

Lanorale, Que.; 2, Ed. Ferland, Lanorale, Que.; 3, Ovide Mariou, St. Jacques L'Achigan, Que.

Canadian tobacco, best collection in leaf, packed in boxes or bales, not less than 100 lbs.—1, J. J. Gareau, St. Roch L'Achigan, Que.; 2, A. Desjardins, Ste. Thérèse, Que.; 3, Ed. Ferland, Lanorale, Que.

Special prizes presented by J. M. Fortier, Montreal.

Judge—M. Chartier, city.

DAIRY DEPARTMENT—PRIZE-LIST

CLASS 82, CHEESE, BUTTER, DAIRY UTENSILS

Cheese, best two factory (colored), made between the 10th and 20th August, 1896—1, W. G. Henderson, Dewittville, Que.; 2, Patrick Durmin, Landreville, Que.; 3, T. S. Taylor, Mooer's Station, Que.; 4, R. Werry, Knowlton, Que.; 5, J. T. Bellisle, La Dale du Fevre.

Cheese, best two factory (white), made between the 10th and 20th August, 1896—1, Andrew Fosse, Greenhow, Que.; 2, W. S. Purdy, South Stukoley, Que.; 3, Colin McInnes, Iroquois, Ont.; 4, P. H. McIntosh, Granby, Que.

Cheese, best Siltou, three of 1895 make and three of 1896 make—1, A. R. Curzon, Guelph, Ont.; 2, G. M. Graham, Guelph, Ont.

Best collection of three different makes of cheese made in Canada—3, Art. Crittenden, West Brome, Que.

Butter, best two tubs or firkins made at any butter factory creamery 1, 2 hos. Boyes, Henningford, Que.; 2, Arthur, McFarlane, Cowansville, Que.; 3, La Compagnie M^lct. de Beurre, South Durham; 4, H. Weston Parry, Compton, Que.

Butter, best two firkins or tubs, made at any farm dairy 1, John C. Durin, Waterloo, Que.; 2, Jos. J. LaGalme, L'Assomption, Que.; 3, Mrs. M. Burk, Bowmanville, Que.

Butter, best basket or box, print or rolls, the product of farm dairy 1, Mrs. M. Burk, Bowmanville, Ont.; 2, W. P. Emerson & Sons, Sutton Junction; 3, H. W. Martin, Warden, Que.; 4, N. O. Thompson, Richmond, Que.

Butter, best basket or box, prints or rolls, the product of creamery—1, Simeon Leet, Danville, P. Q.; 2, Lennoxville Creamery Co., P. Q.; 3, Hermitage Creamery Co., St. Johns, Que.; 4, H. Weston Parry, Compton, Que.

Best assortment for shipping purposes, of tubs firkins, boxes and small packages—1, W. Rutherford & Son, Atwater, diploma

"Witness."

The Dairy.

SPECIAL PRIZES FOR ESSAYS.

Section 2.—First prize. (1895)

BUTTER MAKING

Aerating—Stirring—Separating heat—Cooling—Froth—Ripening—Churning—Salt—Working—Packing, &c.

In writing on this subject I shall confine myself more especially to the methods practised in creameries which however apply more or less to the home dairy. The first thing to make sure of in the manufacture of really gilt-edged butter, is that the milk we receive daily is entirely pure and wholesome. This

is a difficult thing to do, but if all the patrons are compelled to use aerators, and use them properly and if the butter-maker is most particular in refusing all stale and tainted milk, that object is attainable.

Having received the milk into the vat, it needs all our care and vigilance, to protect the wholesome and favorable germs suspended in the milk from coming into contact with and being inoculated by other unfavorable germs the production of any body in a state of partial or entire decomposition. This care is essential from the moment even the cow is milked until the moment the butter is consumed.

We will now direct our attention to the proper handling of the milk as it passes through those processes, any of which if improperly conducted will affect the quality or the quantity of our dairy product.

When in the feeding or receiving vat, the milk should be stirred occasionally in order to keep the fat globules, which would naturally be forced to the surface, evenly distributed throughout the entire mass. The milk should be tempered gradually to the temperature desired for separating, as sudden heating makes the milk harder to separate and would not tend to improve the grain of the butter.

The temperature at which to separate depends entirely upon the machine in use and the season of the year. In winter it may be advisable to separate at a temperature of 80 or 85 F., but in summer, when the weather is warm, it is of great importance to keep the temperature down at every move, and therefore I should advise separating at from 70 to 75 which will be found to be the temp. of the milk as it is received at the factory. This may necessitate running the milk through somewhat slower than if heated artificially to 80 or 85, but as long as the skim milk tests no more than one tenth of 1 p. c., the end will justify the means, as the grain and flavor will be the better preserved to the butter, and, Mr. Patron, you who grumble because you have to wait so long, your skim milk won't sour half as easily. The cream should be taken about 15 p. c., or should contain 20 to 25 p. c., of butter fat, as thick cream can be churned at a lower temp. than thin.

Having separated our cream, it should immediately be cooled, to as low a temperature as 48 if possible, this will effectually stop all fermentation which may have commenced and will very much prevent that lack of flavor in very hot weather, and this is a point of great importance.

Having got the cream down to a uniformly low temperature, we proceed to set for ripening, and gradually raise the temperature to about 65 in summer or 80 in winter, and during this process the cream should be frequently stirred so that the cream which is in contact with the vat may not at any time become over-heated.

Any froth floating on top of the cream must be stirred in if possible, as there is fat in this froth and if left on top it will not ripen with the rest of the cream and will not churn so thoroughly, thus causing a loss of fat in the butter-milk, it sometimes also is the cause of mottled butter as it does not make the color so rapidly.

Where cream is churned the day after it is separated it is necessary to use a starter to hasten the ripening process. I use a fermentation starter composed of separated skim milk from a perfectly healthy newly calved cow,

this is set to ripen at a temperature of 80° until it loppers, then I skim off about two inches of the top in order to avoid using the impure germs which may have reached it through the air, and I also leave about an inch of that at the bottom to avoid using the precipitated caseous matter. That remaining, I stir up and strain through a fine sieve into the cream and mix thoroughly. If a supply of new milk cannot be obtained, a starter can be prepared by heating separated skim-milk to a temp. of 160 and keep it at that temp. sufficiently long to destroy all living organisms, and then ripen it gradually at a temperature from 65 to 70 and cool down and keep it on hand at a low temperature. Pure cultures for the making of starters can be prepared and are now also on the market. Having mixed in the starter, the cream should be stirred occasionally and then left undisturbed until ripe for churning.

Cream is ripe when it develops a pleasant but slightly acid taste, and is like oil, uniformly thick and smooth in appearance.

When ripe and at the proper temperature, the cream is STRAINED into the churn, in order to remove any curd or other foreign matter which may be held in suspension in it.

The churn should not be filled much more than half full in order to obtain best results.

The proper temperature at which to churn depends on the quality of the cream and on the surrounding atmosphere.

I always aim to churn as low as possible, say from 50 in summer, to 55 in winter, as a low temperature gives much more exhaustive churning as a rule. I want butter to come in 35 minutes.

If any colouring is used, it should be added directly the cream is all in the churn.

When the grains are about the size of wheat grains, I stop the churn, and draw off the butter-milk. Then I add as much pure water as there was butter-milk, at a slightly lower temperature than the cream when it was put into the churn, say 20 lower, and give the churn a few quick turns to wash the butter.

One method of salting is to run off the water in which the butter is washed at once, and let the grains in the churn drain for twenty minutes. Then add the salt as the granular butter lies in the churn, and give the churn a few slow revolutions in order to thoroughly mix the salt.

My practice however, is to convey the butter in granular form to the worker by means of a tin dish with a perforated bottom, taking care not to get too much on the table to work at once.

When the moisture pressed out of the butter runs off the table perfectly clear, I add salt from ½ to 1 oz. to the pound of butter, according to the requirements of the market supplied.

Care should be taken to procure the finest quality of pure salt on the market, and it should be kept in a sweet and dry place, as it very readily takes to it any obnoxious odors which may exist in the surrounding atmosphere.

The salt being added, it must be mixed thoroughly and uniformly, and the butter worked until all the moisture is expelled. If this can be done in one working without injury to the grain or without spoiling that clean waxy texture so desirable, so much the better, and it is then ready for packing. On the other hand it may be neces-

sary, after the salt is evenly distributed throughout the butter, to leave it for a few hours at a temperature from 50 to 55, until the salt is dissolved, then with a few turns of the worker all excess of moisture is expelled, and any break in the color removed.

The proper temperature at which to work butter is from 50 to 55. If worked at a higher temperature we may make it greasy, this may be done too by overworking it.

The appearance of butter when finished should be like wax, and it should be in a condition so that the grain would be the least injured. With regard to colouring, a color similar to straw is required for the British Market, but for the home supply a somewhat higher color is called for. Also in salting 2 p. c., is required in England, while 4 p. c., and over is called for at home.

Butter should be packed in whatever package the trade demands.

I have been using this summer, for export, the ½ cwt. (56 lbs) boxes, which give every satisfaction in England.

In packing, no air holes should be kept and all corners should be properly filled, as the tighter the packing and package, the better is the chance of the butter keeping.

All packages should be thoroughly scalded, and cooled afterwards, and a lining of parchment paper used to make it air tight.

The bare hands should never touch the butter. In all things connected with creamery work and butter making, let us remember: "CLEANLINESS IS NEXT TO GODLINESS." In fact, the profitable results attendant on cleanliness in the creamery, would almost award that virtue premier honors.

Beside bad smells, etc., etc., the following irrevocable mistakes in manipulation will injure the flavor of butter, holding cream too long at a high temperature, over-churning and over-working.

Now that we are looking across the sea for a market for our butter, we must study the requirements of that market. And if we try to improve our utmost and turn out butter with the best keeping qualities, a firm waxy article, colored a delicate primrose tint, salted just enough to tell it is salted, free from moisture, free from taint and impurities, we shall make better butter than the Danes are making, and establish for Canada a reputation as great and glorious as our cheese has already earned:

"FACILE PRINCEPS"

(Written by Mr. Horace Weston Parry, Buttermaker, Model Farm, Compton, Que.)

I hereby certify that this essay is written by our buttermaker Mr. Parry, maker of our exhibit of butter at the Provincial Exposition, Montreal.

Sept. 11th, 1895, Signed, ROBT ROBERTSON, Manager C. M. F.

THE OFFICIAL ANALYST ON THE CHEESE-COMPETITION.

Official laboratory of the Province of Quebec.

St. Hyacinthe College, July 27th 1896.

Remarks of the Chemist on water—Fat—Milk-contents—American cheese—Aroma—Salt—Volatile acids.

WATER: If I take, as a comparison, the numerous analyses of Cheddar cheese, made by Mr. Van Slyke, che-