

THE ILLUSTRATED Journal of Agriculture

Montreal, September 1, 1896.

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COMPETITION OF DAIRY-PRODUCTS Under the Management of the Department of Agriculture of the Province of Quebec.

GENERAL DEFECTS. Excess of fermentable matters; bad flavour; white stains, greasy butter, irregular salting; bad colour, defective packing.

REMEDIES: -Regular, continuous fermentation of the cream; perfect cleanliness, attention to the churning, washing, working and packing. Report of M. Pabbé Choquette.

Concerning the competition of butters which took place at Quebec, June 25th, 1896, the Department of Agriculture was now in its possession,

1. The special and general reports of the judges, MM. A. A. Ayer and J. A. Vaillancourt, exporters of dairy goods, who examined the butters sent in to this competition.

2. The report of M. Pabbé Choquette, director of the St. Hyacinthe Official laboratory, who analysed the said butters.

3. The report of M. J. D. Leclair, Superintendent of the St. Hyacinthe dairy-school, and Inspector-general of the creameries of the province, who examined the exhibits for the purpose of ascertaining the causes of the defects noted by the Judges.

These documents show, 1. the defects relating to the making, properly so called, of the butter; 2. the defects pertaining to its general appearance and the packing of it; 3. the remedies and modifications that should be introduced into the work in order to obtain products of the very finest quality, that would also make the best appearance on the market.

Each exhibitor will immediately receive a private letter informing him of the defects observed in his exhibit, and the causes of such defects.

The following is an abstract of all the documents above mentioned: it will be sent to the creameries of the province.

DEFECTS NOTED

1. Some butters contain too much sugar of milk, casein, and other fermentable matters capable of, in time, developing in these butters a disagreeable flavour and of injuring its keeping qualities. The best butters—those that won prizes—contain an average of 1.32 p. c. of these matters, while other inferior butters contain as much as 2.89 p. c. This excess is caused, generally speaking, by the bad ripening of the cream, and by the careless washing and working of the butter.

2. Some butters have a bad flavour and aroma, confirmed au reste by the chemical analysis. Several causes are recognised of this defect: 1. too rapid ripening of the cream; 2. the use of bad milk in butter-making; badly treated, dirty milk contains a host of germs that develop in the cream and, afterwards, even in the butter, when they set free certain acid gases, called volatile acids, both the taste and smell of which are eminently disagreeable; 3. want of cleanliness in the creamery and its surroundings, as well as in the machinery, implements, and utensils used therein. In this case, it is not alone these implements but also the atmosphere of the factory which is more or less infected by the injurious germs which enter into the milk, the cream, and the butter, there becoming developed and disengaging still more of the volatile acids we have just mentioned;

1. the too long exposure of the cream or the butters to the air, heat, and bad effluvia, as well as their too lengthy sojourn in icehouses or rooms the air in which is not pure; 5. the pasturing of cows in fields that contain certain plants that give a bad flavour to the milk, or feeding the cows on foods that are known to produce the same effects.

3. Many butters are injured in quality by white veins and spots that often arise from unstrained cream, badly ripened, or poured into the churn without being uniformly cooled. This defect, which must be strenuously contended with, is a very serious one, for the English market will have nothing to do with butter that is not uniform in colour, and, unfortunately, many tubs are affected by this defect.

4. Some of the butters were absolutely deprived of their grain, which had been crunched up by working it too severely and for too long a time, or by having been worked in too high a temperature. Another cause of this defect is the use of ice in the churn, and churning at too high a temperature.

5. A very striking defect is the want of uniformity in the salting of butter. Some butters have nearly 4 p. c., salt in it, others only 1 1/2 p. c. The difference is too great, and it is very desirable that all makers should use about the same percentage.

6. We have still the following defects to note: too much water in some butters and too deep or too pale a colour in others.

7. Lastly, we have to note the carelessness of most makers in packing their butter. Many of the boxes and tubs are dirty; too full or not full enough; have no parchment-paper, or that paper badly fitted; too much salt on the top of the tub; boxes badly made; hoops wanting, or badly put on, etc., etc.

These are the chief defects that caused many marks to be lost by several competitors, and which are the most injurious to the good repute of Canada butter in the foreign market. We draw the attention of makers to them, and add some hints that may aid them in getting rid of them.

Hints to be followed as to the cure of the above mentioned defects. In order to avoid having any excess of sugar of milk, casein, and other fermentable matters, in butter, the cream must be ripened uniformly and regularly the butter must be churned at a fairly low temperature, and the washing and working done thoroughly, but so as not to destroy the grain of the butter.

As to the bad aroma and flavour, we have first of all to warn the maker to clear out, disinfect, and ventilate as much as possible the whole creamery, particularly the icehouse and the rooms in which the cream or butter has to stay for any length of time; to give the dirty water an easy chance to run off, and not to allow it to remain in the immediate neighbourhood of the factory in pools or tanks, covered or uncovered; to make the floors, whether they are of wood or stone, so staunch that the foul water of washing up cannot leak through and stay under them; to carefully sponge every day the oil in the machinery, and not to let the oil remain too long in the holes and hollows that are often found in the foundations of the engine, etc., to thoroughly cleanse all the utensils used in butter-making; not to grudge for this purpose the daily use of steam, which we specially recommend for the maintenance in good order of the churns. The sieves and the cloths for washing up, must be daily cleaned most care-

fully. The most minute cleanliness in the whole process is the first requisite for making butter of good aroma and flavour, butter that will keep for many a day. Refuse, without hesitation, any foul, badly aerated, sour milk taken to the factory by careless patrons.

The ripening of the cream must be very uniform both as regards the duration and temperature, and not be left at the risk of the varying temperature of the creamery. If these means do not prove successful, which would be surprising, a good ferment, procured from a good maker in the neighbourhood, may be tried.

As to the grain of butter and the white veins, if the cream is strained and uniformly ripened, and if the churning, washing, and working are done at not too high a temperature, there will probably be no trouble about these points. Working the butter at twice might be tried, leaving it quiet at a low temperature between the two workings, which ought to be done quickly and carefully. The whole of these two workings should not occupy more time than one ordinary working.

As to salting, at present the market requires 3 p. c., or a half ounce of salt to the pound of butter. It ought to be mixed in carefully by means of the butter-worker, but care must be taken not to make the butter greasy by breaking the grain and thereby destroying the aroma. Before the salt is added, the greater of the water and the buttermilk should have been expelled.

A fine pale-yellow colour is the favorite in the market.

The boxes or tubs must be well made clean, and lined all round the sides and at the bottom with parchment-paper. Fill them as full as possible, and, smoothing the top thoroughly, cover it with a double sheet of parchment-paper. Quite useless to put salt on the top of the box or tub.

All novices in butter-making, and those who are not thoroughly up to the manipulation of the goods and the secrets of the trade, should feel it their duty to attend every year the courses at the St. Hyacinthe Dairy-school, and continue to do so until they are able to make butter of the finest quality.

We strongly recommend for perusal the following very interesting report from M. Pabbé Choquette.

(Signed) G. HENRY, Secretary of the Competition.

COMPETITION OF BUTTER

Held at Quebec, June 25th, 1896.

NOTES BY THE ANALYTICAL CHEMIST.

WATER:—In the great majority of samples, the percentage of water is by no means high; these butters are comparatively dry. There is, however, on this point, a source of error that the chemist can not control; it arises from the fact that the taster when thrust into the butter drives before it the water on all sides, and the sample compressed anew in the taking of the piece for analysis, allows a few more drops of water to escape. I calculate that the correction of this error would increase the amount of water in the analysis by one or two units.

BUTTER:—On the other hand, the percentage of butter, properly so called, is high. The correction mentioned above would lower this by one or two units.