

*Producer Adjustments and Opinions  
Under Federal Order Pricing of Milk  
in the Oklahoma City Milkshed*

by

Agricultural Economics Department

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### In A Nutshell

Dairying is a major source of income to Oklahoma farmers. Changes have occurred in the production of particular dairy products with more emphasis being placed on fluid milk. These changes have caused adjustments in types of marketing firms, facilities, and practices.

In this bulletin an attempt is made to evaluate the economic effects of Federal Order pricing and marketing control on: (1) the level of milk production; (2) the seasonality of milk production; (3) the butterfat test; and (4) the knowledge and attitudes on regulation of marketing.

# Producer Adjustments and Opinions Under Federal Order Pricing of Milk in the Oklahoma City Milkshed

by

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In May 1950, a Federal Milk Marketing Order became effective in the Oklahoma City milkshed. One aim of this Federal Order was to establish a stable and dependable market for producers who sell Grade A milk. To accomplish this aim, the Federal Order provided for the establishment of minimum prices for Grade A milk and butterfat which would be received by all producers delivering Grade A milk into the marketing area.

The minimum prices established under the Federal Order have reflected the supply and demand conditions of the market which, in turn, have resulted in significant adjustments in milk production and tests. This bulletin reports an Experiment Station study of adjustments in total milk production, seasonality of

production, and butterfat tests which have occurred since the effective date of the Federal Order.

The information for this study was obtained from the Market Administrator, the Central Oklahoma Milk Producers Association, and personal interviews with 80 Grade A milk producers. The producers were selected at random from the 1,000 Grade A milk producers who were delivering milk in the Oklahoma City area and operating under the Oklahoma City Bureau of Dairy Control.

Fifty of the producers had been selling Grade A milk for 6 years or more and were classified as long-time producers.\*\* The remaining 30 producers had entered the market after the Federal Order became effective and were classified as short-time producers.

## CHARACTERISTICS OF THE DAIRY FARM

Grade A milk production was the most important enterprise on about 84 percent of the farms in the sample. It furnished about 71 percent of the gross farm income of the producers. The dairy enterprise furnished a larger percentage of gross farm income for the short-time producers (75 percent) than for the long-time producers (69 percent).

Wheat production, beef production, and general farming were more important than Grade A milk production on about 16 percent of the farms.

The best alternative to Grade A milk in the Oklahoma City milkshed was beef cattle. Half the producers listed beef cattle separately or combined with other livestock products as the best alternative

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\* Valuable assistance in field interviewing and tabulation was rendered by Leslie Johnston, Karlene Cleveland, and Walter Rogers, Department of Agricultural Economics.

\*\* A "long-time" producer was defined in this study as a producer selling Grade A milk in the Oklahoma City area more or less continuously from 1949 to date. A "short-time" producer was defined as a producer who began selling Grade A milk in the Oklahoma City area in 1950 or later.

to Grade A milk production. Other important alternatives were: wheat and other crops (10 percent); general farming (10 percent); and livestock products excluding beef (8 percent). Significantly, 10 percent of the producers considered non-farm employment as the best alternative and most of these were long-time producers.

The farms of the producers ranged from 80 to 3,040 acres. The average size was 394 acres with 190 acres in cropland and 171 acres in native and woodland pasture. The long-time producers had larger farms than the short-time producers (464 as compared with 278 acres) and had a greater proportion of cropland.

Most of the producers purchased some feed concentrates or roughages or both.

However, they tended to raise most of their roughage requirements and buy most of their feed concentrates. About 66 percent of the producers purchased half or less of their roughage requirements. About 39 percent did not buy any roughage. This compares with about 75 percent of the producers purchasing half or more of their feed concentrate requirements. About 48 percent bought all their feed concentrates. In general, the long-time producers raised less roughage and bought more feed concentrates than did the short-time producers.

The labor used in Grade A milk production was primarily family labor and usually about 3 family members were involved. None of the short-time producers and only 12 percent of the long-time producers utilized hired labor on a regular basis in the dairy enterprise.

## ADJUSTMENTS

### Change in Herd Sizes

From 1949 through 1954, the long-time producers were increasing the size of their milking herds. The average herd size of these producers increased from 17.4 cows in 1949 to 18.4 cows in 1954 (Table 1). This was an increase of about 6 percent or one cow per herd. There was not much change in the number of herds in each size group. About three-fourths of the herds were composed of from 11 to 30 cows.

The gradual increase in the herd size was temporarily halted in the summer of 1955, for the long-time producers. Fewer producers had 21 or more cows and a larger number of producers had 10 or less cows. The average herd size decreased by about 20 percent or 3 cows from the winter of 1954 to the summer of 1955. According to the farmers interviewed, much of this reduction was

seasonal and was caused by the attempt to increase fall production and decrease summer production. However, some temporary reduction was caused by the drought and the low production of feed on the farms. By the winter of 1955, the average herd size had increased appreciably over the summer level and was only slightly lower than in the winter of 1954.

The short-time producers had smaller herds than the long-time producers. Moreover, there was no appreciable trend in herd sizes during the 1950-1955 period. The short-time producer herds averaged from 13.7 to 15.0 cows during this period. There was some decrease in herd size from the winter of 1954 to the summer of 1955 which was caused by seasonal adjustments and drought conditions.

**Table 1.—Number of Long-time and Short-time Producers with Different Sizes of Milking Herds, Oklahoma City Milkshed, 1949-55.**

Herd Size and Time Producing		1949	1950	1951	1952	1953	1954	1955
10 or less	Long	9	8	8	6	7	7	9
	Short	-	-	1	4	6	7	10
	Total	9	8	9	10	13	14	19
11 to 20	Long	28	29	29	30	29	27	27
	Short	--	2	8	16	14	17	16
	Total	28	31	37	46	43	44	43
21 to 30	Long	10	9	10	12	10	12	11
	Short	-	-	-	-	2	3	3
	Total	10	9	10	12	12	15	14
31 to 40	Long	2	3	2	-	2	2	2
	Short	-	-	-	-	-	-	1
	Total	2	3	2	-	2	2	3
41 or Over	Long	1	1	1	2	2	2	1
	Short	-	-	-	-	-	-	-
	Total	1	1	1	2	2	2	1
Average Herd Size	Long	17.4	17.9	18.0	18.2	18.2	18.4	18.1
	Short	-	15.0	14.2	13.7	15.1	14.8	14.0
	Total	17.4	17.8	17.4	16.9	17.3	17.1	16.6

Source: Data acquired from interviews with Grade A milk producers in the Oklahoma City Milkshed.

### Change in Composition of Herds

In the summer of 1955, about half of the cow herds could be classified as high test herds and the other half as low test herds (Table 2). However, many of the herds included more than one breed of cows.

The mixed high test herds were most frequent and represented about 40 percent of the total. These herds included mainly Jerseys and Guernseys but a few Holsteins, Milking Shorthorns, or other breeds of cows were included. More than half these herds were owned by short-time producers. About 57 percent of the short-time producers as compared with only 30 percent of the long-time producers had mixed high test cow herds.

As a single breed, Holstein was predominant and represented 30 percent of all herds. In addition, Holsteins were included in most of the mixed low test herds (16 percent of all herds).

A Holstein bull was used in almost half of all herds (Table 2). Milking Shorthorn and Guernsey bulls were next in importance.

In terms of change, the trend has been toward the Holstein breed. During the past three years, about 54 percent of the changes in breeds of dairy cows has been to the Holstein. Also, the number of producers adding Holstein bulls has been greater than the number switching away from Holstein bulls.

**Table 2.—Breeds of Cows and Bulls Used in the Dairy Enterprises of Long-time and Short-time Producers in the Oklahoma City Milkshed, 1955.**

Breed	Cows			Bulls		
	Long-Time Producers	Short-Time Producers	Total	Long-Time Producers	Short-Time Producers	Total
Holstein	17	7	24	24	14	38
Milking Shorthorn	2	1	3	9	4	13
Guernsey	3	0	3	5	6	11
Jersey	3	1	4	3	1	4
Ayrshire	1	0	1	2	0	2
Mixed low test*	9	4	13	-	-	-
Mixed high test**	15	17	32	-	-	-
Hereford	-	-	-	3	2	5
Angus	-	-	-	0	1	1
Red Poll	-	-	-	1	0	1
Artificial Insemination	-	-	-	2	2	4
"No Bull"	-	-	-	1	0	1

Source: Data acquired from interviews with Grade A milk producers in the Oklahoma City Milkshed.

\* Includes mixed herds consisting primarily of Holsteins or Milking Shorthorns with only a few Jerseys or Guernseys.

\*\* Includes mixed herds consisting primarily of Jerseys and Guernseys with only a few Holsteins or Milking Shorthorns.

### Change in Annual Production per Cow

Annual milk production per cow in 1955 averaged slightly over 7,000 pounds in the Oklahoma City milkshed, based on the sample of producers. This represented an increase of 25 percent from 1950 and reflected both the change in the composition of the herds and the improved selection and breeding of individual cows within herds.

Generally, the long-time producers had a higher average milk production per cow than the short-time producers but the trend toward larger production per cow was similar for each group.

For the long-time producers, annual production per cow averaged 5,676 pounds in 1950 (Fig. 1) and about 52 percent of the herds averaged less than 5,000 pounds. About 29 percent of the herds averaged above 7,000 pounds per cow. By 1952, the herd average production had increased to 5,960 pounds. In

this year, about 41 percent of the herds averaged less than 5,000 pounds while 23 percent averaged above 7,000 pounds per cow per year. By 1955, average production per cow had increased to 7,302 pounds with only 16 percent of the herds averaging less than 5,000 pounds and 50 percent averaging over 7,000 pounds. This was an increase in annual production per cow of 22 percent from 1952 to 1955.

For the short-time producers, annual production per cow in 1952 averaged 5,833 pounds (Fig. 1) with 39 percent of the herds below 5,000 pounds but only 17 percent above 7,000 pounds. By 1955, production per cow increased 16 percent to reach an average of 6,750 pounds. In this year, only 17 percent of the short-time producer herds averaged below 5,000 pounds of milk per cow while 40 percent of the herds averaged above 7,000 pounds per cow in 1955.

### Change in Level of Production

The average monthly production of the long-time producers declined slightly from April 1950 through September 1951. Milk prices were gradually increasing during this period and tended to keep pace with the rising prices of other farm commodities. The milk-beef price ratio\* ranged from 0.18 to 0.22. After September, both production and the milk-beef price ratio began to increase slightly.

During 1952, the situation suddenly changed. Beef cattle prices started down

while Grade A milk prices increased over the previous year. The lower beef prices and higher milk prices created a favorable condition for expanded milk production. By November 1952, the milk-beef price ratio had risen to 0.34. Long-time producers had increased monthly production to 8,183 pounds or 13 percent above the previous year and new producers were attracted to the market.

The trend in the milk-beef price ratio continued upward until April 1954 and was followed with rising production.

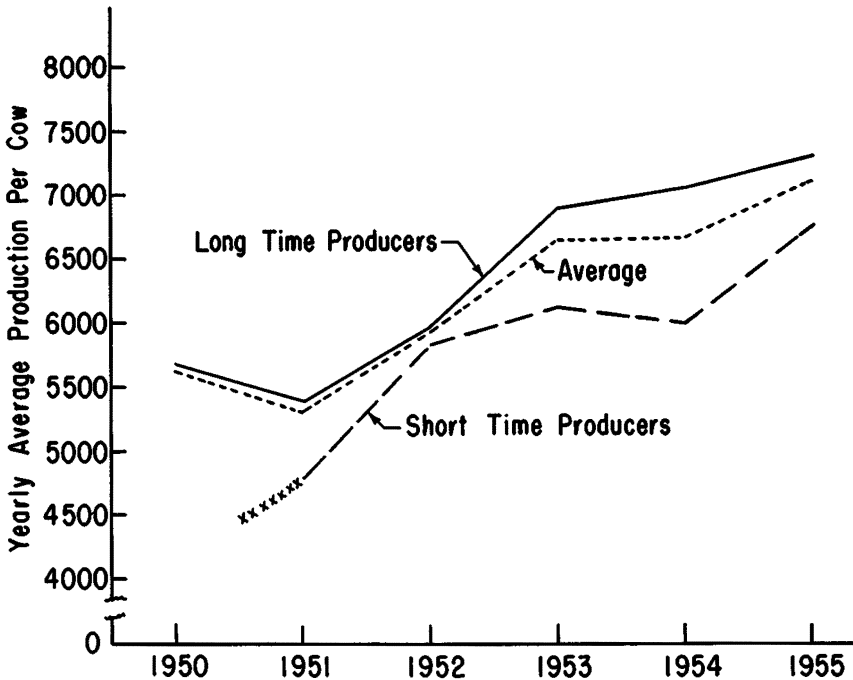


Fig. 1 Annual milk production per cow, long time and short time producers in the Oklahoma City milkshed. (1950-1955)

SOURCE: Compiled from records of the Central Oklahoma Milk Producers Assn., Market Administrator of Oklahoma City Area, and Grade A milk producers in the sample survey.

\* The milk-beef price ratio was computed in the following manner: The Oklahoma City monthly uniform blend price of milk per 100 pounds was divided by the price received by Oklahoma farmers for cattle per 100 pounds for the same month.

After April, the lower support prices for dairy products along with some stability in beef prices caused the milk-beef price ratio to level off at an average of about 0.34. Production of long-time producers also leveled out at a little more than 11,000 pounds per month which was 55 percent greater than in April, 1951.

The relationships of monthly production and the milk-beef price ratios with seasonal changes removed\* are shown in Figure 2. Within 3 to 6 months after the milk-beef price ratio started up, the milk production of long-time producers started up. Then as the ratio leveled off, production soon leveled off. For the short-time producers, the relationships were similar except that production did not rise appreciably until early 1952. From 1950 to 1951, there were only a few short-time producers and each new pro-

ducer added to the market caused relatively a large fluctuation in the average for this group.

An attempt was made to determine the number of producers who would decrease milk production if relative milk prices went down. The questioning was in terms of a decrease in milk price from \$4.50 per 100 pounds with feed, cattle, and wheat prices remaining at levels prevailing in the summer of 1955. Producers were asked to indicate how much lower the price of milk would have to go before they would stop or drastically curtail milk production. About 68 percent of the producers stated such a price.

There was a positive relationship between the percentage decrease in milk price and the number of producers who said they would stop or drastically curtail

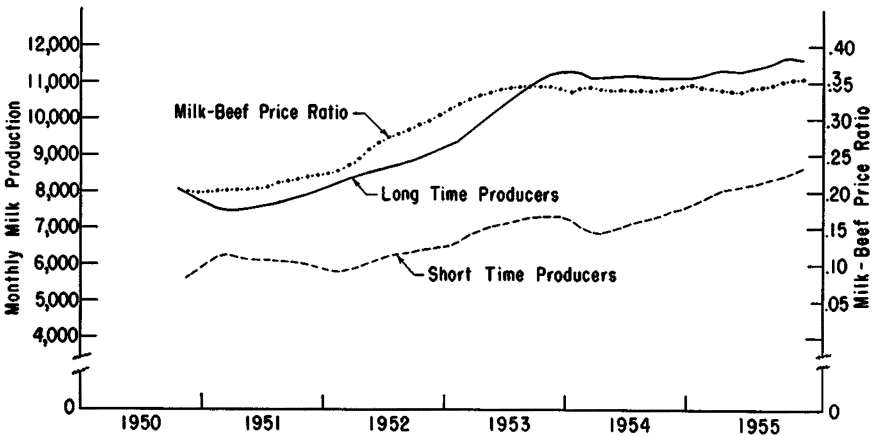


Fig. 2 Twelve-month moving averages of milk-beef price ratios and Grade A milk production of long and short time producers in the Oklahoma City milkshed. (1950-1955)

SOURCE: Compiled from records of the Central Oklahoma Milk Producers Assn., Market Administrator of Oklahoma City Area, and Grade A milk producers in the sample survey.

\* The seasonal changes were removed by the use of a 12 month moving average.



milk production (Figure 3). At a 10 percent decrease in price, about one-fourth of the producers would stop or cut milk production. At a 25 percent decrease in price, about one-half of the producers would take this action. With further decreases in milk prices, the percentages of producers cutting production were greater. Apparently a decrease in milk prices of 45 percent would cause a maximum of two-thirds of the producers

to stop or drastically curtail milk production.

The adjustment to lower milk prices was indicated by producers with varying types of alternatives. However, the largest proportion of these producers did have cattle or wheat or both enterprises on the farms. About two-thirds of the long-time producers as compared with more than three-fourths of the short-time producers indicated less production at lower prices.

### Change in Seasonality of Production

Under the Federal Order, two methods were utilized to get more even production throughout the year. The first method was to pay a lower price for Class I milk during the flush production period. Originally this period included the months of April, May, and June but was later extended to include February, March, and July. The second method was the adoption of the base surplus plan. Under this plan, the amount of milk which a farmer was eligible to sell as Class I was determined by the amount of milk which he delivered during the base setting period.

The combination of both methods did result in more even production throughout the year for the long-time producers (Figure 4). In 1951, production averaged 5.2 percent above normal for the April, May, and June period and 12.1 percent below normal for the September, October, and November period. During each of the following years, the seasonality of production during these months decreased. By 1955, production averaged only 0.6 percent above normal during the 3 month period of April, May, and June, but the peak production had moved up to March. Production was 5.2 percent below normal during the 3 month

period of September, October, and November.

In general, monthly milk production has tended to be within a range of 7.5 percent above or below the annual average during the last few years, but for individual months the percentages were frequently much higher than the average. For example, July 1951 production of long-time producers was 11.4 percent above average while September production was 14.2 percent below average. In comparison, the extremes in 1955 were March production at 7.7 percent above average and October production at 8.5 percent below average.

The adjustment toward more even production was much greater for the short-time producers than for the long-time producers (Figure 5). For the 3 month period of April, May, and June in 1951 production for short-time producers was 25.2 percent above average as compared with only 0.7 percent above average in 1955. For the 3 month period of September, October and November, production averaged 23.5 percent below average in 1951 as compared with 1.8 percent above average in 1955.

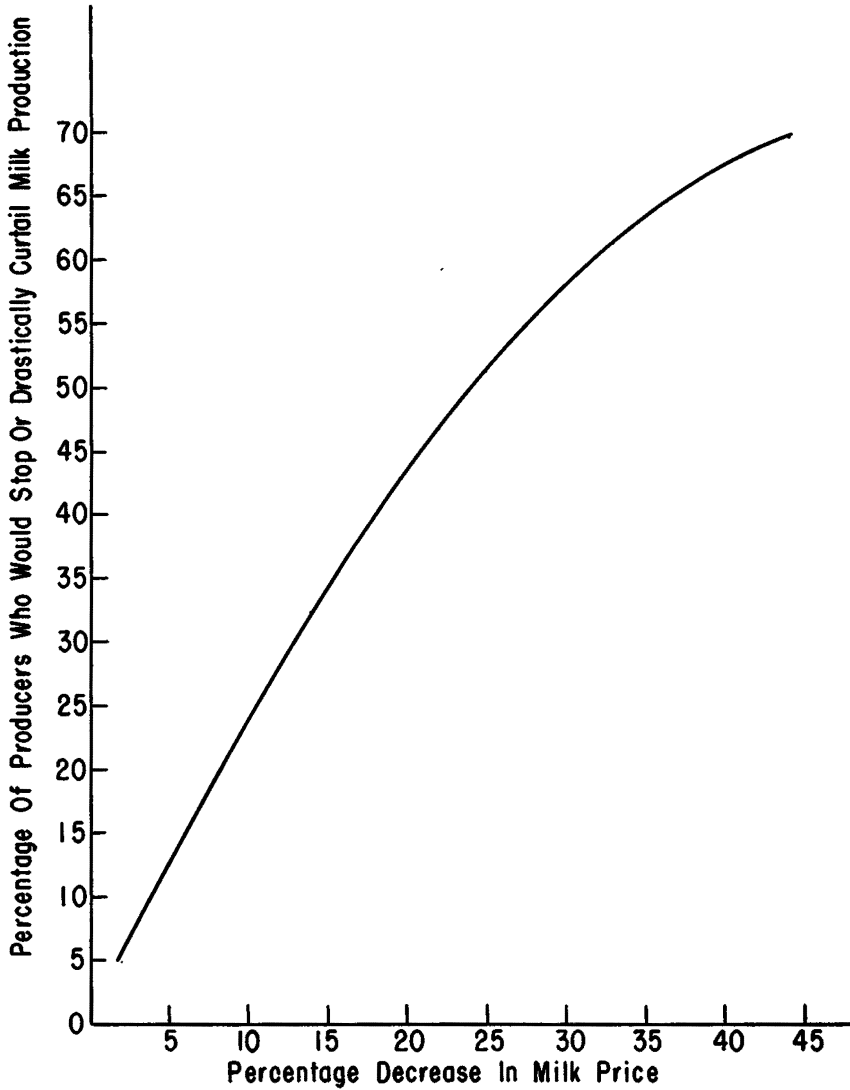


Fig. 3 Relationship of percentage decrease in milk price and percentage of producers who would stop or drastically curtail milk production in Oklahoma City milkshed. (1955)

SOURCE: Survey data from Grade A milk Producers in Oklahoma City area.

Change in Milk Tests

Milk tests have gradually but consistently decreased in the Oklahoma City milkshed since 1950. This decrease has accompanied the increased use of low test breeds. Milk tests have decreased most for the short-time producers (Figure 6). Tests averaged 4.28 percent in 1951 for the short-time producers and by 1955 had decreased to slightly under 3.99 percent. However, a portion of this decline may be attributed to including a larger number of short-time producers with lower average tests in the averages.

For the long-time producers, milk tests declined from 4.16 percent in 1950 to 3.87 percent in 1955. The sharpest decline occurred from 1950 to 1951 which was the period following the effective date of the Federal Order. During this period the butterfat price differential

was averaging between 7.8 and 8.6 cents per point. During the early months of 1952 the differential moved up to 10 cents per point only to begin a gradual decline to 6.9 cents per point by 1955. This was partially responsible for decreasing average milk tests for long-time producers. About 60 percent of the long-time producers reported lower tests while only 4 percent reported higher tests for this period.

Most of the producers stated that they would not change the composition of their herds for lower butterfat price differentials. Only 10 percent indicated that they would consider adding lower test breeds if the differential were lower. On the other hand, 26 percent of the producers would consider adding higher



Fig. 4 Monthly production as a percentage of average production, long time producers in the Oklahoma City milkshed. (1951 and 1955)

SOURCE: Compiled from records of the Central Oklahoma Milk Producers Assn., Market Administrator of Oklahoma City Area, and Grade A milk producers in the sample survey.

test breeds to their herds if the butterfat price differential were increased from present levels.

The seasonality of milk tests has not changed appreciably over the 1950 to 1955 period. For the long-time producers, milk tests were about 3 percent above the annual average in January then decreased to 4 percent below average during April through July (Figure 7.) Tests began increasing in August and moved

up to a peak of 6 percent above average in November. Tests usually declined slightly in December.

The seasonality of milk tests for short-time producers was similar to the pattern for long-time producers except that the variation was somewhat greater. Tests decreased from January to April then leveled out through July. In August tests began increasing to reach the high in November.

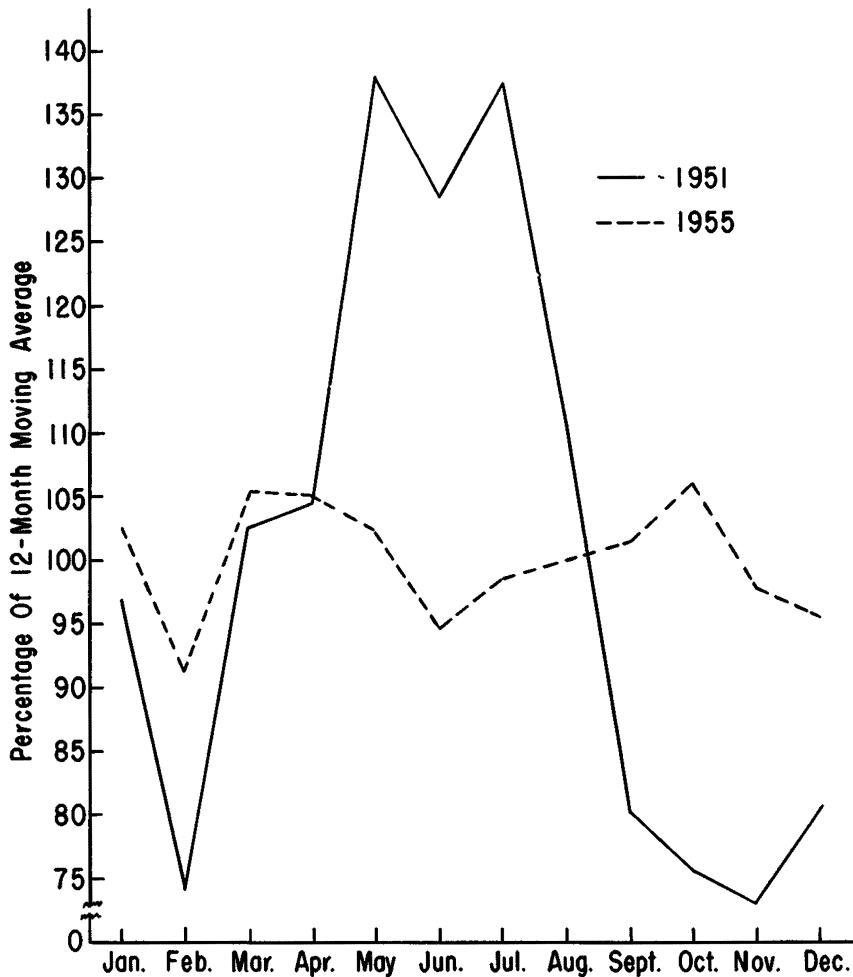


Fig. 5 Monthly production as a percentage of average production, short time producers in the Oklahoma City milkshed. (1951 and 1955)

SOURCE: Compiled from records of the Central Oklahoma Milk Producers Assn., Market Administrator of Oklahoma City Area, and Grade A milk producers in the sample survey.

## PRODUCER OPINIONS

### Testing Program

Six fresh milk tests per month for establishing pay tests was considered adequate by 56 percent of the producers. About 33 percent of the producers wanted a larger number of tests per month. Many of these wanted more than 10 tests per month. There was no relation between the size of the dairy enterprise and desired minimum number of tests per month.

Producers were about equally divided in their satisfaction or dissatisfaction with

the present testing program. This applied both to members and non-members of the producers association. However, only 26 percent of the long-time producers thought the testing program was less fair now than it was before the Federal Order. Some of the suggestions for improvement of the testing program called for a larger number of tests but the nature of the comments suggest the need for a better producer understanding of the extent of test variability and the causes for such variability.

### Base Surplus Plan

A majority of the producers indicated that the base surplus plan was a "fair" way of pricing milk during the surplus production season. They thought that more uniform production and control of the summer producer existed under the plan. In general, the short-time producers were more in favor of the base surplus plan than the long-time producers. Long-time producers who were not members of the producers association expressed the most dissatisfaction and 44 percent of them thought the plan was worse now than before the Federal Order. About one-fourth of the long-time pro-

ducers, who were members of the association, were not satisfied with the base surplus plan.

About 23 percent of all producers suggested that the present base surplus plan could be improved. Some specific suggestions included: a longer base setting period; use of months of lowest production for each producer; use of year around base; and selection of two months of fall and two months of spring production. However, none of these suggestions would have been approved by all producers making suggestions for improvement.

### Advantages and Disadvantages of the Federal Order

About one-fourth of the producers listed specific advantages of the Federal Order. These advantages included: protection of producers as a group; insuring an adequate weighing and testing program; removing unfair practices among producers; education of producers; and stabilization of prices and markets. The specific disadvantages of the Federal Order as stated by one fourth of the producers involved: lower milk prices or tests; government interference; dissatisfaction with general operating procedures; and relatively high costs.

In answer to specific questions, producers generally thought that both milk pro-

duction and milk prices were more stable now than before the Federal Order. In a ratio of about 2 to 1, 44 percent of the producers thought the Federal Order gave the farmers a "better deal" as compared with 24 percent who did not think so. An even larger percentage of the farmers thought the Federal Order gave the plants "a better deal."

About half the producers said the Federal Order was too hard to understand as compared with one-fourth who did not think so. From the standpoint of cost, there seemed to be a great deal of confusion concerning the charges for administering the Federal Order, the

charges for operation and expansion of the producers association, and the withholding for the American Dairy Associa-

tion. As expected, a majority said these costs (singly or in combination) were too high.

### SUMMARY

Significant adjustments in production and tests have been made by Grade A milk producers in the Oklahoma City milkshed. The adjustments in production have come more from changes in breeds and increased production per cow than from increasing herd sizes. Only the long-time producers have appreciably increased herd sizes.

The trend has been toward including more Holstein cows and bulls in the dairy herds. However, the short time producers have not moved as far in this direction as have the long-time producers.

Annual production per cow has gradually increased since 1950. Annual production per cow averaged about 7,000 pounds in 1955 which was an increase of 25 percent from 1950. Long-time producers generally had a higher average milk production per cow than short-time producers but about one-sixth of each group had herd averages of less than 5,000 pounds per cow per year.

For the long-time producers, the level of milk production has increased from 8,000 pounds per month in 1950 to a little more than 11,000 pounds per month in 1955. Similar changes occurred for the short time producers. The increase in production has followed an increase in the milk-beef price ratio from about 0.20 in 1950 to about 0.34 in 1955. This indicates the importance of alternative farm product prices on milk production. With the price of these alternatives held constant, there was a direct relation between lower prices of milk and the number of producers who said they would stop or drastically curtail milk production. With 45 percent lower milk prices, about two-thirds of the producers said they would stop or curtail milk production.

Under the Federal Order, the base surplus plan and lower milk prices in the flush production season have resulted in more even production throughout the

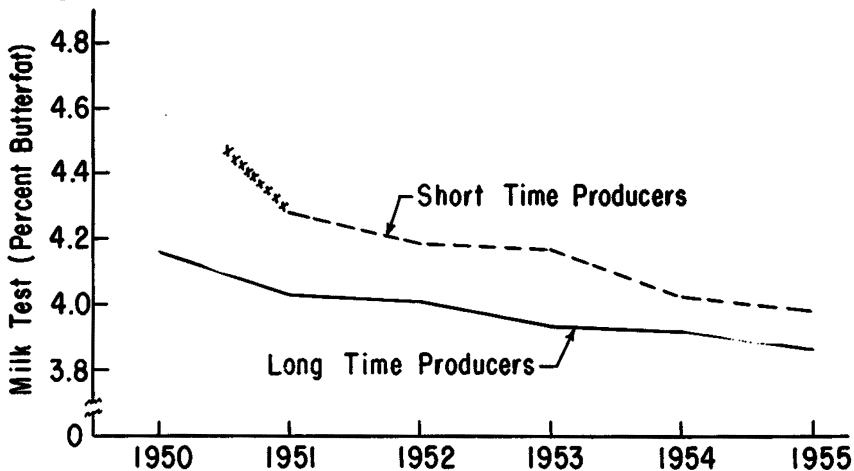


Fig. 6 Yearly average milk tests, long time and short time producers in the Oklahoma City milkshed. (1950-1955)

SOURCE: Compiled from records of the Central Oklahoma Milk Producers Assn., Market Administrator of Oklahoma City Area, and Grade A milk producers in the sample survey.

year. The short-time producers have made the largest changes but they had the greatest fluctuations during the early years under the Federal Order. In general there remain relatively large fluctuations in milk production from one month to the next which are caused by variable weather conditions. There is evidence that the seasonally highest production has moved up to March.

Milk tests have decreased about 3 points since 1950. Long-time producers have somewhat lower milk tests than short-time producers which reflects the breeds used in the dairy herds. The seasonality of milk tests is similar for both groups of producers and has not changed much since 1950. In general, milk tests decline from January to April then level out through July. In August,

tests begin increasing and reach a peak in November.

Producers were about equally divided in their satisfaction or dissatisfaction with the testing program. Suggestions for improvement were made but there is a need for better producer understanding of both the extent of test variation and the causes of that variation.

There appeared to be general satisfaction with the base surplus plan under the Federal Order but several producers thought that this plan could be improved. The majority of producers thought that both milk production and milk prices were more stable now than before the Order but not all producers were satisfied with the level of milk prices or the costs of administering the bargaining association and/or the Federal Order. It appeared that better producer understanding of the nature and amount of cost for each specific marketing function is needed.

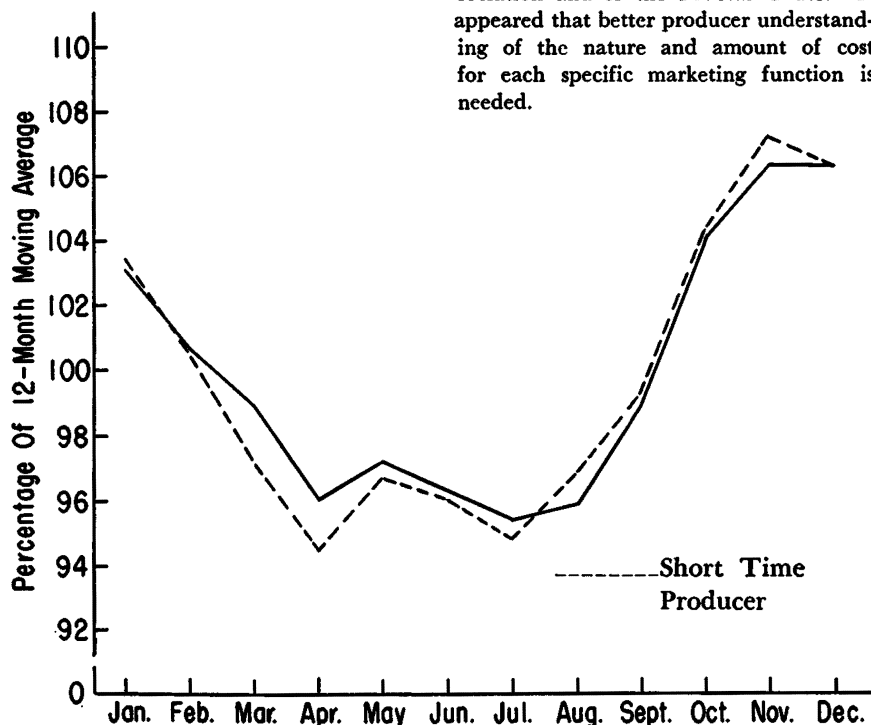


Fig. 7 Seasonal variations in milk tests, long time and short time producers in the Oklahoma City milkshed. (1951-1955)

SOURCE: Compiled from records of the Central Oklahoma Milk Producers Assn., Market Administrator of Oklahoma City Area, and Grade A milk producers in the sample survey.