

## Creamery Department

Butter makers are invited to send contributions to this department, to ask questions on matters relating to butter making and to suggest subjects for discussion. Address your letters to the Creamery Department.

### Conditions Which Influence the Moisture Content in Butter

Address by L. A. Gibson, Inspector of Creameries at the Manitoba Dairy men's Convention.

The importance of incorporating the proper percentage of water in butter cannot be too strongly emphasized; the success or failure of the cream may depend to a large extent on that one thing. The factors which influence the moisture content, are under the control of the butter maker, the thickness of the cream, the quantity of cream churned at once, churning temperature, the temperature of the wash water, and the amount and character of the working.

A thick cream containing 30 or 40 per cent. fat will give you more moisture than a thin cream containing 20 per cent. fat, other conditions being equal. Butter churned from thick cream has a tendency for the granules to gather in irregular shape. They do not receive as much agitation, consequently, they hold more moisture. If cream is churned at a very high temperature the result is that the butter will come in a very short time. It will incorporate an excessive amount of moisture and casein, which will affect the body and color. An excessive amount of water has a tendency

to make the butter pale and lifeless in color. Butter made from thin cream and churned at a low temperature will gather very slowly, for the following reasons:—(1) The fat globules are distributed in a large volume of milk serum, and the chance of striking one another is less than in thick cream. (2) The low temperature hardens the fat so that the globules do not cohere readily; the surface of the granules become smooth and consequently will not hold as much moisture.

Aim to have your cream contain from 30 to 35 per cent fat, and place in the churn at a temperature that it will churn in granules the size of wheat in 30 minutes. In churning, anything over 45 minutes is lost time, and anything under 30 minutes is not desirable.

A churn two-thirds full of cream will give you a greater over-run than a churn half full. Also you can incorporate more moisture in your butter without injuring the quality from good flavored cream, other things being equal. The more butter is worked the less moisture it will retain; every turn of the worker expels moisture, therefore do not work your butter any more than enough to insure a uniform color.

Cold wash water reduces the percentage of moisture in butter, hence the necessity of closely watching the temperature of the wash water. All butter makers may have noticed that salt will not dissolve as readily when cold wash water has been used, and quite frequently the salt will appear gritty in the butter. Water in butter will take about 12½ per cent of its bulk in salt in a saturated solution; hence the higher percentage of water the more salt can be used.

For the last year and a half, I have carefully studied the moisture problem, and also in studying the scores of butter in the different counties in Wisconsin, Iowa, and Minnesota; it would seem that the water content had no bad effect on the quality up to 16 per cent. Our best butter contains anywhere from 12 to 16 per cent.

I believe 14½ per cent is a safe amount to carry, and at the same time turn out the finest quality of butter. I made the statement at the beginning that the importance of incorporating the proper percentage of moisture cannot be too strongly emphasized. Let me prove it.—Take a creamery turning out 800 lbs. of butter daily. That butter maker incorporating 10 per cent of moisture allowing 3 per cent salt and 1 per cent casein would give an over run of 16. That butter maker should be incorporating 14½ per cent moisture, 4 per cent salt, and casein, which would give an over run of 22. At the average selling price of butter, 23 cents a pound would mean that the butter maker who is incorporating 10 per cent moisture was losing about \$1.38 on every 100 pounds made, or \$11 daily. Provided that creamery operated for six months with an average of 800 lbs. daily, the company would lose over \$1,700, and the butter would not be as good as the quality of the butter containing 14½ per cent moisture; hence the necessity of closely watching the moisture.

Every butter maker should test every churning for moisture, with both the Gray and Irish tests. There is no excuse for the manufacture of an abnormally dry butter; or even a butter with too high a percentage of moisture.

### Grading Cream

During the past season, we at Shellmouth have practised grading. The cream was delivered to the creamery by haulers. The cream was collected twice a week on four routes, and once only on the other four. Individual cans are used. The hauler simply brings in the cream—the weighing and sampling is done by the buttermaker. We did not seek to impose an impossible standard. We did not insist that the cream should be sweet, for No. 1 grade, that would be well-nigh impossible. If it was mildly sour, of good flavor, and would run freely through a wire strainer, provided it tested 30 per cent fat, it was No. 1. That is not a severe standard. Any farmer who has a good separator can produce 30 per cent cream, and keep it from three to five days in condition, to grade No. 1, under the test I have mentioned. This insistence upon 30 per cent fat for No. 1 grade caused a good deal of criticism, and some dissatisfaction. It is hard on the average farmer to realize the importance of obtaining heavier cream—over 30 per cent—and the benefits accruing to himself thereby. During the past season the proportion of No. 2 grade testing over 30 per cent, was only 3 per cent. We received 36 per cent No. 1 grade.

If cream grading is to be used as a method of improving the cream receipts, some kind of grade card is desirable. Such a card should have the patron's name, date and pounds of cream delivered, grade, also the fat test, if the card is mailed. The card might have printed upon it, in separate numbered paragraphs, the common faults of cream, and the remedies to be applied. A space can be left for additional remarks, and attention can be called to any paragraph, which applies to the individual delivery of cream noted upon the grade card. The grade card would form also a receipt for the patron for his delivery of cream. The sooner the patron knows how many pounds of cream he is credited with, and what

his grade and test is, the better will he be satisfied.

These are a few first year experiences in grading cream. It is perhaps too soon to say whether the system is an entire success or not. We may lose a few patrons. If we do, they are knockers, and the creamery is better without them. The result is on the whole encouraging. We are up against a great deal of helpless (almost hopeless) ignorance, on the part of many patrons. Grading cream is a new thing for all, and it is, however, an advance step in an effort to make better butter and more of it. By its use, and by "patient continuance in well-doing," we will have its reward.—Mr. Geo. Matheson, in address to Manitoba dairymen.

### Notes From St. Hyacinthe

Forty-two students attended the January short course, which commenced at the St. Hyacinthe Dairy School on January 7, and finished on the 13th. All inspectors' certificates were renewed, and eight inspectors' certificates issued. The issuing of these certificates gives the men securing them the right to travel as inspectors, and to receive a salary from instructors, and to receive a salary from the school. There were 19 diplomas issued to butter or cheese makers, 23 certificates to expert milk testers, and 23 certificates of assiduity.

The men who were successful in getting a permit to travel, each carried away three diplomas, one as a milk tester, (which will be the inspector's certificate is never given,) and one as a maker of butter or cheese. Some went away with two, while others secured only one, of assiduity.

The February course opened on February 2, and concluded on the 20th. Forty-seven names were enrolled at this course, which opened to men of at least three years' experience in factory work. There will be only maker's diplomas and milk tester's certificates issued. At the end of the course, a certificate of assiduity, which is given to all who follow the course from beginning to end.—J. A. P.

### Hand Cream Separators and Gathered Cream Creameries

Continued from Page 13

There have been sold within the last ten years in Canada, from 75,000 to 100,000 hand cream separators. Farmers are buying them, and will buy them because they are profitable as well as necessary to save labor on the farm.

The cause of bad flavor in creamery butter is not due to the use of hand cream separators. As I said before, it is due chiefly to the cream being kept too long after it is separated.

At another Convention, Mr. Barr was given credit with saying that he did not like hand cream separators because of the labor of turning the crank. "Ten-year-old children all over the country are turning the cranks of cream separators and running the machines with great satisfaction to their parents. Any one who knows Mr. Barr as well as I do, knows that he is too good-natured a fellow to want to have anything to do with a 'crank.'"—T. C. Rogers, Guelph, Ont.

### Advantages of Rural Delivery

"I suppose you go to the city at least once a year," said the summer boarder.

"I used to," replied the old farmer, "but I ain't been there for eight or nine years now. Senea we got rural free delivery I kin git bunked just as well by mail, b'gosh."

## Think What A Telephone System Would Mean To You And Your Neighbors

It would save your time—save you any amount of inconvenience and trouble, and facilitate business and social intercourse.

In case of serious sickness or accident, no time need be lost obtaining help. It is at hand the moment you take the receiver off the hook.

If you live on a farm or at a distance from neighbors—think of the convenience of ordering from the stores—talking to friends—and the protection a telephone affords in case of fire or burglary.

We are placing "Canadian Independent Telephones" within reach of everyone. We are manufacturing and operating telephones in opposition to the trust. All our telephones are fully guaranteed for 10 years.

Write us for full information as to how you and your neighbors may have a telephone system at a fair price. Write to-day for our Rural Telephone Book if you are interested.

## Canadian Independent Telephone Co.

LIMITED

26 Duncan Street, Toronto, Ont.



WALL TELEPHONE, MAGNETO TYPE