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MARKETING CREAM through Oklahoma Cream Stations

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ON THE COVER: Picture shows a business enterprise involving the buying and selling of cream. It is typical of the cream stations described in this publication which also handle poultry, eggs, and feed. The station shown is located in north central Oklahoma.

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MARKETING CREAM through OKLAHOMA CREAM STATIONS

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Dairying is an important source of income to Oklahoma farmers, and the income from the sale of butterfat as cream is one of the more important items of dairy product sales. A large share of this cream is marketed through local cream stations.

The relative importance of cream sales, together with the widespread production of cream, indicate that a large proportion of Oklahoma farmers are directly affected by marketing practices and by problems which exist in the local markets. Therefore the Experiment Station in 1948 undertook a study of the operations of local cream stations in Oklahoma. This bulletin is a partial report of that study. The data obtained point to the following conclusions:

1. Over 10 percent of the cream stations surveyed provided no cooling facilities for cream during the summer months.

2. At the majority of cream stations the farmer's cream was weighed to the nearest pound and tested to the nearest one percent butterfat.

3. Approximatey 80 percent of the cream stations were privately operated. The individual station operators absorbed variations in the volume of butterfat and usually operated on a commission basis.

4. Over 38 percent of the cream stations were operated as a sideline. In those instances the operation of the cream station was primarily a service feature of the particular business. The products handled with cream most frequently were poultry, eggs, and feed.

5. Competition, as reflected in price, apparently is the strongest in the northwestern quarter of Oklahoma as compared with other areas.

6. Approximately 86 percent of the stations utilized motor trucks for transportation of cream an average distance of 54 miles to the central creamery or butter manufacturing plant. Only a small proportion of these trucks are permanently enclosed; consequently the quality of the cream may decrease in transit, especially during the summer months.

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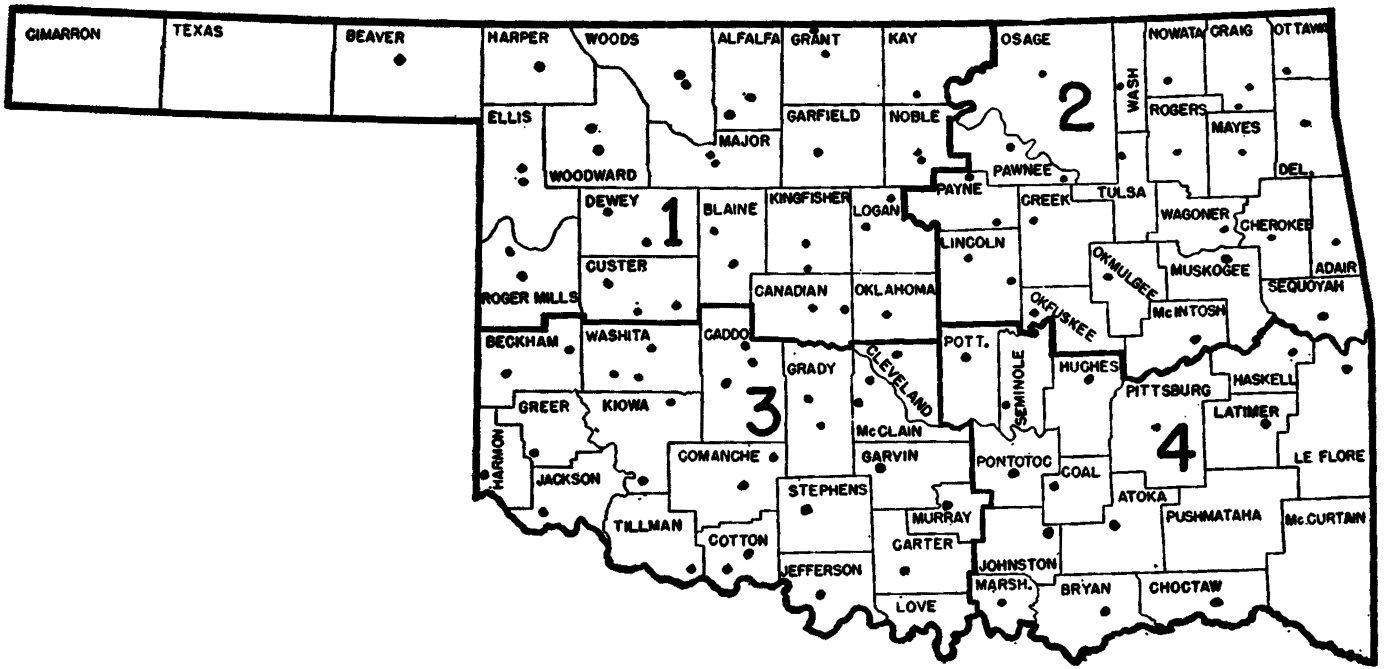

Fig. 1.—Map shows the four general areas, and the location of stations included in the study of cream marketing conditions.

Table 1.—Methods of Cooling Used by Cream Stations, Oklahoma by Areas, 1948.

	Area 1	Area 2	Area 3	Area 4	State	
		(Number of Stations)				Percentage
Total	35	25	28	14	102	100.0
Number using—						
Burlap bag method	13	11	13	4	41	40.2
Spray System	10	4	10	3	27	26.5
Mechanical refrigeration	7	5	4	3	19	18.6
Other*	2	0	0	1	3	2.9
None	3	5	1	3	12	11.8

* Ice placed in each can, or the use of evaporative type air conditioners.

7. Thirteen percent of the stations delivered cream to the creamery only twice each week during the summer months. During the winter months, 70 percent of the stations delivered cream twice each week, and slightly less than 4 percent delivered cream only once each week.

8. The cream station operators estimated that 25 percent of the farmers delivered cream to the local stations only once each week during the summer months, and that over 50 percent delivered cream only once each week during the winter months.

These conclusions are based on the study of a sample* of 8 percent of the cream stations in Oklahoma. This sample included 102 cream stations located in 73 counties, as shown in Figure 1. Information was obtained from the cream station operators by personal interview. The data are reported by areas, as follows: Area 1, the northwestern quarter; Area 2, the northeastern quarter; Area 3, the southwestern quarter; and Area 4, the southeastern quarter.

Methods of Cooling

Several methods of cooling cream are used by cream stations during the summer months. The most widely used method was the ordinary shallow metal tank or pan with wet burlap bags. The cream cans were placed in a shallow tank holding 3 to 6 inches of water, and wet burlap bags placed on each can in such a way that the bottom of the bag was submerged in the water. This system relies upon the evaporation of the water as the cooling agent and is less effective than either the spray system or mechanical refrigeration. Approximately 40 percent of the stations used the burlap bag method of cooling (Table 1).

The second method of cooling employed by stations was the spray system. Essentially, this system consists of spraying a continuous fine mist of water on the cream cans. The relatively low temperature of the

* This was a stratified random sample in which the number of stations per county depended upon the number of pounds of butterfat sold per acre as indicated by the 1945 Census of Agriculture. The list of cream stations was furnished for sampling purposes by the Oklahoma State Department of Agriculture.

water as well as the evaporation decreases the temperature of the cream. This method was used by 26.5 percent of the stations. Proportionally more spray systems were employed in Areas 1 and 3 than in Areas 2 and 4.

The third method of cooling was mechancial refrigeration, usually a walk-in type box refrigerated by mechancial refrigeration. This method is the most effective for maintaining the quality of cream, but it is also the most expensive. Less than 20 percent of the stations utilized mechanical refrigeration for cream. In general, these stations were either large, or else were part of a buiness which maintained refrigeration for other products.

A few of the stations utilized other methods of cooling, such as evaporative type air coolers of ice placed directly in the cans, which may or may not be adequate. Slightly less than 3 percent of the stations used these methods of cooling.

Significantly, 11.8 percent of the stations employed no cooling facilities. A large percentage of these were located in Areas 2 and 4. Although approximately one-half of these stations maintained daily delivery, the remaining number did not have either cooling facilities or daily delivery, and the quality of cream handled probably was not as high as desirable.

Basis of Purchase

A large share of the stations, 96.1 percent, tested the farmer's cream to the nearest one percent of butterfat, while the remainder tested to the nearest one-half of one percent (Table 2). A slightly smaller proportion of the stations, 87.3 percent, weighed cream to the nearest pound while 12.7 percent weighed to the nearest one-half pound. Since practically all the prepared tables for computing the value of the producers' product are calibrated in whole numbers, many station operators give half pounds and half points at one time and take them the next time. This, in effect, results in an averaging process.

Basis of Sale

In general, all stations other than those owned and operated by creameries sold their butterfat on the basis of a composite,* and any amount long or short was absorbed by the individual operators. A large percentage of the stations, 65.7 percent, sold their butterfat on the basis of a composite at the creamery or manufacturing plant, and 14.7 percent sold on the basis of a composite at the station (Table 2). Thus for the majority of stations the burden of keeping the scales and testing equipment accurate depends upon the individual station operator. However, representatives of the State Dairy Commission check all station equipment at unannounced intervals to insure that the product is accurately weighed and tested. In view of these practices and checks, many abuses that could arise in the purchase and sale of butterfat tend to be minimized.

* Total weight and average test of butterfat.

Basis of Operators' Gross Income

The majority of the cream stations in Oklahoma are independently owned and operated, and the operator's gross income was derived primarily by either of two general methods. The first and most important method was the straight commission basis, which was used by two-thirds of the stations (Table 2). Under this plan the station operator received a set margin of pre-determined number of cents for each pound of butterfat handled, regardless of price changes that might take place within a delivery period. This has the effect of taking the risk of price changes from the operators and placing it on the creameries which buy the products.

The second method is the "butter market plan," a relatively new development. This plan represents a modified commission basis more than an entirely different method of determining gross income. Under this plan the station pay price is determined on the basis of a current Chicago standard butter price less a certain number of cents. In this way the individual station operator makes the decision on the amount of commission. He also assumes the risk of price changes, because he benefits if he has cream on hand when prices rise and loses when prices fall. Even though the actual earnings over a period of time may not be higher under this plan, the operator has more freedom of action. The butter market plan was used by approximately 12 percent of the stations and was relatively more important in Area 1 than in other areas of the state.

Table 2.—Marketing Practices Used by Cream Stations, Oklahoma by Areas, 1948.

	Area 1	Area 2	Area 3	Area 4	State	
		(Number of Stations)				Percentage
Total	35	25	28	14	102	100.0
Basis of Purchase:						
Number using—						
Test to nearest one percent	35	23	28	12	98	96.1
Weight to nearest pound	32	21	27	9	89	87.3
Basis of sale:						
Number using—						
Composite at station	5	3	1	6	15	14.7
Composite at creamery	22	19	19	7	67	65.7
Other*	8	3	8	1	20	19.6
Basis of operator's gross income:						
Number operating on—						
Commission	20	18	18	12	68	66.7
Market Plan	7	3	2	0	12	11.8
Salary	8	4	8	2	22	21.5

* Usually creamery owned stations which do not sell on the basis of a composite.

Approximately 20 percent of the station operators were paid a salary, and in rare instances they received an additional commission. These were creamery owned stations in which the creamery ordinarily assumes the risk of price changes, moderate variations in butterfat content, and other responsibilities. Most of these stations have a volume of business somewhat larger than the average.

Type of Business, and Products Handled

Thirty-eight percent of the cream station operators reported that the cream station was a sideline which provided from 1 to 10 percent of their gross income. This comparatively large proportion of the total indicates that many stations are operated primarily as a service feature of a particular business. In some sections of Oklahoma many farmers take their cream directly to the businesses in the town where they purchase a major share of their supplies. It is in anticipation of capturing a share of these purchases that a particular business may operate a cream station even though the gross income is relatively small. This is particularly true of grocery stores and hatcheries.

A variety of products are handled in connection with the cream stations (Table 3). Of these products poultry and eggs were handled with the cream stations the greatest number of times for all areas. Compared with the average, feed was more frequent and general merchandise less frequent in Area 1, while pecans were more frequent in Areas 2 and 4. These percentages indicate that the most common business enterprise which purchases cream also handles poultry, eggs, and feed.

Competition

Traditionally, competition has been strong among cream buyers in Oklahoma. Occasional price wars and the large number of cream stations tend to maintain competitive conditions in practically all areas of the state. Since no objective measures of competition exist, an attempt was made to determine the effectiveness of competition as expressed in the prices paid to farmers for cream on June 2, 1948, by each station. The prices over the state may reflect differences in quality as well as differences in competition, but do provide an indication of the extent of competition. In general, the range and average of prices indicate that prices were highest in Area 1 and lowest in Area 4 (Table 4). This indicates that competition is somewhat greater in the northwestern quarter of Oklahoma than in the rest of the state.

Transportation

The methods of assembling and transporting cream from widely scattered stations over the state vary from one locality to another. However, two major means of transportation are utilized. First, the station operators ship direct to the creamery via railway express. Second, the station operators utilize motor trucks, usually creamery owned, which stop at the station and pick up cream as well as other produce available for sale. The largest proportion of the stations, 86.6 percent, utilized motor trucks for transportation of cream (Table 5).

Table 3.—Products Handled in Connection with the Cream Stations, Oklahoma by Areas, 1948.

	Area 1	Area 2	Area 3	Area 4	State	
			Number of Stations			Percentage
Total	35	25	28	14	102	100.0
Number handling—						
Poultry	32	20	23	12	87	85.3
Eggs	33	22	27	12	94	92.2
Feed	29	16	17	3	65	63.7
Pecans	2	10	7	7	26	25.5
Hides	8	6	5	3	22	21.6
Hatchery	3	2	4	0	9	8.8
General Mdse.	4	7	9	4	24	23.5
None	1	1	0	0	2	2.0

Table 4.—Range and Average of Prices Paid to Farmers for Cream by Oklahoma Cream Stations, June 2, 1948, by Areas.

	Range	Average
	(Cents per Pound)	
Area 1	70-75	73.4
Area 2	70-75	71.8
Area 3	70-72	70.9
Area 4	68-72	70.8

Table 5.—Transportation Facilities Utilized by Cream Stations, Oklahoma by Areas, 1948.

	Area 1	Area 2	Area 3	Area 4	State	
			(Number of Stations)			Percentage
Total	34	23	27	13	97	100.0
Number shipping by railroads	8	3	1	1	13	13.4
Number shipping by motor trucks:						
Permanently enclosed	3	2	3	2	10	10.3
Open, with tarpaulin	23	18	23	10	74	76.3

Only about 10 percent of the stations utilized permanently enclosed motor trucks, while 76 percent utilized conventional open-type trucks. Although the latter type truck is required by law to have a tarpaulin for the protection of cream, the tarpaulin is used sparingly by many drivers.

In an effort to determine the average distance traveled by cream via truck transportation, the distance of each station from the central creamery was weighted by the estimate of the annual volume of cream handled. Under this procedure, cream was transported by truck an average distance of 54 miles from those stations utilizing motor trucks. By areas, the average distances were as follows: 50 miles in Area 1; 65 miles in Area 2; 42 miles in Area 3; and 67 miles in Area 4. These distances would require well over one hour provided no stops were made. However, the frequent stops, the time lost at the station in assembling, and the added mileage for each additional station indicate that a part of the cream was allowed to remain on the truck from two to four hours. In view of the large proportion of trucks of the open type, this period of time is sufficient to permit heating or freezing, thus degrading the quality of cream upon arrival at the creamery. This is especially true during the summer months. Much of this cream is sold from the stations on the basis of the quality, weight, and test at the creamery; consequently any loss in transit is withstood by the station operator.

Frequency of Delivery by Stations

The Oklahoma law requires that cream be delivered from the station a minimum of three times each week during the summer months. Most of the stations delivered cream as often as three times each week, but the frequency of delivery varied considerably. Over one-fourth of the stations delivered cream daily during the summer months and nearly one-half delivered three times each week (Table 6). However, approximately

Table 6.—Frequency of Delivery to Creameries by Cream Stations, Oklahoma by Areas, 1948.

	Area 1	Area 2	Area 3	Area 4	State	
		(Number of Stations)				Percentage
Total	35	25	28	14	102	100.0
Summer: Number delivering—						
Daily	9	8	8	4	29	28.4
Every other day	5	2	2	2	11	10.8
Thrice weekly	17	11	15	5	48	47.1
Twice weekly	4	4	3	3	14	13.7
Weekly	0	0	0	0	0	----
Winter: Number delivering—						
Daily	3	3	3	3	12	11.8
Every other day	1	2	1	0	4	3.9
Thrice weekly	5	2	3	1	11	10.8
Twice weekly	26	17	19	9	71	69.6
Weekly	0	1	2	1	4	3.9

Table 7.—Frequency of Delivery to Cream Stations by Patrons of 102 Cream Stations, Oklahoma by Areas, 1948.

	Area 1	Area 2	Area 3	Area 4	State	
		(Number of Patrons)				Percentage
Total	2341	1673	1704	808	6526	100.0
Summer: Number delivering—						
Daily and every other day	23	12	2	3	40	0.6
Thrice weekly	267	73	304	52	696	10.7
Twice weekly	1395	1037	1206	462	4100	62.8
Weekly	656	551	192	291	1690	25.9
Winter: Number delivering—						
Thrice weekly	62	32	43	5	142	2.2
Twice weekly	1113	683	844	155	2795	42.8
Weekly	1166	958	817	648	3589	55.0

13 percent of the stations delivered cream only twice each week. Although a part of this latter group purchased cream only on certain days of the week or had access to mechanical refrigeration, this percentage indicates that the quality of cream going through these stations may be somewhat lower than desirable.

During the winter the common practice is for stations to deliver cream twice each week. Nearly 70 percent of the stations followed this practice. Almost 12 percent of the stations maintained daily delivery in the winter, but most of these delivered to a creamery in the same town or shipped via railway express. A very small percentage of the stations delivered cream only once each week during the winter.

Frequency of Delivery By Farmers

Each station operator was asked to estimate the percentage of customers which delivered cream at various intervals. These percentages were applied to the approximate number of patrons per station to get the estimate of frequency of delivery by farmers given in Table 7.

During the summer approximately 10 percent of the farmers delivered cream three times each week, and about 62 percent delivered twice each week. A significant proportion of the farmers, 25.9 percent, delivered only once each week. During the winter less than half of the farmers delivered cream as often as twice each week while over one-half delivered only once each week.

Although mechanical refrigeration might have been available on the farm for some of the cream delivered only once each week, the proportions both in summer and winter are probably too large if the quality of Oklahoma cream is to be improved.