

# Kentucky Agricultural Experiment Station

UNIVERSITY OF KENTUCKY

## REPORT OF THE CREAMERY LICENSE SECTION

July 1, 1918 to June 30, 1922

By P. E. BACON

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### EXAMINING BOARD

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The Creamery and Tester's License Law (Chapter 74, Acts of the Kentucky Legislature) was enacted by the General Assembly of 1918, and became operative July 1 of that year. The provisions of the Act are enforced thru the Creamery License Section of the Kentucky Agricultural Experiment Station. Beyond a general summary, made by the Director in his Annual Report, no information concerning the work of the department has hitherto been published. The purpose of this circular is to set forth the requirements of the law, and to show how these requirements have been carried into effect by the Creamery License Section.

### REQUIREMENTS OF THE LAW

When milk or cream is bought on the basis of the amount of butter fat contained therein, the person or firm so buying it is required to hold a license and to employ a licensed tester who shall supervise and be responsible for the operation of the Babcock test used to determine the amount of butter fat in milk or cream.

Under the act it is unlawful to take unfair samples of milk or cream, to fraudulently manipulate such samples, or to falsify

the record thereof. Under-reading or over-reading of tests is likewise prohibited, or any other manipulation of the Babcock test.

The law provides that no glassware shall be used in making the test except such as shall first have been inspected for accuracy by the Kentucky Agricultural Experiment Station, or its deputy, and indelibly marked with the letters "S. G. K." (Standard Glassware, Kentucky).

The purpose of the law is to protect the producer of milk or cream against unfair practises on the part of those to whom he sells and whose weights and tests he is, by the very nature of the transaction, obliged to accept as honest and correct. Protection is also afforded the creameries against those operators who might be unscrupulous enough to over-read tests in order to gain patronage.

#### EXAMINING BOARD

The Examining Board consists of three members, two appointed by the executive committee of the Kentucky Dairy Cattle Club, and the third member the Chief of the Dairy Department of the Experiment Station. The Board is empowered to recommend the revocation of licenses of testers who have been proved guilty of violating any of the provisions of the act or the rules and regulations of the Kentucky Agricultural Experiment Station. Operators whose names have been reported to the Board by the Creamery License Section, are called before that body and given a fair and impartial hearing.

#### OPERATION OF THE LAW

*Creamery Licenses:* On or before July 1 every creamery, ice-cream plant or other factory, or person, or agent, firm, company, association or corporation buying milk or cream on the butter fat basis is required to make application and remit the fee of six dollars (\$6.00) for a license to operate each factory, creamery, shipping station or other point where milk or cream is received. Renewal licenses are issued for one year beginning July 1, and are dated to expire on June 30 following. Fees for new stations or plants opening during the twelve-month period beginning July 1 are apportioned as follows:



For points opened during July, August, September.....	\$6.00
For points opened during October, November, December.....	4.50
For points opened during January, February March .....	3.00
For points opened during April, May, June .....	1.50

*Transfer of Licenses:* Licenses may not be sold or otherwise transferred from one individual or company to another. A license from a station that closes at any time during the fiscal year ending June 30 may be transferred by the owner of the license to some other location, provided that

1. The original license is returned to the Experiment Station, together with
2. An application for license for the new station, properly filled out on one of the forms supplied for that purpose;
3. The new station shall not have opened prior to the closing of the station from which transfer is desired, and
4. No license may be transferred more than once.

The following table indicates the number of licenses, renewal licenses and transfers issued during the yearly periods ending June 30:

	1918-19	1919-20	1920-21	1921-22
New stations licensed .....	399	334	224	100
Renewal licenses .....	.....	340	428	390
Licenses transferred .....	16	48	73	65
Stations operated .....	415	722	725	555

Number and Kinds of Licenses Issued

	1918-19	1919-20	1920-21	1921-22
Creameries (mfg. butter) .....	15	14	12	13
Ice cream plants .....	8	10	12	17
Milk distributing plants .....	11	11	18	18
Shipping stations .....	376	687	683	507

The large decrease in number of shipping stations for 1921-22 might seem to indicate that the dairy industry is losing ground. As a matter of fact nearly 3,000,000 more pounds of creamery butter was manufactured in 1921 than during the preceding year. The loss in cream stations was due to the fact that producers in increasingly greater numbers are selling their product direct to the factory or creamery instead of thru the cream station. From three to eight cents more a pound for butter fat is paid for cream shipt direct than the producer receives at local shipping stations. Approximately 50% of the cream bought in Kentucky is now being shipt direct.

*Licenses for Testers:* Every person employed to operate the Babcock test where milk or cream is received and paid for on the butter fat basis is required to hold a license. Before a tester's license may be obtained the applicant therefor must have passed a satisfactory examination showing his proficiency in testing. Names of those operators making the grade of 75, or more, are reported to the Chairman of the Examining Board who then issues a Certificate of Proficiency to each successful applicant. This certificate, when presented to the Experiment Station together with the fee of \$2.00, entitles the holder to a license. Tester's licenses expire June 30 of the fiscal year in which issued, and may be renewed by remitting to the Experiment Station the renewal fee, which is \$2.00. The Experiment Station reserves the right to withhold the issuance of a renewal license to any operator who is under charge of violating any of the rules and regulations under which licenses are granted. The number of tester's licenses issued during the yearly periods ending June 30 are given below:

	1918-19	1919-20	1920-21	1921-22
New tester's licenses .....	327	340	276	150
Renewal tester's licenses .....	.....	250	290	386
Total issued .....	327	590	566	536



*Permits:* Cream stations are constantly changing operators and many new stations are opened each year with new and inexperienced operators in charge. It is often impossible to place a new operator under the supervision of one who has had experience and who is a licensed tester. So in order that a new operator may become familiar with his work and at the same time take charge of a cream station, a permit is granted allowing the operator to buy milk or cream on the butter fat basis, subject to the same responsibilities as a licensed tester. Permits are issued for a period not to exceed 60 days, and automatically expire upon the date of the examination to which the holder is notified to appear. The first permit was issued March 28, 1919. A total of 1465 permits had been issued to July 1, 1922.

*Examinations:* Tester's License Examinations are held, as the need arises, at the College of Agriculture, Lexington, the plants of the Beatrice Creamery Company, Cincinnati, Ohio; Sugar Creek Creamery Company, Louisville, Kentucky; City Consumers Company, Paducah, Kentucky, and the plants of the Evansville Pure Milk Company, located at Owensboro, Kentucky, and Henderson, Kentucky. Special examinations are sometimes given at the cream station when they are deemed advisable. Examinations consist of a list of written questions, and laboratory work in the testing of both milk and cream. Any operator who fails to appear for the examination to which notified is not allowed to continue the operation of his cream station, unless a reason for his absence, satisfactory to this department, is filed within five (5) days after the examination. An average of one out of every seven persons examined fail to make the grade necessary to obtain a Certificate of Proficiency. Carelessness in preparing the samples before weighing the nine-gram charge, and improper handling of acid are two contributory reasons for failures. Many operators seem to have had hasty or insufficient instruction, and have little or no knowledge of the principles underlying the operation of the Babcock test.

The following table gives the number of persons examined, the number of failures, and the percentage of failures for the periods indicated.

	1918-19	1919-20	1920-21	1921-22
Number of persons examined .....	395	409	331	168
Number of failures .....	68	69	48	18
Percentage of failures .....	17.21	16.87	14.5	10.71

*Glassware Inspection:* The term "glassware" includes milk and cream test bottles, milk pipettes, and nine-gram weights used for the purpose of determining, by the Babcock test, the percentage of butter fat in milk or cream. The following table shows the total number of pieces inspected, the number of rejections and the percentage of rejections during the periods indicated:

	1918-19	1919-20	1920-21	1921-22
Inspected .....	20,520	13,448	13,958	10,783
Rejections .....	1,643	848	330	129
Percentage rejections .....	8	6.3	2.4	1.2

In addition to the above a number of unstamped nine-gram weights, found at the cream stations, have been tested by inspectors, who are equipt with sensitive balances supplied for that purpose. The percentage of incorrect glassware, and glassware not standard, has decreased from 8% to 1.2% during the four-year period. Manufacturers of glassware are now familiar with the high requirements of the Kentucky Standard. That they are making constant efforts to have their product meet this standard is shown by the steady decrease in percentage of rejections.

*Creamery and Station Inspection:* The Kentucky Creamery and Tester's License Law makes no appropriation or other pro-



vision for financing the act, beyond the fees collected for licenses and for the inspection of glassware. The amount of inspection work carried on by the Creamery License Section is, therefore, somewhat restricted. Expenses incident to inspections are necessarily heavy, due to the fact that cream stations are widely scattered in many sections of the State. Of the 74 counties in which stations are located there are 29 counties having not more than one or two stations each, and about 44% of all stations are located in country territory, necessitating the use of hired conveyances to reach them.

In spite of these handicaps effective work has been accomplished. A majority of the cream stations in Kentucky are visited one or more times during the inspection period, which extends from April to November. Some stations are so located that the expense of reaching them is out of proportion to the amount of good to be derived from the inspection. No attempt is made to visit such points unless a special investigation is necessary. Inspections are intended to be educational as well as regulatory in nature and the wisdom of this policy is manifested in the great improvement of the work of station operators, particularly during the past two years. At the time of inspection a complete check is made of the kind and condition of equipment used in the testing room, and the operator is required to demonstrate his methods of sampling and testing. By retesting samples of cream found on hand the accuracy of the operator in making the tests is determined; and his carefulness in securing correct samples is ascertained by making a composite test of butter fat on hand and comparing the result with the operator's report of butter fat paid for. The maximum variation allowed in tests is one (1) point, and the maximum variation in pounds of butter fat paid for is one (1%) per cent. This means that the average variation in all tests made by the operator must not exceed one-half point.

In addition to the regular work of inspection, special investigations are made whenever an operator is charged with violating the provisions of the law. If the result of the investigation indicates that the operator is at fault he is warned against

a continuation of such practises as he may have been found committing, and is given an opportunity to make the changes considered necessary by this department in order that satisfactory work might be done. It has been found necessary to revoke the licenses of a few operators who failed to heed the warning given.

Whenever a station is found with faulty or inadequate equipment a notification is mailed to the company responsible. Satisfactory cooperation has been given by most of the creameries, and suggested changes or improvements have, as a rule, been readily made.

The following rules and regulations govern the work of licensed testers and of operators holding permits, and these requirements are strictly enforced:

1. It shall be unlawful for any operator buying and paying for milk or cream on the basis of the amount of butter fat contained therein to under-read, over-read, or otherwise fraudulently manipulate the Babcock test for butter fat, or to falsify the record thereof.

2. It shall be unlawful to read the test at any temperature except the correct temperature, which is 135 to 140 degrees Fahrenheit. In this connection the hot water bath shall be used, the hot water shall surround the entire length of the fat column in the neck of the test bottle, and the test shall remain in the bath not less than three minutes in warm weather, nor less than five minutes in cold weather, before being read.

3. It is hereby provided that each day's milk or cream samples shall be held, plainly numbered, securely sealed, and kept separate from all other samples until the end of the following day, when they may be emptied. At any cream station not operated daily the cream samples may be emptied at the close of the buying day. Samples obtained on Saturday may also be emptied at the close of that day.

4. It is further provided that if, at the close of any testing day, any held-over cream is on hand, the amount of butter fat contained therein shall be determined by weight and test, and a record thereof entered on the next daily report sheet.



5. It is further provided that the transfer of milk or cream from sample jar to test bottle shall be made by means of a pipette, after the sample has been thoroly mixt, and that such transfer shall *not* be made by *pouring* such milk or cream from the sample jar or any other receptacle into the test bottle.

6. It is further provided that in warming samples of cream before weighing out the nine-gram charge, the temperature of the water used for the purpose of warming such samples *shall not exceed 110 degrees Fahrenheit*.

*Direct Shippers:* As has been stated, approximately 50 per cent of the cream sold in Kentucky is shipt direct from producer to creamery. The cream is sampled, tested and paid for at the receiving plant. Considerable work has been done by this department in securing samples from cans being shipt direct, in order to determine whether or not the creameries are giving correct weights and tests. A comparison is made between the result obtained by the department and the result as shown on the patron's statement received from the creamery. Variations ranging from seven points low to five and a half points high have occurred. Seventy per cent (70%) of the cans, when sampled and tested at the creamery, averaged 1.83 points lower than our tests, but when an allowance is made for several abnormal tests, a fairer and more general average is found to be 1.25 points. On the other hand, 21% of the cans averaged 2.28 points higher than the tests of the department, and 9% checked exactly. Several creameries have made adjustments to patrons when notified by this department of the incorrectness of their tests. Cream varies greatly in its physical character, and some of it is quite difficult to handle properly, so it is not strange that errors occur in the sampling and testing of certain types of cream. But while some variation in tests is expected, it is believed that the percentage of variation has been too great, and an effort will be made in the future to keep in closer touch with direct-shipt cream with the idea of eliminating the causes responsible for inaccuracies, the greatest single contributing factor of which is believed to be hasty, and therefore careless, sampling of cream at the factory.

**CREAM GRADING DEMONSTRATIONS**

Altho not strictly within the province of this department, the improvement of cream quality was considered a factor so essential to the healthy growth of the dairy industry in Kentucky that a program of education was undertaken in the spring of 1922, the object of which was to train the station operator in the fundamentals of cream grading and to direct the attention of producers to the necessity for care and cleanliness in the handling of cream. Cream grading demonstrations were held at central points in eighteen of the more important cream producing counties; and the station operators convenient to these points were instructed to appear. Field-men from most of the creameries operating in the several territories were also present. A specialist in dairy manufacturing from the Extension Division of the Experiment Station rendered valuable assistance and contributed largely to the success of the meetings. In brief, each demonstration consisted of (1) practical talks on the dairy situation in Kentucky and on the improvement of the quality of cream sold for butter-making, (2) a "round-table" discussion of the care and handling of milk and cream on the farm and at the cream station, (3) actual grading of cream received during the day at the local stations where the demonstrations were held. Much interest and enthusiasm were manifested at these meetings and most of them were well attended. Before being taught how to grade, station operators received and paid the same price for all classes of cream, whether it was first grade, second grade or actually unfit for human consumption. A differential of three cents more for first grade cream is now being paid at most stations where strict grading is practised, and this has influenced the producer to strive for a higher quality product. As evidence of the improvement that has taken place since the grading program was introduced, figures from one creamery, covering a four-month period beginning at the time of the first demonstration, show a decrease in second grade cream of 35%. Statements from other creameries indicate that the improvement in quality is general thruout those sections where demonstrations were held.



## CREAMERY BUTTER PRODUCTION

Figures taken from statistics published by the United States Department of Agriculture indicate the steady growth of the dairy industry in Kentucky.

	1918	1919	1920	1921
Creamery butter manufactured .....	2,898,000	5,321,000	7,875,000	10,746,000
Increase over preceding year, per cent.....		83.6	48.0	36.4
Milk cows (Jan. 1).....	435,000	452,000	457,000	525,000
Increase over preceding year, per cent .....		3.9	1.1	14.88

The above figures show that the increased creamery butter production cannot be wholly attributed to the increased number of milk cows. Much of the increase was due to the development, by creameries, of territory producing large quantities of country butter, but which under the stimulus of high prices and a ready market for butter fat, sold much of its product in the form of sour cream.

The accompanying map (Fig. 1) gives a general idea of those sections where milk or cream is bought on the butter fat basis; but the number of stations in any county is by no means indicative of the volume of dairy products sold in that county. Much of the territory adjacent to cities is covered by truck routes; while in other localities a large number of producers ship direct to the creameries. As a result cream stations are not numerous in such territory, even tho production may be large. The frequency with which cream stations occur may, however, be used as a guide in pointing out those sections where development of the dairy industry is greatest.

There are yet counties in Kentucky that offer splendid opportunities for development. Some creameries are already being forced to seek new cream producing territory in order that volume may be sustained. The United States census of 1919

gives the production, sale and value of dairy products in Kentucky, by counties. The figures are available to anyone interested and will be furnished on request. The census figures show that the production of country butter is quite large in many counties, while the sale of butter or butter fat is relatively small. It is believed that creamerymen will find it profitable to investigate the possibilities of such counties as Adair, Allen, Barren, Breckenridge, Butler, Calloway, Carter, Graves, Grayson, Hardin, Hart, Hopkins, Lawrence, Logan, Marshall, Monroe, Muhlenberg, Ohio, Pulaski, and Rockcastle.



LICENSED MANUFACTURING PLANTS IN KENTUCKY

(As of January 1, 1923.)

Name	Address	Product
Armour Creameries .....	Louisville.....	Butter
Ashland Sanitary Milk Co.....	Ashland.....	Milk and butter
Blue Valley Creamery Co.....	Louisville.....	Butter
H. B. Bosse & Sons .....	Latonia.....	Milk and butter
Brown Ice Cream Co. ....	Bowling Green.....	Ice cream
Butler Creamery Co. ....	Butler.....	Milk
Campbellsville Ice & Ice Cream Co .....	Campbellsville.....	Ice cream
City Consumers Co. ....	Paducah.....	Milk, butter and ice cream
Coleman Ice Cream Co.....	Hopkinsville.....	Ice cream
Cuscadens Ice Cream Co. ....	Louisville.....	Ice cream
Dawson Springs Ice Cream Co.....	Dawson Springs.....	Ice cream
Dixie Ice Cream Co. ....	Lexington.....	Ice cream
Edgewood Dairy Co .....	Paducah.....	Milk and butter
Elizabethtown Ice & Ice Cream Co. ....	Elizabethtown.....	Ice cream
Evansville Pure Milk Co.....	Owensboro.....	Milk and ice cream
D. H. Ewing's Sons .....	Louisville.....	Milk, butter and ice cream
Farmers Dairy Co.....	Nicholasville.....	Milk
The Feldman Milk & Cream Co.....	Newport.....	Milk and butter
Froznpure Co. ....	Louisville.....	Ice cream
Gray-Von Allmen Sanitary Milk Co. ....	Louisville.....	Milk, butter and ice cream
H-B Milk Co. ....	Frankfort.....	Milk and butter
Kentucky and Indiana Dairies Co. ....	Louisville.....	Milk and butter
Lee Lewis, Inc. ....	Louisville.....	Ice cream
E. K. Mack Creamery Co.....	Louisville.....	Milk and butter
Major Ice Cream Co.....	Hopkinsville.....	Ice cream
The Mammoth Cave Creamery.....	Horse Cave.....	Butter and ice cream
National Ice Cream Co.....	Louisville.....	Milk, butter and ice cream
Newport Dairy .....	Newport.....	Milk and butter
H. M. Owen Creamery Co.....	Falmouth.....	Milk
Parren's Creamery .....	Lexington.....	Milk, butter and ice cream
F. M. Perkins & Sons.....	Louisville.....	Milk and butter
E. L. Proctor .....	Winchester.....	Ice cream

*Report of Creamery License Section*

Name	Address	Product
Sanitary Milk Co. ....	Frankfort.....	Milk and butter
Stanford Creamery Co. ....	Stanford.....	Butter
Sugar Creek Creamery Co.....	Louisville.....	Butter
Summe & Ratermann Co.....	Covington.....	Milk and butter
Swift & Company .....	Lexington.....	Butter
Traxel Glascock Co.....	Maysville.....	Milk, butter and ice cream
Shawnee Sanitary Milk Co.....	Louisville.....	Milk and butter

**LICENSED TO BUY BUTTER FAT IN KENTUCKY BUT LOCATED  
IN OTHER STATES**

(As of January 1, 1923.)

The Beatrice Creamery Co. ....	Cincinnati, Ohio
Belle Meade Butter Co. ....	Nashville, Tenn.
Cumberland Valley Creamery .....	Nashville, Tenn.
Evansville Pure Milk Co. ....	Evansville, Indiana
French Bros.-Bauer Co. ....	Cincinnati, Ohio
Goodlettsville Creamery & Butter Co.....	Goodlettsville, Tenn.
Huntington Creamery Co.....	Huntington, West Virginia
The Merchants Creamery Co. ....	Cincinnati, Ohio
Nashville Pure Milk Co. ....	Nashville, Tenn.
The Andrew Rohan Co. ....	Cincinnati, Ohio
Schlosser Bros. ....	Indianapolis, Indiana
Sunlight Creameries .....	Washington Court House, Ohio
Sunlight Creameries .....	Evansville, Indiana
Sugar Creek Creamery Co. ....	Danville, Illinois
Swift & Co.....	Mt. Vernon, Illinois.



