

**CIHM
Microfiche
Series
(Monographs)**

**ICMH
Collection de
microfiches
(monographies)**



Canadian Institute for Historical Microreproductions / Institut canadien de microreproductions historiques

© 1996

Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming are checked below.

- Coloured covers / Couverture de couleur
- Covers damaged / Couverture endommagée
- Covers restored and/or laminated / Couverture restaurée et/ou pelliculée
- Cover title missing / Le titre de couverture manque
- Coloured maps / Cartes géographiques en couleur
- Coloured ink (i.e. other than blue or black) / Encre de couleur (i.e. autre que bleue ou noire)
- Coloured plates and/or illustrations / Planches et/ou illustrations en couleur
- Bound with other material / Relié avec d'autres documents
- Only edition available / Seule édition disponible
- Tight binding may cause shadows or distortion along interior margin / La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure.
- Blank leaves added during restorations may appear within the text. Whenever possible, these have been omitted from filming / Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.
- Additional comments / Commentaires supplémentaires:

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

- Coloured pages / Pages de couleur
- Pages damaged / Pages endommagées
- Pages restored and/or laminated / Pages restaurées et/ou pelliculées
- Pages discoloured, stained or foxed / Pages décolorées, tachetées ou piquées
- Pages detached / Pages détachées
- Showthrough / Transparence
- Quality of print varies / Qualité inégale de l'impression
- Includes supplementary material / Comprend du matériel supplémentaire
- Pages wholly or partially obscured by errata slips, tissues, etc., have been refilmed to ensure the best possible image / Les pages totalement ou partiellement obscurcies par un feuillet d'errata, une pelure, etc., ont été filmées à nouveau de façon à obtenir la meilleure image possible.
- Opposing pages with varying colouration or discolourations are filmed twice to ensure the best possible image / Les pages s'opposant ayant des colorations variables ou des décolorations sont filmées deux fois afin d'obtenir la meilleure image possible.

This item is filmed at the reduction ratio checked below /
Ce document est filmé au taux de réduction indiqué ci-dessous.

10x		14x		18x		22x		26x		30x	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12x		16x		20x		24x		28x		32x	

The copy filmed here has been reproduced thanks to the generosity of:

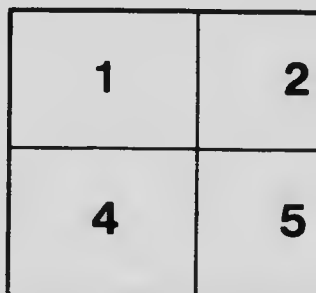
Library
Agriculture Canada

The images appearing here are the best quality possible considering the condition and legibility of the original copy and in keeping with the filming contract specifications.

Original copies in printed paper covers are filmed beginning with the front cover and ending on the last page with a printed or illustrated Impression, or the back cover when appropriate. All other original copies are filmed beginning on the first page with a printed or illustrated impression, and ending on the last page with a printed or illustrated impression.

The last recorded frame on each microfiche shall contain the symbol \rightarrow (meaning "CONTINUED"), or the symbol ∇ (meaning "END"), whichever applies.

Maps, plates, charts, etc., may be filmed at different reduction ratios. Those too large to be entirely included in one exposure are filmed beginning in the upper left hand corner, left to right and top to bottom, as many frames as required. The following diagrams illustrate the method:



L'exemplaire filmé fut reproduit grâce à la générosité de:

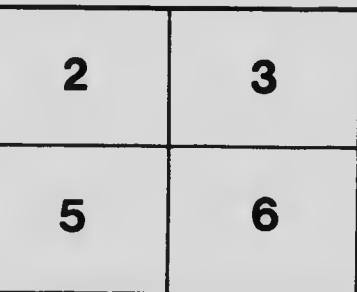
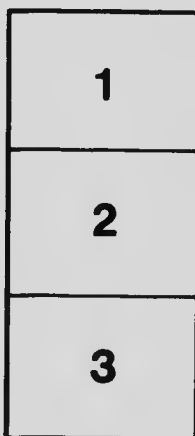
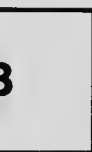
Bibliothèque
Agriculture Canada

Les images suivantes ont été reproduites avec le plus grand soin, compte tenu de la condition et de la netteté de l'exemplaire filmé, et en conformité avec les conditions du contrat de filmage.

Les exemplaires originaux dont la couverture en papier est imprimée sont filmés en commençant par le premier plat et en terminant soit par la dernière page qui comporte une empreinte d'impression ou d'illustration, soit par le second plat, selon le cas. Tous les autres exemplaires originaux sont filmés en commençant par la première page qui comporte une empreinte d'impression ou d'illustration et en terminant par la dernière page qui comporte une telle empreinte.

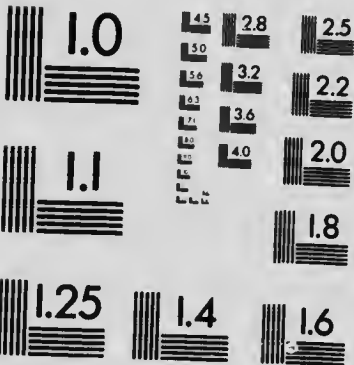
Un des symboles suivants apparaîtra sur la dernière image de chaque microfiche, selon le cas: le symbole \rightarrow signifie "A SUIVRE", le symbole ∇ signifie "FIN".

Les cartes, planches, tableaux, etc., peuvent être filmés à des taux de réduction différents. Lorsque le document est trop grand pour être reproduit en un seul cliché, il est filmé à partir de l'angle supérieur gauche, de gauche à droite, et de haut en bas, en prenant le nombre d'images nécessaire. Les diagrammes suivants illustrent la méthode.



MICROCOPY RESOLUTION TEST CHART

(ANSI and ISO TEST CHART No. 2)



APPLIED IMAGE Inc

1653 East Main Street
Rochester, New York 14609 USA
(716) 482 - 0300 - Phone
(716) 288 - 5989 - Fax

MANITOBA AGRICULTURAL COLLEGE

DAIRY DEPARTMENT

Care of Cream for Creameries

As the dairy industry of a country develops, the tendency, in the manufacture of dairy products, is strongly in the direction of factory or co-operative dairying, and in this respect we are no exception to the rule. The form which it takes is naturally determined by prevailing conditions.

The cream-gathering creamery system is, without doubt, specially suited to our Western conditions, since under it the cost of delivery is reduced to a minimum, and a creamery can be made to serve a comparatively wide area. But under this system the patron becomes a doubly important factor in determining the quality of the butter manufactured, since, in addition to the production of the milk, he has the creaming of it and the care of the cream until it is sent to the creamery.

Where the patrons take good care of the cream the flavor of the butter is satisfactory, while the reverse is the case where the cream is improperly cared for. Hence we say without hesitation that a premium should be placed by our creameries upon the production of good cream.

The purpose of this circular is to briefly point out the causes of bad flavors and other defects in cream, and how these may be prevented.

Any defects there are in the milk are passed on to the cream, and in turn to the butter; and while we cannot take from, we may readily add to these defects in each step in our work. Hence we begin to determine the flavor of the butter in the production of the milk and end with the finished product.

CAUSES OF DEFECTS.

These may be classified as follows:—

1. Poor health of the cow and the closeness to either end of her milking period.

2. Food and water.
3. Absorption of taints.
4. Undesirable forms of germ life (bacteria and yeasts). These small forms of plant life are the causes of most of the troubles in the dairy, and they get into milk and cream practically in proportion to the amount of dust and dirt that gains access to it. Finding the milk or cream an excellent food, they develop in it very rapidly if the temperature is at all suitable. The nearer this approaches blood temperature, the better they thrive. Hence the necessity for cleanliness and low temperatures.

NOTES ON THE CARE OF CREAM.

1. The cows should be free from any contagious disease, such as tuberculosis, and so should all persons who have to do with milking or the handling of the milk or cream.

2. A cow's milk should not be used for butter-making purposes either during the two or three weeks prior to her freshening, or after she freshens until it becomes normal, which usually means about five days.

3. No foods should be fed that will injure the flavor of the milk, such as turnips, decayed roots, mouldy hay, etc. Weedy pastures are a common cause of trouble, and we would specially mention the various weeds so prevalent in the fall in stubble fields and elsewhere, such as "stink-weed," etc.

A cow should not be allowed to drink impure water or wade through cesspools.

4. All the utensils used should be made of a good quality of tin, be so constructed as to be easy to clean, and have all seams and corners well flushed with solder.

In cleaning utensils, first rinse with *warm* (not hot) water, then wash with hot water containing a good washing powder, then thoroughly scald with water as near boiling as possible; after which place them in a pure atmosphere, in the sunlight, and in a position to drain. Use pure water and do the washing with a fibre brush.

5. Do the milking in a clean stable or yard, and do not feed dry foods just before milking, as these will fill the air with dust laden with bacteria.

6. Keep the cows clean. Clip the hair off a hairy udder, and keep the switch clipped during the winter season.

7. Wipe the flank and udder of a cow with a damp cloth before milking. (Why damp?)

8. The milking should be done in a cleanly manner and with dry hands. Smearing a cow's teats slightly with vaseline is much cleaner than wetting them with milk, although neither should be necessary.

9. Remove the milk from the stable, strain it through a fine brass wire gauze strainer, and separate it as soon as possible after milking.

10. Keep the separator in a clean place, and clean it thoroughly every time it is used, just as you would any other dairy utensil and in the same manner. The bowl and its parts should be dried quickly and thoroughly.

11. Take a fairly rich cream, a cream testing about 35 per cent.—not below 30 and not above 40 per cent.

A rich cream means less bulk to handle, cool and ship, and a cream that will keep better and be more satisfactory in every way for butter-making purposes.

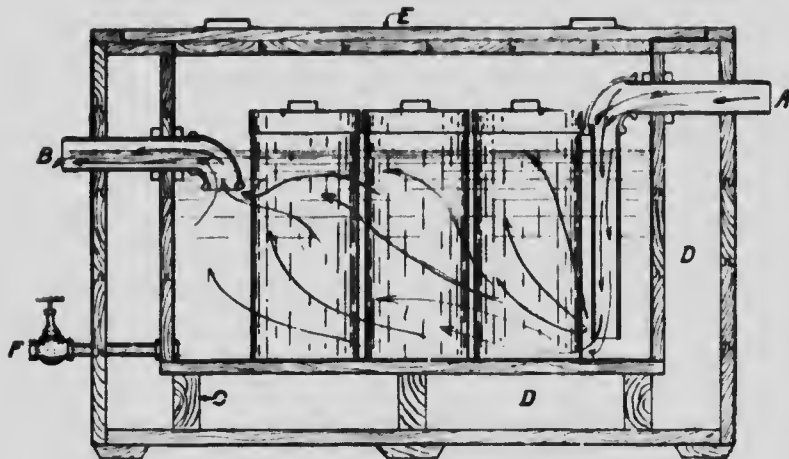
12. Cool the cream from the separator in a separate vessel, and cool it promptly to 50 degrees or below. Use a thermometer and don't guess at the temperature.

13. When cooled the cream may be added to the larger lot, which should be held at the same low temperature. Stir the cream in the larger can every time a new lot is added to it. Keep the cream can covered and keep the cooling tank in clean surroundings.

14. Make as frequent shipments or deliveries of the cream to the creamery as possible, especially in warm weather—say three deliveries a week in summer if possible.

15. Take as a guide that the cream should be sweet, or practically so, and clean in flavor when sent to the creamery.

For good results, provision must be made for promptly cooling the cream and holding it at a low temperature, and this means providing a well-insulated tank, such as shown and described on next page; and also the storing of ice, unless you are unusually well blessed with a plentiful supply of cold water.



A TANK FOR COOLING MILK OR CREAM

by means of water pumped into it and allowed to overflow to a watering trough. The tank, which is made of wood and lined with galvanized iron, is so well insulated that the temperature rises very slowly between the times of pumping water through it.

- A—Inflow pipe, which enters near the top and delivers the water near the bottom of the tank.
- B—Overflow pipe, a little below the tops of the cans. The elbow prevents the entrance of warm air to the tank.
- C & D—Walls and bottom of tank, made by using 2x4 studding, putting paper and matched lumber on the outside and inside, and filling the 4-inch space with dry mill shavings.
- E—Cover made of two plies of matched lumber, with a double ply of paper between. The under side of the cover should be coated with shellac to prevent it from absorbing moisture.
- F—Small pipe, with valve, for emptying the tank to clean it.

The tank should be painted on the outside and placed under cover to protect it from the sun and rain.

Motto: "CLEANLINESS, PROMPT COOLING and a LOW TEMPERATURE."

J. W. MITCHELL,
Superintendent of Dairying.

W. J. CROWE,
Inspector of Creameries.

NOTE.—For fuller information on this subject, write for Bulletin No. 3, entitled "Care of Milk and Cream."



