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of all varieties are scarce, especially root seed, and advised the securing of all seeds required this spring at an early date. They are high priced now, but indications are that they will be higher. The winter is also the time to overhaul harness, implements, etc., and make necessary repairs. The speaker believed that horses could be wintered more cheaply than is the custom and then put in condition for spring work a few weeks previous to commencement of seeding operations. Treating seed to prevent smut was also given as a method of increasing yields at small expense. By having large implements, big fields, using three or four horses on the implements, riding instead of walking when tilling the soil, etc., all tend to economy of production with the least effort.

Considerable work has been done at the Experimental Farms in the way of comparing costs of using small and large implements in farm work. The following table gives some of the results:

Implement	Size	Number of horses	Cost per acre
Plow	1-furrow	2	\$2.00
	2-furrow	3	1.25
Disc	12-blade	2	.90
	17-blade	3	.80
	double disc	3 or 4	.45
Harrow	4-section	2	.17
	6-section	3	.13
Seeder	11 marker	2	.22½
	20-marker	3	.18

In regard to the double disc Prof. Grisdale claimed that good work at a saving in time could be done by attaching a throw-in disc behind a throw-out or vice versa, provided a rigid frame double disc was not available. The speaker advised getting on the land as soon as it was fit in the spring. Early seeding generally gives best returns.

Convenience in the stable, running the young stock loose in sheds or stalls, using labor-saving devices as litter carriers, feed trucks, milking machines, self-feeder for feeding hogs, etc., were mentioned by the speaker as a means of keeping production at the maximum under labor shortage.

#### Herd Record Work.

Geo. H. Barr, chief of the Dairy Division contended that "in no line of agricultural work in Canada is there a greater opportunity to increase production than there is in the improvement of the dairy herds." The average yield of milk per cow is around 4,300 pounds per annum, but there are herds averaging over 10,000 pounds. A high-producing herd can be purchased, but improvement can also be made through selection and breeding the best cows to a sire that has a long line of heavy-producing ancestors. While the first plan is quickest it is expensive. The speaker favored the latter plan as it tends to develop and train the owner to handle his herd successfully as it develops year by year. Mr. Barr claimed that the first step towards herd improvement "is to be dissatisfied with the cows on hand" and the second is "to either own or secure the use of a properly bred sire as the improved milking qualities of the heifers must come through the sire." It is not a difficult matter to accurately pick out the best cows if records are kept. Having the record of each cow a dairyman has something definite to work on in building up a profitable herd. Records are also a guide in feeding and tend to avoid the waste of expensive feeding of cows which have not the necessary dairy capacity for increased production. To prove that this work was justifiable the speaker stated "that the average yield of milk per cow for all Canada has increased 30 per cent. since cow testing work was first commenced by the Dairy Division in 1904. This means that the total value of Canadian dairy products was greater by at least \$50,000,000 in 1917 than it would have been if there had been no improvement in the herds since that time. The proper use of the information contained in the records was strongly urged. Records themselves will not make a cow give more milk, but they will enable the owner to know his cows and select and feed intelligently. Saving heifers from the best cows, weeding out low producers and using a sire of the right calibre has enabled some dairymen to double their herd yields in five or six years. Those who have had the right viewpoint in keeping herd records have profited and their success should induce others to commence keeping records this year.

#### Butter Grading.

The address by J. H. Scott of Toronto who has been in charge of butter grading the past season dispelled any doubt which might have existed regarding the practicability of grading butter by sample. Mr. Scott outlined the circumstances leading up to the commencement of grading and his experience so far leads him to believe that it is practical for creameries to put up and mark a sample box for scoring purposes. The boxes and stamping outfits were furnished by the Department at cost so as to have uniformity in the system of marking. Twenty-six creameries made application to have butter graded. As the samples were received at the grading station, they were placed in storage so that all would be under the same condition so far as temperature was concerned. The score card used was 45 points for flavor, 25 for body and texture, 15 for color, 10 for

salt and 5 for finish. First grade butter scored 92 points and over; from 87 and under 92 was placed in second grade; 82 points and under 87 constituted third grade and below 82 were considered as culls. Of the 3,299 samples graded 82.16 per cent. were placed in first grade; 28.15 per cent. were seconds, and 17.82 per cent. was under second grade. The greatest percentage of poor butter was received in August when conditions were most unfavorable for the production of high-quality butter.

The most common defects in flavor which Mr. Scott found were: "heated", "sour" and "yeasty flavors" with "rancid" flavors developing in some samples. These are not insurmountable difficulties. Loose, open texture and weak body were other defects noticed. The speaker stated that, "excessive free moisture is a serious defect in butter from a commercial standpoint. It not only makes a 'sloppy' or 'mushy' textured butter, but is the cause of a great loss in shrinkage to the trade in storage and in cutting out to the retail trade in prints as most of our butter is handled to-day. Proper incorporation of the moisture would prevent a great many of the complaints we hear of short weight in butter when it reaches the dealer". The color and salting are important from the consumers' standpoint. A considerable percentage of the butter was reported as showing a little freckle or waviness which is objectionable.

In order to get a general idea of the butter produced throughout the province fifty creameries other than those for which grading was done regularly sent in samples in August and September and 68 per cent. scored over 92 points which placed them in first grade. Mr. Scott contended that there is much room for improvement in the quality of butter produced in Ontario. Many creameries accept cream regardless of quality and this retards progress. The mechanical end of butter manufacturing is also weak in some creameries. The "off" flavors developing in storage can largely be overcome by pasteurizing the cream and this was advised if butter was to be held. Mr. Scott found that butter from cream so treated scored practically the same four months after being placed in storage as it did when fresh. He could not say as much of butter from unpasteurized cream. In the discussion which followed more evidence regarding the benefits of pasteurizing and grading was given by Mr. Barr. The movement though late in getting underway is a step in the right direction and everyone interested in dairying should support it. The price now is high for all grades of butter but there are reasons for believing that it will not always be so. High-quality butter will undoubtedly be able to hold its place but low grades already have a relentless competitor in oleo. Uniformity of flavor, color, texture, salt, etc., in the entire output of Ontario butter is what is needed. Grading will help bring this about.

#### Cheese and Butter Exhibit.

The exhibit at Perth was the best in the history of the Eastern Dairymen's Association. During the past few years great improvement in appearance and finish of the product has been made due undoubtedly to the good work of the dairy instructors. Geo. H. Barr in commenting on the exhibit stated that on the whole "it was the best lot of cheese he ever went through at an exhibition. One-third of the entries were as fine a lot as a man could be expected to put up". This, coming from one of the experience and calibre of Mr. Barr should encourage Eastern makers to continue working towards perfection. The change from rennet to pepsin as a coagulant has evidently had no detrimental effect. F. Morton of Belleville assisted Mr. Barr in judging the cheese and both expressed the opinion that the entries would compete favorably with entries from Western Ontario.

The exhibit of butter was small but the few entries were of high quality. I. W. Steinhoff of Toronto made the awards. The following are the awards in both butter and cheese:

**Butter.**—CREAMERY: 56-lb. box, 1, E. J. Smith, Brockville; 2, E. E. Chaffee, Cornwall; Jas. Small, Prescott, (equal); 3, M. Robertson, Belleville. One pound prints, 1, Jas. Small; 2, E. J. Smith; 3, E. E. Chaffee. DAIRY: 20-lb. crock, 1, Mrs. J. Carson, Perth; 2, Mrs. F. Ferrier, Perth; 3, R. Patton, Richmond Hill; 4, Mrs. J. D. Ewart, Perth. DAIRY BUTTER: One-lb. prints, 1, Mrs. J. Carson; 2, Miss A. S. Boyce, Warkworth; 3, Mrs. H. Sexsmith, Napanee; 4, R. Patton; 5, Mrs. J. D. Ewart; 6, Miss I. Drummond, Almonte.

**Cheese.**—FLATS: 1, C. T. Rogers, Kingston Mills; 2, Geo. Alguire, Wales; 3, A. Hawkins, Carleton Place, C. A. Wilkins, Mille Roches, (equal); 4, B. G. Monroe, Apple Hill, J. Small, (equal); 5, A. McDonald, Martintown; 6, G. Rancier, Wales. STILTONS: 1, A. J. Cameron, Cornwall; 2, J. Snetsinger, Dickinson's Landing; W. J. Potter, MoulINETTE, (equal); 3, N. H. Purdy, Belleville; 4, W. F. Gerow, Napanee. SEPTEMBER COLORED: 1, G. L. Alguire, 2, G. Rancier, W. P. Kilfoyle, Franktown, (equal) 3, L.F.M. Murray, Kemptville; 4, W. J. Potter, W. Lines, Crasonby, (equal); 5, E. E. Chaffee; 6, A. McConnell, Merrickville, J.W. Fretwell, Oxford Mills (equal). OCTOBER COLORED: 1, G. Rancier; 2, A. McConnell, T. L. M. Murray, (equal); 3, E. S. Rogers, Kingston Mills; 4, B. G. Monroe, Apple Hill, H. St. Dennis, Martintown, (equal); 5, B. M. Haley, Lanark; 6, E. E. Chaffee. SEPTEMBER WHITE: 1, M. Haley; 2, L. Tallman, Ottawa; 3, G. Rancier; 4, J. King, Almonte, D. Lyons, Ardock, (equal); 5, R. H. Henderson, Richmond Hill; 6, E. E. Chaffee. OCTOBER WHITE: 1, C. Wilkins, 2, G. Rancier; 3, Geo. H. Rose, Stirling; 4, A. J. Cameron, Cornwall; 5, J. Cameron,

South Mountain, T. H. Wood, Perth (equal); 6, A. McDonald, Martintown; D. Lyons, (equal).

Chas. Wilkins had the highest scoring cheese in his entry of October white, the score being 98.1. More than half the entries scored over 95 points. Large cheese sold by auction brought 21¼ cents per pound, flats, 21½ cents. Butter brought from 45 to 47½ cents per pound.

#### Evening Session

The large hall was filled to its capacity at both evening sessions of the convention, among the speakers were: Dr. J. W. Robertson. C. F. Bailey, Assistant Deputy Minister, W. J. Bell, of Kemptville Agricultural School, Prof. Dean of O. A. C., Dr. A. E. Hanna, M. P., F. W. Hall, M. L. A., A. A. Ayer and J. J. Hands, mayor of the town. These gentlemen gave valuable information relative to practical methods of assisting the Empire in its hour of trial. The need for food is great and Canada is a food exporting colony lying closest to the seat of war. Our duty was clearly shown.

The following directors were elected: H. Glendinning, Manilla; G. A. Gillespie, Peterboro; W. H. Olmstead, Bearbrooke; J. McGrath, Mt. Chesney; J. A. Sanderson, Oxford Station; Neil Fraser, Vankleek Hill; A. Hume, Campbellford; Wm. Brown, Dickinson's Landing; E. H. Graham, Carp; A. J. Robertson, Martintown; Geo. Smith, Iroquois; M. N. Empey Napanee; W. D. Benson, Picton; T. A. Thompson, Madoc; J. Steele, Almonte; J. Kerr, Belleville; D. Muirhead, Renfrew, and R. G. Leggett, Newboro. R. G. Leggett was elected President for the ensuing year. J. McGrath, 1st Vice-President; Neil Fraser 2nd Vice-President; J. R. Anderson, Mountain View was appointed Treasurer and T. A. Thompson of Almonte was re-elected Secretary.

## FARM BULLETIN.

### Stockmen Get Together and Protest Against Freight-Rate Increase.

An important meeting of representatives of the various live-stock breeders' associations in Canada was held in Toronto, on Tuesday of last week, to protest against the proposed increase of 15 per cent. in freight rates in this country. Associations represented were: The Dominion Shorthorn Breeders, Canadian Hereford Breeders, Aberdeen-Angus Breeders, Galloway Breeders, Ayrshire Breeders, Jersey Breeders, Clydesdale Breeders, Hackney Breeders, and the various Dominion and Provincial Associations of sheep and swine breeders.

Among the principal speakers were: H. S. Arkell, Dominion Live-Stock Commissioner; Peter White, K.C., Toronto; George Pepper, of the Dominion Live Stock Branch, Ottawa; Robert Miller, Stouffville; C. F. Bailey, Assistant Deputy Minister of Agriculture for Ontario, and R. W. Wade, Secretary of the Eastern Canada Live-Stock Union.

All the speakers emphasized the importance of getting together in order that the live-stock interests might get the same sympathetic hearing of their case that is granted other industrial organizations. Mr. Pepper showed clearly that the freight-increase question is not all onesided, and that the railway earnings in figures do not show justification for any advance in rates at the present time when it is so necessary that production be increased. "What the railways want," said Mr. Pepper, "is increased tonnage and better distribution of hauling. This increased production and tonnage will come from the West and the C. N. R., and the Government roads will be the greatest benefactors. Canada must have increased production to increase exports to meet her war and other obligations. Increasing rates will not help, but retard the bringing of this about and it will add \$40,000,000 to our producers' and consumers' burdens, \$30,000,000 of which will go into a full feed box. Don't allow it—it is not good business."

Two resolutions were passed. H. D. Smith, of the Hereford Breeders' Association, moved and William Graham, of the Clydesdale Breeders' Association, seconded the following: "That we, the live-stock representatives of Eastern Canada here assembled, do hereby protest against the 15 per cent. increase in freight rates on agricultural products, believing that the present tariff provides an adequate return to railroads for service rendered, and believing also that such increase would impose an unwise burden on agriculture at a time when increased production is so urgently needed."

J. E. Brethour moved and James Douglas, of Caledonia, seconded: "That a committee consisting of Wm. Smith, of Columbus, Ont.; John Gardhouse, Weston, Ont.; Robt. Miller, Stouffville, Ont.; William Dryden, Brooklin, Ont.; and W. F. Stephen, Huntingdon, Que., be appointed to secure the co-operation of all other representative agricultural organizations to present the case to the special committee appointed by the Federal Government to deal with the matter."

The meeting was one of the best of its kind yet held, and showed evidence of a growing spirit and determination among stockmen to get their industry so organized that it will command its proper place and due consideration by the Government.

### Away in Front.

EDITOR "THE FARMER'S ADVOCATE":

My wife and I both enjoy your paper, and it is away in front of any other farmer's paper I have seen, and I have derived much benefit from it. Your Christmas Number is excellent, and "a book" in itself.

FREDERICK UPWARD.