85
Dairy heifers 1 year old and over	*No.*	1.3	.3	1.1
Beef cows	*No.*	1.8	.0	1.5
Calves vealed or raised for beef	*No.*	2.2	.3	1.8
Farmers using beef bulls on dairy cows	*Pct.*	48	32	45
Milk sold per day	*Gal.*	2.3	.4	1.9
Farms reporting milk sold	*Pct.*	27	12	24
Milk used in house per person per day	*Pt.*	2.9	1.9	2.7
Production per cow	*Lb.*	4,317	4,164	4,296
Cotton	*Ac.*	5	12	6
Farms reporting cotton	*Pct.*	47	98	57
Winter grazing, 1950-51	*Ac.*	6	1	5
All forage crops[2]	*Ac.*	44	14	39
Proportion of land in forage crops	*Pct.*	48	27	46
Hay put up in 1950	*T.*	3.4	1.2	3.0
Farms reporting hay put up in 1950	*Pct.*	48	30	45
Proportion of farmers who:				
Mowed permanent pasture	*Pct.*	13	0	11
Fertilized permanent pasture	*Pct.*	20	5	18
Feed purchased for dairy cows	*T.D.N.*	2,572	326	2,159
Proportion of farmers reporting feed purchased for dairy cows	*Pct.*	66	35	60
Proportion of farmers with tractor	*Pct.*	28	2	23

[1] Color of 2 farm operators was not reported.

[2] Includes forage crops grown as a crop for hay or grazing in addition to open permanent pasture.

APPENDIX TABLE 15. DIFFERENCE BETWEEN FARMS OF OWNER OPERATORS AND TENANTS SELLING MILK, PIEDMONT AREA OF ALABAMA, 1951

Item	Unit	Averages for		All farms
		Owner operators	Tenants	
Farms	*No.*	48	7	55
Size of farm	*Ac.*	106	87	104
Persons in family	*No.*	4.1	4.6	4.1
Persons over 12 years of age who could milk and were regularly available	*No.*	2.4	1.9	2.3
Work off farm by operator	*No.*	3.1	2.6	3.0
Labor for farm work	*M.E.*	2.4	2.8	2.5
Time operator on this farm	*Yr.*	14	3	13
Farmers owning tractor	*Pct.*	38	14	35
Cows for milk	*No.*	5.8	4.0	5.5
Cows to nurse calves	*No.*	2.8	1.3	2.6
Dairy heifer calves raised	*No.*	2.8	1.7	2.6
Calves vealed or raised for beef	*No.*	3.0	.6	2.7
Farmers using beef bulls on dairy cows	*Pct.*	40	43	40
Milk sold per day	*Gal.*	8.5	5.1	8.1
Milk used in house per person per day	*Pt.*	2.8	1.8	2.7
Production per cow	*Lb.*	5,240	4,988	5,208
Cotton	*Ac.*	5	5	5
Cotton yield, lint	*Lb./A*	389	326	377
Corn	*Ac.*	13	11	12
Corn yield	*Bu./A*	26	20	25
Winter grazing crops, 1950-51	*Ac.*	10	2	9
Winter grazing crops, 1951-52	*Ac.*	8	3	7
Forage crops[1]	*Ac.*	57	40	55
Land in forage crops	*Pct.*	53	35	51
Hay put up in 1950	*T.*	5	3	5
Permanent pasture:				
Fertilized in past 5 years	*Ac.*	6	0	5
Seeded in past 5 years	*Ac.*	6	1	5
Mowed in 1951	*Ac.*	5	0	4
Feed purchased for dairy cows	*T.D.N.*	5,379	738	4,788

[1] Includes forage crops grown as a crop for hay or grazing in addition to open permanent pasture.