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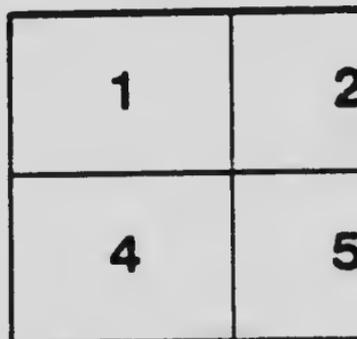
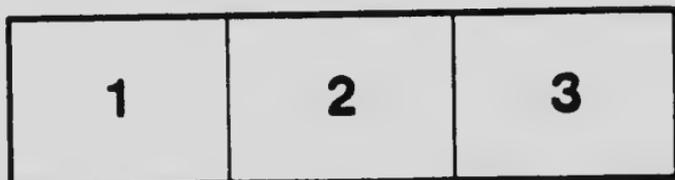
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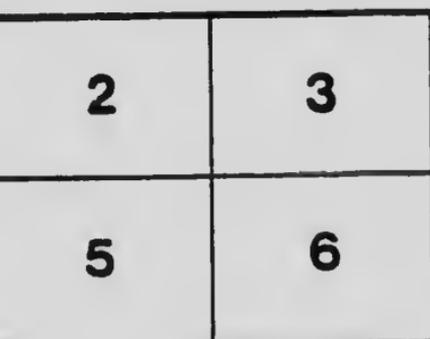
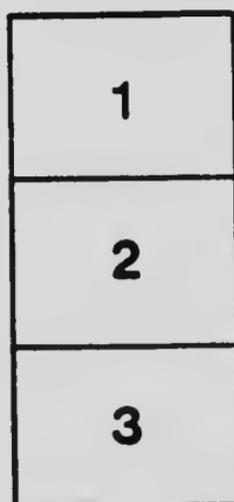
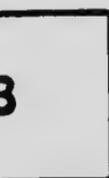
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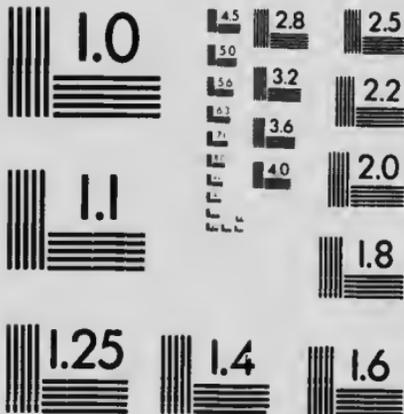
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MANITOBA DEPARTMENT OF AGRICULTURE
DAIRY BRANCH

Sweet Cream for Buttermaking

BY

L. A. GIBSON

Dairy Commissioner for Manitoba

International
Institute Branch

SEP 29 1919

DEPT. OF
AGRICULTURE

DURING the past few years we have made wonderful progress in Manitoba, in regard to increased production of dairy products. In 1912 we imported 55 carloads of creamery butter to meet our market requirements. In 1918 we not only supplied our own requirements, but shipped out of the province 175 carloads of creamery butter, valued at \$1,764,000.00. The expansion in dairying is noticeable all over the province, but probably more so in the southern part, where grain growing has been carried on for 25 or 30 years. In this part of the province dairying was a negligible industry ten years ago; even yet we have touched only the fringe of the possibilities of dairying in Manitoba. With the future development, which is sure to take place, it behooves us to build the business along permanent and staple lines, and, furthermore, to look for a profitable market for our surplus dairy products, which I believe will be the British market.

How are we going to produce butter of such quality as will meet the requirements of this market? Who are our competitors and what are the methods which they employ to meet the requirements of this market? These are questions which we must study if we expect to maintain a profitable market for our butter across the water, or at home.



Keep the Separator in a clean place and clean it every time it is used.

During the past two years we have had a great opportunity to advertise our product throughout the world; and we will have this opportunity for at least another two years. There is a dearth of dairy cows across the water, they have been slaughtered for food and also on account of a shortage of feed, and until the herds of France, Belgium, Russia, Serbia and Poland are re-stocked we will have a tremendous demand for our product. This is an opportunity not only to help ourselves but to help others.

In meeting this demand let us keep always before us the ideal of "Highest Quality". Let us follow the example of Denmark and other countries that export butter. Only the best the very cream—their product is shipped out. They are very proud of the superior quality of their dairy goods, and we would do well to imitate them in this respect, by manufacturing butter of the highest quality, which, when it reaches the markets of the world, will bring back an added demand for Manitoba butter. We must see to it that our product is not eclipsed by that of New Zealand, Australia, Siberia and Denmark, the latter the most renowned butter producing country of all. We must have a high quality product; and high quality butter can be made only by using sweet, fresh, good-flavored cream, produced under clean, sanitary conditions. The quality of the raw material deter-

mines the flavor of the finished product. Quality should be the watchword; and quantity should be a second consideration.

In making the finest quality of butter we should never forget the spirit of co-operation. We cannot succeed by working alone. Man is dependent upon his brethren; he cannot say he does not need the assistance of his fellow man; he does. A buttermaker is dependent upon the dairymen for his raw material; he is dependent upon his helper for aid in the manufacturing; he is dependent upon his dealer to market his finished product; he is dependent upon the consumer to be satisfied. Thus co-operation is a very important consideration in the creamery business. Without co-operation progress is retarded and interest wanes.

CREAM GRADING

The system of cream grading, and payment of cream upon a quality basis, is now practiced by all up-to-date



Floating Dairy Thermometer



Cream Stirrer

Cleanliness and the maintenance of a cold temperature are the necessary principles involved in producing a high-grade cream. Your co-operation is earnestly solicited.

The purpose of this circular is briefly to point out the causes of bad flavors and other defects in cream, and how they may be prevented. All defects in milk are passed on to the cream, and in turn to the butter. We begin to determine the flavor of the butter in the production of the milk and end with the finished product.

CAUSES OF DEFECTS IN CREAM

1. Feeding of cows upon plants that taint the milk, such as Stink Weed, Leeks, etc.
2. Cows' udders and teats in an unclean condition at milking time.
3. Using unclean, wooden, galvanized or rusty pails and cream cans.
4. Keeping cream in cellars, or other places where there are roots, vegetables, or an impure atmosphere.
5. Keeping the cream for several days at a temperature over 50 degrees F.
6. Cows drinking water from stagnant ponds.

CARE OF CREAM

1. Provide pure water both for your dairy cows to drink and for the washing of dairy utensils.
2. Use good tin utensils with the seams thoroughly flushed with solder, and keep them thoroughly clean. Discard rusty cans or pails; they injure the cream. In cleaning them use warm water; wash with hot water containing a little washing powder. Scald with thoroughly hot water, and then place in a pure atmosphere in a clean place and in a position to drain. Use a fibre brush for washing; a cloth is not satisfactory.
3. Milk in clean surroundings and in a cleanly manner.
4. Cows should have free access to salt at all times. They will keep in better health; will give more milk; the cream from the milk will have a better flavor, and keep sweet longer than when they do not get any at all, or receive it only at intervals.
5. Separate the milk promptly, while fresh and warm, and take a cream testing about 35 per cent., not below 30 and not above 40 per cent.
6. Keep the separator in a clean place and cleanse it every time it is used. Sterilize the bowl after washing by dipping it in scalding water; treat the covers similarly.
7. Promptly COOL the cream from the separator in a separate vessel to a temperature of 50 degrees or below if possible. A good plan is to set the cream pail in cold water and ice while separating. Use a good dairy thermometer in your work and don't guess at temperatures. Be sure the scale of the thermometer is correct. A tested one can be secured from any reliable dairy supply house.
8. Hold the cream in the collecting can at the same low temperature and stir every time a new lot is added. This is to keep the skim milk from settling to the bottom. Use a plain shot gun can, with a cover, for cooling the cream before adding to the larger lot, or collecting can, and keep it covered at all times.

siderable period of time. Butter made in June frequently does not go into consumption until the following February, March, or April; therefore it is most important that the keeping properties be good, whether it is for consumption at home or abroad, if we expect to build up and hold these different markets.

Butter with good keeping qualities must be made from clean-flavored, sweet cream, properly pasteurized to eliminate bacteria and other biological agents. Other conditions being constant, the rate of deterioration in butter is in direct proportion to the acidity or sourness of the cream. In other words, **the higher the cream is ripened or soured the more rapidly it will change.** This statement is so at variance with established ideas that it has been accepted slowly.

It is unfortunate for the creamery business that it was at one time thought necessary that cream should be soured or ripened before churning to produce the best butter. There is no difference in the test from either sweet or sour cream; in fact, the chances are in favor of getting a more correct test from sweet cream, on account of the operator being able to get a more representative sample, especially if the sour cream is not smooth.

The quality of the cream received at the creamery determines, to a very large extent, the flavor of the butter and the keeping quality, other conditions being equal.

At this season dealers are buying butter for storage, and if certain creameries acquire a reputation for making butter of inferior keeping qualities, it can not fail to affect the price which they receive, and the loss will revert to the producer.

If we wish to build up a reputation for our creamery butter on the markets of the world, and thereby command the highest market price, it is advisable to make sweet cream butter. First among the advantages of such butter is its uniformity, by using clean-flavored, sweet cream, pasteurizing by a standard method, and giving careful attention to the making, butter of a very uniform quality may be made day after day. Not only can a single creamery make uniform butter, but any number of widely separated creameries can make butter of uniform flavor and quality, thus enabling a dealer to obtain a regular supply all of one grade. Its second advantage is its keeping quality. Help your creameryman to make a reputation for his butter and for that of the province as a whole.

In return for your effort and co-operation, the creameryman can afford and will pay you a "Special Grade" price.

One of the most common causes of poor quality in butter is lack of immediate thorough cooling of the cream after separation. Cream can be kept sweet for several days, if properly cooled. Cream of the best grade can be produced with but little extra labor or expense.

creamerymen. It is just as reasonable and necessary to grade cream as to grade grain; and unless we do grade it we will never get the quality of cream necessary to make the finest quality of butter. The dairyman who produces a sweet, clean-flavored cream, that will make a first-class quality of butter, undoubtedly should be paid for the superiority of his article. A creameryman who grades all cream received at the creamery and pays for it strictly on a quality basis is working in the interests of his patrons and of the dairy industry as a whole. By so doing he will improve the quality of the cream received, and will be able to manufacture a better product, which will command a premium, and he will thereby be in a position to pay his patrons a better price for the cream received.

Intelligent cream grading necessitates the establishing of definite cream grades; and the following grades and spread in prices are approved and recommended by the Dairy Branch of the Department of Agriculture, for the carrying on of this work by our creamerymen:

Special or Extra First Grade— This grade shall include any lot of cream which is fresh and clean in flavor, of a uniform consistency, and fit for making into special grade butter. The acidity of cream in this grade shall be not more than .3 (three-tenths of one per cent.) at the time of being graded at the creamery where it is to be manufactured into butter.

First Grade— This grade shall include any lot of cream which is reasonably fresh and clean in flavor, of a uniform consistency and fit for making into butter of this grade. Its acidity should not be more than 5 (five-tenths of one per cent.) at the time of grading at the creamery where it is to be manufactured into butter.

Second Grade— This grade shall include any lot of cream that does not meet with the requirements specified for the next higher grade: which is stale, bitter, musty or otherwise unclean in flavor.

Cream below second grade to be classed as "Off Grade" and either rejected or paid for according to value.

A difference of two cents per lb. fat should be made between "Special or Extra First Grade" and "First" and a difference of three cents per lb. of fat between "First" and "Second" grade cream.

These grades correspond with the system used in our butter grading service.

FUNDAMENTAL BASIS OF KEEPING QUALITY

At the present time 70 of our butter is made during June, July, August, September and October, and 30 made during the balance of the year. Therefore it is necessary, under present conditions, to store the butter during the flush season to tide over during the period of low production. It would be much better if the production were more equalized during the different months, and we are pleased to note that the tendency is toward more winter dairying. Under present conditions it is most important that the keeping quality of our butter should be the best. We should have a clear understanding as to what we mean by keeping quality. By keeping quality we mean the ability of butter to retain its desirable flavor and physical properties over a con-



Shot Gun Can

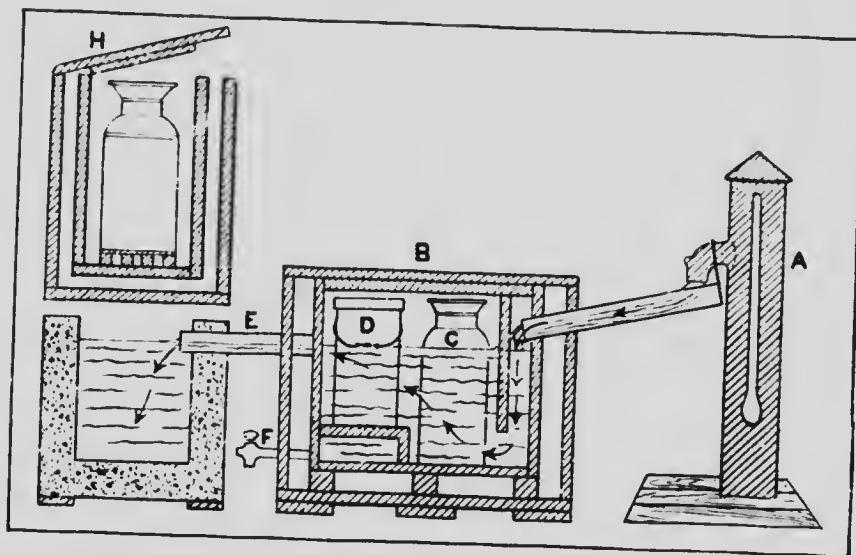
9. Unless you have a supply of spring cold water, use a well insulated cooling tank and cool the cream either by pumping water for the stock through it, or by means of water and ice (see illustration below).

10. Make frequent deliveries of cream your practice - not less than twice and better three times a week in summer. Don't use too large a shipping can, but set its size to that of the herd.

11. Cover the can while on the road with a clean blanket. Wetting the blanket helps to keep the cream cool.

To produce cream of high quality which will make the finest butter and capture the best markets, take as your motto

CLEAN CREAM COLD CREAM SWEET CREAM
FREQUENT DELIVERY



Insulated cooling tank, between well and watering trough. The tank should be housed over.

- | | | |
|-------------------------------------|---|--|
| A. Pump. | cream, raised from bottom of tank by 4 to 6 inch stand. | F. Small pipe, with valve for emptying the tank to clean it. |
| B. Cooling tank. | | G. Watering trough. |
| C. Shipping can. | E. Overflow to watering trough. | H. End view of tank. |
| D. Plain shotgun can for collecting | | |

Description of Tank

The sides and bottom of the tank here shown are made by using 2 by 4 inch studding, putting paper and one ply of matched lumber on both the inside and the outside, and filling the four-inch space with dry mill shavings or sawdust. The tank is then lined with galvanized iron. There should be a three-quarter-inch pipe in the bottom of the tank, with a valve on it, to empty the tank when necessary. The depth of the tank and the height of the over-flow should be suited to the height of the cans. The cover of the tank is made of two plies of lumber, with damp-proof paper between, and is coated on the under side with shellac. Let the top ply of boards in the cover run lengthwise and the under ply crosswise of the tank. The inflow pipe should enter near the top of the tank and go nearly to the bottom.



