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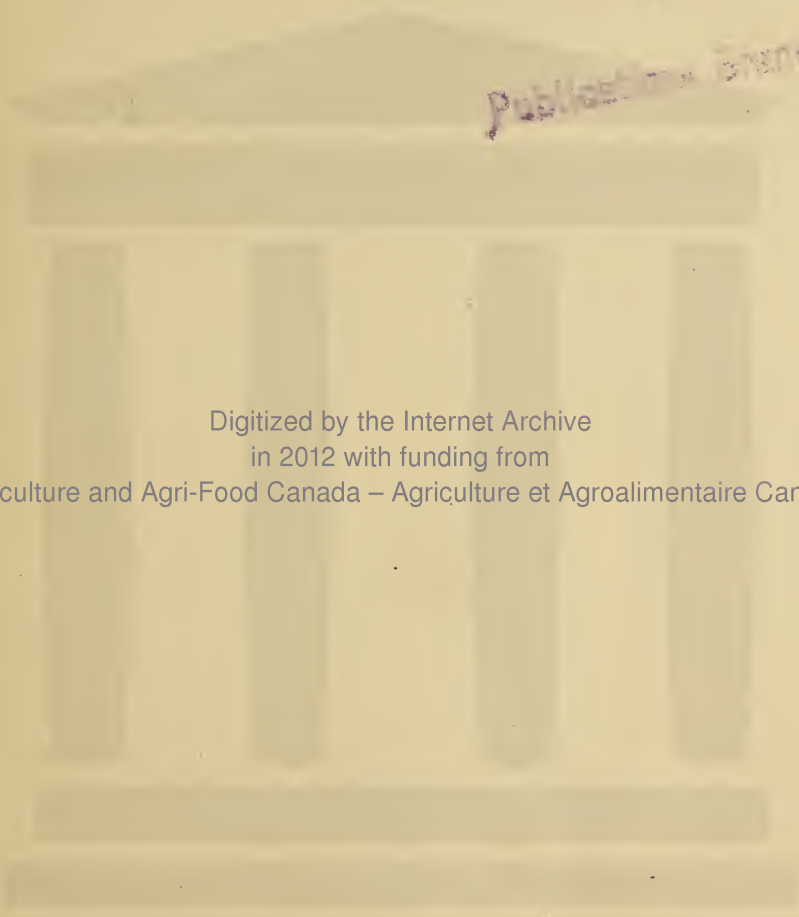
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DOMINION DEPARTMENT OF AGRICULTURE
BRANCH OF THE DAIRY AND COLD STORAGE COMMISSIONER
OTTAWA, CANADA

REPORT

ON THE

DOMINION EDUCATIONAL BUTTER
SCORING CONTEST

1919

BY

G. H. BARR

BULLETIN No. 56
DAIRY AND COLD STORAGE SERIES

REPORT

ON THE

DOMINION EDUCATIONAL BUTTER SCORING CONTEST

1919

In planning for the contest, arrangements were made with the provincial Dairy Commissioners and Superintendents of Dairying to select four creameries in each province that would manufacture and ship to Montreal each month from May to October, inclusive, one 14 pound box of butter. British Columbia selected only three creameries.

The method of manufacturing the butter was left entirely with the creamerymen and the provincial authorities. Blank churning records were furnished each creamery to be filled in and forwarded with the samples. Upon arrival in Montreal, the butter was placed in cold storage at a temperature of from 12 to 15 degrees. A few days after the samples were received they were scored by Mr. P. W. McLagan, Montreal; Mr. J. B. Muir, Ingersoll, and the writer. They were rescored for flavour by the same judges each succeeding month until October. The August, September, and October samples were rescored for flavour on December 17.

OBJECTS.

The contest was undertaken to—

- (1) ascertain if it is possible to make the highest grade of butter in all the provinces;
- (2) find out, if possible, the best method of handling the cream and churning it to make the finest and best keeping quality of butter;
- (3) establish a standard type of butter which will meet the requirements of the export trade and also be suitable for the best markets in Canada;
- (4) promote a healthy rivalry between the different provinces in making the finest quality of butter; and
- (5) determine to some extent the effectiveness of the dairy educational work being carried on in each province.

ALL PROVINCES MAKE HIGH GRADE BUTTER.

The question of the possibility of making a uniformly high grade of butter in all the provinces has been definitely settled. Note the uniformity in the total score on the best samples from each province:—

Province—	Points.
British Columbia	97.1
Alberta	98.0
Saskatchewan	98.5
Manitoba	98.0
Ontario	96.5
Quebec	98.5
New Brunswick	96.8
Nova Scotia	98.0
Prince Edward Island	98.0

These scores show that the finest butter can be made in any part of Canada.

BASIS OF GRADING.

The grading of the samples was determined according to the standards adopted by the Dominion Dairy Conference held at Ottawa in November, 1918, which are as follows:—

Special Grade.—94-100 points. Minimum score for flavour 41 points.

First Grade.—92 and under 94 points. Minimum score for flavour 39 points.

Second Grade.—87 and under 92 points. Minimum score for flavour 37 points.

Off Grade.—Under 87 points, and under 37 points for flavour.

GRADES BY PROVINCES.

The following table shows the total number of samples received from each province, and the score for flavour at the first scoring.

TABLE I.

Province.	Total Number of Samples.	Special Grade.	No. 1 Grade.	No. 2 Grade.	Off Grade.
British Columbia.....	18	6	10	2	.....
Alberta.....	22	15	7	.....	.....
Saskatchewan.....	22	8	11	3	.....
Manitoba.....	20	14	4	.....	2
Ontario.....	19	2	7	10	.....
Quebec.....	23	17	6	.....	.....
New Brunswick.....	23	5	9	9	.....
Nova Scotia.....	14	8	6	.....	.....
Prince Edward Island.....	20	6	8	6	.....
	181	81	68	30	2

Total number of samples from each province graded according to flavour in the last rescoring.

TABLE II.

Province.	Total Number of Samples.	Special Grade.	No. 1 Grade.	No. 2 Grade.	Off Grade.
British Columbia.....	18	.....	11	6	1
Alberta.....	22	9	8	5	.....
Saskatchewan.....	22	4	13	5	.....
Manitoba.....	20	14	4	2	.....
Ontario.....	19	1	2	5	11
Quebec.....	23	9	14	.....	.....
New Brunswick.....	23	1	5	8	9
Nova Scotia.....	14	1	7	5	1
Prince Edward Island.....	20	3	1	7	9
	181	42	65	43	31

A comparison of Tables I and II will show clearly the relative keeping quality of the butter from each province.

THE BEST METHOD OF HANDLING THE CREAM.

The contest shows that the very finest butter can only be made from clean, sound flavoured cream. As far as this contest is concerned, the keeping quality is just as good in butter made from cream with 0.35 per cent acid as from cream with less than 0.2 per cent acid, but the results show that 0.35 per cent is about the limit for the finest flavoured butter with long keeping qualities.

It has been generally accepted that pasteurizing the cream improves the keeping quality of butter. The contest bears out this fact, but pasteurization will not produce special grade butter from sour, poor flavoured cream. High pasteurization (160 to 185 degrees) has given much the best results in the keeping quality of the butter.

Table III shows the number of samples made from pasteurized and unpasteurized cream each month, and the number placed in each grade at the first scoring and at the last rescorings on October 23 and December 17.

TABLE III.

Month.	Number of Samples.	Treatment of Cream.	Dates of scoring and Rescoring.	Grades.			
				Special.	No. 1.	No. 2.	Off Grade.
May.....	21}	Pasteurized.....	{May 20.....	14	5	2	.....
".....	21}		{Oct. 23.....	10	6	4	I
".....	2}	Unpasteurized.....	{May 20.....	.....	1	1	.....
".....	2}		{Oct. 23.....	.....	.....	1	I
June.....	27}	Pasteurized.....	{June 24.....	18	7	2	.....
".....	27}		{Oct. 23.....	4	11	9	3
".....	5}	Unpasteurized.....	{June 24.....	3	1	1	.....
".....	5}		{Oct. 23.....	.....	.....	2	3
July.....	25}	Pasteurized.....	{July 22.....	10	9	6	.....
".....	25}		{Oct. 23.....	3	14	5	3
".....	6}	Unpasteurized.....	{July 22.....	.....	5	1	.....
".....	6}		{Oct. 23.....	.....	.....	2	4
Aug.....	28}	Pasteurized.....	{Aug. 19.....	13	10	4	1
".....	28}		{Dec. 17.....	3	13	8	4
".....	5}	Unpasteurized.....	{Aug. 19.....	1	4	.....	.....
".....	5}		{Dec. 17.....	.....	.....	2	3
Sept.....	26}	Pasteurized.....	{Sept. 23.....	11	9	5	1
".....	26}		{Dec. 17.....	8	12	2	4
".....	5}	Unpasteurized.....	{Sept. 23.....	.....	3	2	.....
".....	5}		{Dec. 17.....	.....	.....	2	3
Oct.....	27}	Pasteurized.....	{Oct. 23.....	14	9	4	.....
".....	27}		{Dec. 17.....	14	9	2	2
".....	4}	Unpasteurized.....	{Oct. 23.....	.....	.....	4	.....
".....	4}		{Dec. 17.....	.....	.....	4	.....

This table shows very plainly the advantages of pasteurizing the cream.

Table IV shows the deterioration in flavour in the samples made each month from pasteurized and unpasteurized cream during the period between the first scoring and the rescorings on October 23 and December 17. The average pasteurizing temperature was 172.2 degrees.

TABLE IV.

Month Made.	Treatment of Cream.	No. of Samples.	Date Scored.	Points.	Date Rescored.	Points.	Difference.
May.....	Pasteurized.....	21	May 20..	41.00	Oct. 23..	39.95	1.05
".....	Unpasteurized.....	2	" 20..	38.50	" 23..	35.50	3.00
June.....	Pasteurized.....	27	June 24..	41.04	" 23..	38.98	2.06
".....	Unpasteurized.....	5	" 24..	40.70	" 23..	35.20	5.50
July.....	Pasteurized.....	25	July 22..	40.12	" 23..	39.08	1.04
".....	Unpasteurized.....	6	" 22..	39.28	" 23..	36.08	3.20
Aug.....	Pasteurized.....	28	Aug. 19..	40.12	Dec. 17..	38.50	1.64
".....	Unpasteurized.....	5	" 19..	40.30	" 17..	36.40	3.90
Sept.....	Pasteurized.....	26	Sept. 23..	40.02	" 17..	39.33	0.69
".....	Unpasteurized.....	5	" 23..	38.90	" 17..	36.70	2.20
Oct.....	Pasteurized.....	27	Oct. 23..	40.44	" 17..	40.20	0.42
".....	Unpasteurized.....	4	" 23..	38.00	" 17..	37.40	0.60

The deterioration in the butter made from unpasteurized cream is almost three times as great as that made from pasteurized cream.

The tendency of pasteurizing is to produce a mild flavour. Many consumers do not like butter of this character. They prefer butter with a more pronounced taste, but the rescorings show that the butter with this mild flavour shows less deterioration in storage than the butters with a higher or more pronounced flavour, and the creamery-men and butter dealers will do well to note this fact.

Butter made from cream pasteurized at a temperature of 160 degrees and held for from ten to twenty minutes, has kept its flavour equally as well as that made from cream heated to 180 degrees and held. It must be remembered, however, that there is no way of comparing the flavours of the cream used in the different samples, and for this reason it would seem good policy to use the higher temperature.

The following is the churning record of the best keeping sample of butter in the contest:—

**DOMINION EDUCATIONAL BUTTER SCORING CONTEST.
CHURNING RECORD.**

Creamery—Shoal Lake.

Location—Shoal Lake, Man.

Date of Churning—May 3, 1919

Marks on Package.....

The Cream	{	Remarks on the flavour of the cream.....	
		Per cent butter fat in the cream.....	32.00
		Per cent acid in the cream before Pasteurizing.....	0.22
		Per cent acid in the cream after Pasteurizing.....	0.21

Pasteurizing	{	Maximum temperature.....	175 deg.
		Length of time raising temperature.....	25 min.
		Length of time cream held at maximum temperature.....	10 min.
		Length of time cooling cream.....	55 min.
		Temperature to which cream cooled.....	40 deg.
		Time between maximum temperature and churning begun.....	17 hr. 55 min.

Churning	{	Per cent acid in the cream at churning, 0.22.	
		Temperature of the cream at churning.....	44 deg.
		Time churning.....	45 min.
		Temperature of wash water.....	1st 51 deg. 2nd 51 deg.
		Size of granules when washing is finished, Size of wheat.....	
		Kind of churn used, Alpha.	

Salt Salt per lb. of butter.....oz., or per cent of salt used, 2

Tests	{		At Creamery	At Montreal
		Per cent water in butter.....	13.4	14.0
		Per cent salt in butter.....	....	1.4
		Per cent acidity in butter.....	....	....
		Storch test.....	....	N.R.

NOTE.—It is optional for the buttermaker to make these tests.

(Buttermaker sign here) **J. R. NESBITT,**
P. O. Address, Shoal Lake,
Province, Man.

Date.....

The scoring for flavour in this sample was as follows:—

Month—	Points.
May.....	42.0
June.....	42.0
July.....	41.5
August.....	41.5
September.....	42.0
October.....	42.0

The following is the churning record of the poorest keeping sample of butter in the contest:—

**DOMINION EDUCATIONAL BUTTER SCORING CONTEST.
CHURNING RECORD.**

Creamery Location

Date of Churning—June 7, 1919. Marks on Package

The Cream { Remarks on the flavour of the cream
 { Per cent butter fat in the cream 26
 { Per cent acid in the cream before Pasteurizing
 { Per cent acid in the cream after Pasteurizing

Pasteurizing { Maximum temperature deg.
 { Length of time raising temperature hr. min.
 { Length of time cream held at maximum temperature hr. min.
 { Length of time cooling cream hr. min.
 { Temperature to which cream cooled deg.
 { Time between maximum temperature and churning begun hr. min.

Churning { Per cent acid in the cream at churning
 { Temperature of the cream at churning 55 deg.
 { Time churning hr. 21 min.
 { Temperature of wash water 1st 47 deg. 2nd .. deg.
 { Size of granules when washing is finished, Corn.
 { Kind of churn used, Success.

Salt Salt per lb. of butter oz., or per cent of salt used, 6

Tests	{	Per cent water in butter	At Creamery	At Montreal
		Per cent salt in butter		12.4
		Per cent acidity in butter		2.7
		Storch test		S.R.

NOTE.—It is optional for the buttermaker to make these tests.

(Buttermaker sign here)

P.O. Address

Province

Date

The scoring for flavour in this sample was as follows:—

Month—	Points.
June	42.0
July	38.5
August	37.0
September	36.0
October	34.0

This butter was slightly fishy in flavour when a month old.

STANDING IN THE AVERAGE OF THE SCORINGS FOR FLAVOUR OF ALL THE SAMPLES FROM EACH CREAMERY.

Standing.	Name of Creamery.	Province.	Average Score.
1st.....	Shoal Lake.....	Manitoba.....	41-60
2nd.....	Crescent.....	Manitoba.....	41-50
3rd.....	Markerville.....	Alberta.....	41-40
4th.....	Gentilly.....	Quebec.....	41-20
5th.....	Central.....	Alberta.....	41-10
6th.....	Russell.....	Manitoba.....	41-00
7th.....	St. Vallier.....	Quebec.....	40-90
7th.....	St. Hyacinthe.....	Quebec.....	40-90
8th.....	Tantallon.....	Saskatchewan.....	40-60
8th.....	North Tryon.....	Prince Edward Island.....	40-60
9th.....	Kelowna.....	British Columbia.....	40-40
9th.....	St. Roch.....	Quebec.....	40-40
10th.....	Humboldt.....	Saskatchewan.....	40-30
11th.....	T. Eaton Co.....	Manitoba.....	40-20
12th.....	Edmonton City Dairy.....	Alberta.....	40-07
43th.....	Scotsburn.....	Nova Scotia.....	40-05
14th.....	Salt Spring Island.....	British Columbia.....	39-90
15th.....	Farmers' Co-operative.....	New Brunswick.....	39-80
16th.....	Melville.....	Saskatchewan.....	39-70
17th.....	Prince Albert.....	Saskatchewan.....	39-40
17th.....	Belmont.....	Manitoba.....	39-40
18th.....	Viking.....	Alberta.....	39-30
19th.....	Pictou.....	Nova Scotia.....	39-20
20th.....	Sussex.....	New Brunswick.....	38-90
20th.....	Intercolonial.....	Nova Scotia.....	38-90
21st.....	Central Bedeque.....	Prince Edward Island.....	38-50
22nd.....	P. Burns.....	British Columbia.....	38-30
23rd.....	La Société d'Industrie.....	Nova Scotia.....	38-20
24th.....	Guelph.....	Ontario.....	38-10
25th.....	Madawaska.....	New Brunswick.....	37-60
25th.....	Crapaud.....	Prince Edward Island.....	37-60
26th.....	Lindsay.....	Ontario.....	37-40
27th.....	Bowes Co.....	Ontario.....	37-30
28th.....	Victoria Mills.....	New Brunswick.....	37-20
28th.....	Dunstaffnage.....	Prince Edward Island.....	37-20
29th.....	Winchelsea.....	Ontario.....	37-10

STANDING BY PROVINCES IN THE AVERAGE OF ALL THE SCORINGS FOR FLAVOUR.

Standing.	Province.	Average Score.
1st.....	Quebec.....	40-85
2nd.....	Manitoba.....	40-76
3rd.....	Alberta.....	40-73
4th.....	Saskatchewan.....	40-12
5th.....	British Columbia.....	39-54
6th.....	Nova Scotia.....	39-40
7th.....	Prince Edward Island.....	38-52
8th.....	New Brunswick.....	38-34
9th.....	Ontario.....	37-50

THE STORCH TEST.

This test is based on the principle that milk and cream produced normally contains certain deoxidizing ferments which are known as peroxidase. If, when a few drops of an "indicator" and a "reagent" are added to a sample of milk or cream, an immediate colour reaction occurs (milk and cream, indigo blue; whey, violet-red; butter, dark blue), then the sample has not been heated above a certain critical tem-

perature, or it may not have been heated at all. If the sample turns a pale grey in colour either immediately or within half a minute's time after the addition of the reagents, then it has been previously heated to the "border line." If the sample remains white or develops a very pale violet-red tone by the addition of the reagents, then it has been heated to a temperature sufficiently high to destroy or to render inactive the peroxidase ferment.

In reporting the Storch Tests in this contest, three terms were adopted: "No Reaction" (N.R.) when the sample remained white; a "Light Reaction" (L.R.) when the sample turned a light grey colour; and a "Strong Reaction" (S.R.) when the sample turned a dark blue colour.

The following brief statement shows the value of the test in relation to the keeping quality of the butter.

One hundred and thirty samples gave "No Reaction," and at the last rescore eight of these samples, or 6.07 per cent, were placed in "Off Grade" for flavour; the churning records indicate that five of the eight samples were made from cream in which the acid had been neutralized, and two were made from unpasteurized cream and no record as to the acidity or condition of the cream was given. It has been found that a very high acidity on the cream will affect the Storch Test results.

Thirty-one samples gave a "Light Reaction," and at the last rescore eleven of these samples, or 35.5 per cent were placed in "Off Grade" for flavour.

Twenty samples gave a "Strong Reaction," and at the last rescore 50 per cent were placed in "Off Grade" for flavour.

These results would indicate that the Storch Test is a fairly reliable test to show the keeping quality of butter, and can be used to very great advantage in commercial grading.

STANDARD TYPE OF BUTTER.

The type of butter that pleased the scorers best, and in fact everybody else who saw the samples, was that which came out on the trier like a piece of wax and showed little or no moisture on the butter or on the back of the trier. The texture was firm, close and smooth. At one time this style of texture would have been considered overworked, but it is a very desirable quality at the present time. The colour was even, and about a straw shade. This type of butter when salted to suit the requirements of the different markets will, we believe, please the most critical buyer of butter.

TEXTURE.

Many of the samples were brittle or short in texture, the butter had the appearance of being churned at too high a temperature, coming soft, and then washed with very cold water. It was thought at one time that brittle texture in butter made from pasteurized cream was due to churning the cream too soon after pasteurizing, or before the fat had been cooled sufficiently, but a brittle texture was found in butter made from cream which was cooled to 46 degrees and held for fifteen hours before churning at a temperature of 52 degrees. A careful study of the churning records for the 1919 contest fails to show any definite cause for brittle texture. The butter from the Maritime Provinces is inclined to be open and loose in texture; more working would improve it. A close, smooth, waxy texture is what is desired.

MOISTURE.

In view of the fact that the law in reference to the water content of butter is being enforced, it is important that the creamerymen pay close attention to this particular point, but in addition to the proper amount of moisture in the butter, it is important that the moisture be properly incorporated. When the moisture shows in large drops in the butter, or on the trier, it is considered leaky or as having too much

free moisture. Such butter when cut up will be certain to lose considerable in weight and is, therefore, a very undesirable butter to handle. Many of the samples from Ontario and the Maritime Provinces showed too much free moisture. More working would distribute the water more evenly and overcome this defect.

SALTING.

The amount of salt added to the butter at churning according to the churning records, varied from 1.5 to 8 per cent. The percentage of salt in the butter as shown by the salt test varied from 0.8 to 4.3 per cent. The churning records for the fifteen samples which scored the highest for flavour had an average of 2.73 per cent salt added at churning and 1.4 per cent in the butter. If the salt test is reliable there is either a very great difference in the percentage of salt expelled in working the butter, or there are very grave errors made in estimating the quantity of salt added to the butter.

The following is a summary of the different quantities of salt added at churning and the percentage found in the butter.

Number of Samples.	Salt added.	Salt in finished butter as shown by the salt test.
	Per cent.	Per cent.
30.....	2.0	1.43
9.....	2.5	1.58
32.....	3.0	1.77
8.....	3.5	1.84
23.....	4.0	2.52
5.....	5.0	2.60
13.....	6.0	2.84

AVERAGE PER CENT SALT ADDED, AND THE AVERAGE PER CENT OF SALT FOUND IN THE BUTTER FROM EACH PROVINCE.

Province.	Salt added.	Salt in finished butter as shown by salt test.
	Per cent.	Per cent.
British Columbia.....	3.64	2.13
Alberta.....	2.60	1.13
Saskatchewan.....	2.57	1.48
Manitoba.....	1.99	1.15
Ontario.....	3.44	2.38
Quebec.....	3.32	1.74
New Brunswick.....	5.29	2.57
Nova Scotia.....	3.67	2.07
Prince Edward Island.....	3.87	2.19

To manufacture a uniform type of butter in all the provinces is no doubt a big problem, as it depends almost entirely on workmanship, and it is no small undertaking to get all the buttermakers in the Dominion churning and working the butter in the same manner, but we believe this contest has already accomplished something along this line, and if continued will eventually secure uniform methods.

The following table shows the percentage of samples from each province which were scored perfect for texture, incorporation of moisture, colour, salt and packing, and points out very clearly where the buttermakers in each province failed in workmanship.

PERCENTAGE OF SAMPLES AWARDED FULL POINTS FOR DIFFERENT QUALITIES.

Province.	Texture.	Incorporation of moisture.	Colour.	Salt.	Package.
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
British Columbia.....	41.1	88.8	61.1	100.0	77.7
Alberta.....	40.9	95.4	81.8	100.0	90.4
Saskatchewan.....	50.0	86.3	59.0	100.0	81.8
Manitoba.....	65.0	90.0	75.0	100.0	95.0
Ontario.....	36.8	42.1	42.1	68.4	84.2
Quebec.....	13.0	65.2	91.3	100.0	91.3
New Brunswick.....	47.8	26.1	52.1	60.4	82.6
Nova Scotia.....	64.2	64.2	78.6	78.6	92.8
Prince Edward Island.....	30.0	15.0	65.0	75.0	100.0

THE STANDING FOR WORKMANSHIP BY PROVINCES IS AS FOLLOWS.

Maximum Score 45 Points.

—	Province.	Points.
1st	Alberta.....	44.630
2nd	Nova Scotia.....	44.552
3rd	Manitoba.....	44.540
4th	Quebec.....	44.440
5th	Prince Edward Island.....	44.295
6th	Saskatchewan.....	44.250
7th	British Columbia.....	44.116
8th	New Brunswick.....	44.112
9th	Ontario.....	44.000

NOTE.—In working out the above points, it was considered advisable to leave out the scores for salting. There are very wide variations in the quantities of salt required for the different local markets, and as some of the creameries make butter for local markets only, the salt in some of the samples was too high for export trade and the samples were scored down accordingly.

RELATIVE STANDING OF THE CREAMERIES AS TO WORKMANSHIP IN MANUFACTURING THE BUTTER.

Total Score 45 Points.

Name of Creamery.	Address.	No. of Samples in contest.	Average Score.
Scotsburn Cry. Co., Ltd.	Scotsburn, N.S.	6	44.86
Crescent	Winnipeg, Man.	6	44.83
Morkeberg Creamery Co.	Markerville, Alta.	6	44.82
Pictou Co. Dairy Co., Ltd.	Stellarton, N.S.	4	44.82
Russell	Russell, Man.	2	44.70
Central Creameries Ltd.	Calgary, Alta.	6	44.65
St. Hyacinthe	St. Hyacinthe, Que.	6	44.61
Farmers' Co-op. Cry. Co. Ltd.	Moncton, N.B.	6	44.58
Bowes Co.	Toronto, Ont.	4	44.57
Edmonton City Dairy	Edmonton, Alta.	6	44.55
Shoal Lake	Shoal Lake, Man.	5	44.52
Central Bedeque	Central Bedeque, P.E.I.	5	44.52
Tantallon Cry. Assoc.	Tantallon, Sask.	6	44.51
Viking Co-op. Cry. Assoc.	Viking, Alta.	4	44.50
Intercolonial Cry. Co., Ltd.	Lower South River, N.S.	3	44.43
Gentilly	Gentilly, Que.	6	44.41
Humboldt	Humboldt, Sask.	6	44.41
St. Roch	St. Roch l'Achigan, Que.	6	44.38
North Tryon	North Tryon, P.E.I.	5	44.38
St. Vallier	St. Vallier, Que.	6	44.36
Madawaska	Albertine, N.B.	6	44.36
Dunstaffnage	Dunstaffnage, P.E.I.	5	44.34
Victoria Mills	Wheaton Mills, N.B.	6	44.31
P. Burns & Co., Ltd.	Vancouver, B.C.	6	44.27
Kelowna Creamery Co., Ltd.	Kelowna, B.C.	6	44.25
Melville Co-op. Cry. Ltd.	Melville, Sask.	5	44.23
Guelph	Guelph, Ont.	4	44.02
Crapaud	Crapaud, P.E.I.	5	43.94
Winchelsea	Woodham, Ont.	5	43.86
Prince Albert	Prince Albert, Sask.	4	43.85
Salt Spring Island Cry. Assoc., Ltd.	Ganges, B.C.	6	43.83
Belmont	Belmont, Man.	6	43.65
Lindsay	Lindsay, Ont.	6	43.55
Sussex Butter and Cheese Co.	Sussex, N.B.	5	43.20

NOTE.—The T. Eaton Co., Winnipeg, Man., and the La Société d'Industrie Laitière, Meteghan, N.S., are not in the above list, because they sent only one sample each.

A HEALTHY RIVALRY BETWEEN THE PROVINCES.

A good stiff competition will bring out the best that is in a man, and although there are no rewards offered in this scoring contest there is considerable honour to those who win the highest standing. The fact that the man who makes the butter knows it will be placed alongside of samples from every province in the Dominion should stimulate him to do his finest work, and when we get the best men in each province doing their best we will certainly get a comparison of the very best methods of manufacturing creamery butter.

DAIRY EDUCATIONAL WORK.

The proof of effective dairy educational work is shown in the quality of the finished products. Although only four creameries from each province competed, they will, to a greater or less extent, reflect the character of the work which is being done in the rest of the creameries in the province and the dairy authorities will do well to note the methods which were practised by the successful competitors.

GEO. H. BARR,
Chief, Dairy Division.

OTTAWA, March 31, 1920.

No 637.063 I61 v.1 E 1974
Aut International Dairy Congress
Tit [Reports and proceedings]

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Name of Borrower Nom de l'emprunteur	BORROWED DATE DU PRÊT	RETURNED DATE DE RETOUR

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