

hardier than the common alfalfa. Another hardy variegated variety is the Grimm, introduced into Minnesota years ago from Germany. Other fairly hardy kinds are the Wheeler or Baltic, the Sand Lucerne and the Turkestan. The poorest for our conditions is the common alfalfa from the Western States, though of this the Montana seed is better than the rest. The common often produces a good stand, but in plots at Guelph it has, in some cases, largely killed out, while plots of variegated beside it continued strong and vigorous. Investigations show that in Canada the greatest percentage of variegated is found in Weiland and Lincoln, quite a bit in Haldimand, some in Lambton and small percentages in Waterloo and other counties. The Canadian Variegated seed is the best to sow in Canada, but this year, owing to climatic conditions, the alfalfa seed crop in the Niagara Peninsula is a failure. In conclusion Prof. Zavitz offered the very sensible advice not to give up growing alfalfa because you had encountered a failure or noticed a few failures. Get a hardy strain, provide the best possible conditions and try again.

Prof. Edwards, discussing inoculation, brought out the fact that a few of the nitrogen-gathering bacteria may occur on the stems and spread over a farm in manure, while a very few may attach to the seed, but not many because drying kills nearly all of them. However, a few introduced by seed or otherwise would multiply and inoculate a field in time, if the stand survived long enough. Artificial inoculation by treatment of seed or broadcasting of soil from an old alfalfa field saves time.

FACTS FROM THE DAIRY CENSUS.

During the past season the Provincial Department of Agriculture made a dairy survey of four townships among the patrons of 35 cheese factories and creameries. Results are not yet complete, but a few facts, from the survey of North Dorchester Township, were given by Geo. A. Putnam, Superintendent of Farmers' Institutes and Director of Dairy Instruction. Out of 272 farms visited 70 per cent. cooled milk or cream with water only in a tank or some other vessel; 8% cooled with running or iced water; while 15% had no special provision. Of the 272 patrons 62% sent milk to a cheese factory, 7% supplied city trade; 13.6% sent cream to creameries, 8% made butter at home, 7% patronized the condensary; while 2.2% were vealing calves.

Taking the best fifty herds, the highest return per cow was \$111, obtained by a man with 18 head supplying a city trade. From the 11 herds supplying a city trade, the average return per cow was \$86.20. From the 13 supplying the condensary, the average per cow was \$75.40; one herd of 40 cows averaging \$75. From 18 factory herds cash returns per cow were \$57.50. From eight herds sending cream to the creamery the average per cow was \$54.70.

Of the fifty best farms averaging 100 acres, 49 grow corn, 29 have silos and the corn acreage is 14 acres each. On the 19 without silos the corn acreage is 6½ acres. The twenty-nine men with silos have 17 cows each, and the 19 without have 13 cows each. If corn and the silo enable a farmer to keep an extra four cows without decreasing production in other lines, it should be good practice to go in for them. Thirteen of these best farmers grew alfalfa, and 34 grew an average of two acres of roots.

Cheese experiments and investigations at the O.A.C. during the past three years was the title of a paper by Prof. H. H. Dean, read in his absence by A. McKay, though the author himself arrived near the conclusion of the session and added a few words impromptu. In these informal remarks Prof. Dean, in his usual emphatic manner, asserted three facts:

1.—That the cow population of Ontario is declining.

2.—That our exports of butter have ceased.

3.—Our exports of cheese are declining.

The first fact he attributed partly to the testing and culling of our herds, which is reducing the cow population. He thought the time had come to adopt some radical and safe measures to improve the quality of our cows and increase their number. At present, he said, we had no active organization trying to do this. A leading dairy company had lately asked him to prepare an article for distribution on this subject. He did so, attempting to show the advantage of a pure-bred sire. This company now intends to put pure-bred sires within reach of every farmer supplying milk to its plant. "What breed would you advise?" was a question fired from the audience. He wouldn't say as to that, so long as it was a dairy breed. He cited an experience told him by a short-course student designed to illustrate how one generation of grading with the strains of Shorthorn bulls now available would ruin the milking quality of a herd.

A second reason for decreasing production was the lesser profits of dairying as compared with some other lines. A dollar per cwt. is not enough to render milk production profitable.

As a means of enlarging production, he repeated the suggestion offered in his paper. If he were a millionaire, he would make use of two agencies for the spread of agricultural and dairy knowledge—viz., the moving picture show and the drama. Personally, he would prefer the drama, where real persons, animals, appliances and products, with suitable stage equipment and all necessary accessories of music, colored lights, comfortable seats, etc., which go to make strong impressions, would be utilized to teach agricultural and dairy lessons. Why could not a suitable stage, with clean men and women feeding and milking real cows in a clean stable, caring for milk, separating cream, churning, etc., with suitable music, be made an effective means of teaching the first principles of dairying? This method is the oldest method of teaching morals known to mankind.

Suppose, he continued, it were intended to teach a lesson in cheesemaking. The actors would be a farmer, his hired man, wife, son and daughter, the milk hauler, the cheesemaker and assistants, the cheese buyer, railway agent and train hands, steamship employees, cheese merchants in Canada and England, retailers and consumers. The scenery in Act I, scene 1, would represent a farm; scene 2, hauling milk. Act II, scene 1, cheese factory and men making cheese; 2, ripening cheese and buyers inspecting; 3, loading cheese on cars and steamboat. Act III, scene 1, cheese landing at English port; 2, receiving at warehouses; 3, retailer's shop; 4, pleased or dissatisfied consumers in English or Scotch home, with the necessary dialogue, etc., to make a good drama.

This novel idea provoked considerable discussion in the lobbies, opinion as to its feasibility being divided.

RESULTS OF DAIRY INVESTIGATIONS.

Following are the conclusions from a few of the experiments reported by Prof. Dean:

Night's milk, cooled to about 70 degrees, will keep in good condition for cheesemaking until the next morning and stirring of the milk is not necessary for good results, though stirring did result in a little prompter cooling and slightly lower percentage of acidity.

When milk has over two per cent. of acid at the time rennet is added, or the curd remains in the whey less than one hour, it means a loss of over one pound of cheese per 1,000 pounds milk, and a deterioration of the quality of the cheese represented by a score of nearly one point less. Since high acidity (souring) in milk is promoted by high temperature of milk, the practical point is to have milk properly cooled so as to keep it comparatively sweet.

Closely associated with the question of acidity of milk at time of adding the rennet is the question of acidity at the time of dipping or removal of the whey. Three years' investigations averaged together indicated that an extra four one-hundredths of a per cent. of acid at dipping (.198 per cent. as compared with .158 per cent.) reduced the quantity of cheese per 1,000 lbs. milk by a trifle over half a pound and the average score by over half a point. No one could say just where the danger point lay, but for all milk it probably lay somewhere between .17 and .2 per cent. of acid, varying in different localities and with different kinds of milk.

From another series of experiments Prof. Dean deduced the tentative conclusion that it would appear as if the condition of the curd at the time of salting were quite an important factor in deciding the best rate for salting curds in order to make the finest cheese. The season and character of the milk may also be contributing factors.

Following this paper in discussion, G. G. Puhlow, Chief Dairy Instructor for Eastern Ontario, endorsed several of the points made. In a visit to England he had heard the complaint that many of our cheese were too lean in character. New Zealand cheese enjoyed an excellent reputation for a certain smooth silkiness of texture which ours did not possess. Looking into possible causes he came to the conclusion that our cheese were too dry, probably owing to two things; viz., having the milk too ripe when adding the rennet, and then over-salting the curd from that kind of milk. A number of district meetings were held in the sections where that trouble was most pronounced. The makers were thus led to set the milk a little sweeter and salt a little lighter, with decidedly advantageous results. They had carried on some experiments and found with Prof. Dean that the riper the milk the higher the yield and the poorer the quality. When the milk is over-ripe, they have been able to reduce the salt by one-quarter of a pound per thousand pounds of milk.

GREEN CHEESE.

The practice of shipping green cheese is still almost universal. At probably 150 factories a week their instructors will find no cheese on the shelves to report upon. Probably from another hundred the word will be "cheese too young too report on."

Incidentally this complicates the work of instruction, since the staff, in those cases, must rely upon the reports from buyers in Montreal. When the market is brisk the buyers pass the cheese on without comment, but when it becomes draggy, complaints come thick and fast.

The Eastern Association, announced Mr. Puhlow, intends to follow the example of its sister organization, and have a dairy exhibit next year if a national dairy show is not arranged for.

THE DOMINION DAIRY STATIONS.

Geo. H. Barr, Chief of the Dairy Division, Ottawa, described the two Dominion Dairy Stations. The combined cheese factory and creamery at Finch, Ont., cost \$7,767.73 for building and site, this being more probably than he could have built it for with private capital. The creamery in Quebec Province cost \$4,000 complete, including sewage. One tender for the contract was at \$7,000, illustrating the difference in calculations. In this case the contractor earned a time bonus of \$223. The buildings seemed well planned, and some interesting practical points are being worked out. For instance to insulate the ice-chamber floor they used eight inches of coal cinders, a thickness of lumber, ten inches of mill shavings and a second thickness of lumber. Below the cinders the floor was carefully drained with 3-inch land tile. How it will work out they cannot say for sure.

Officers for 1913.—President, S. E. Facey, Harrietsville; 1st Vice-President, J. B. Muir, Ingersoll; 2nd Vice-President, Robt. Myrick, Springford; 3rd Vice-President, Jas. Bristow, St. Thomas; Secretary-Treasurer, Frank Horns, London; Directors, S. E. Facey, J. B. Muir, Robt. Myrick, J. H. Scott, J. N. Paget, Thos. Ballantyne, W. A. Bothwell, J. Donaldson, R. Stratton.

A FINE EXHIBIT.

In connection with the convention was a very fine exhibit of cheese and butter attractively staged. The cheese were remarkable for finish and uniformity of score, there being, we believe, less than a point difference between the best and poorest.

WINNERS IN CHEESE.

September White.—1, T. O. Flynn, Tavistock, score 96.99 points; 2, J. K. Brown, Ethel, 96.82, (won on flavor); 3, C. J. Donnelly, Scottsville, 96.82; 4, J. Cuthbertson, Sebringville, 96.48; 5, R. E. Hastings, Newry, 96.33.

September Colored.—1, Roy Hastings, Newry, 97.17; 2, W. A. Bell, Pine River, 96.32, (won on flavor); 3, J. Cuthbertson, Sebringville, 96.32; 4, Jno. Francis, South Middleton, 96.16, (won on flavor); 5, J. K. Brown, Ethel, 96.16.

October White.—1, J. T. Donnelly, Sparta, 96.65; 2, H. E. Donnelly, Stratfordville, 96.49; 3, J. K. Brown, Ethel, 96.48; 4, J. Cuthbertson, Sebringville, 96.32; 5, C. J. Donnelly, Scottsville, 96.16.

October Colored.—1, H. Youn, Molesworth, 96.65; 2, R. Myrick, Springford, 96.32, (tie.); 3, R. R. Hastings, Newry, 96.32, (tie.); 4, J. E. Koch, Gowanstown, 96.32, (tie.); 5, T. O. Flynn, Tavistock, 96.16.

September Stilton Cheese (10 lbs.).—C. A. Barber, Woodstock, 96.32; 2, P. Callan, Woodstock, 95.82, (won on flavor); 3, H. W. Hamilton, Monkton, 95.82.

September Flat Cheese (Two).—1, P. Callan, Woodstock, 95.82; 2, C. J. Donnelly, Scottsville, 95.66; 3, H. Youn, Molesworth, 95.50.

Cheese Buyers' Trophy.—R. E. Hastings, Newry.

WINNERS IN BUTTER.

Winter, 56-lb. Box, Creamery.—1, E. M. Johnston, Innerkip, 96.49; 2, H. W. Patrick, St. Thomas, 96.07; 3, R. C. Bothwell, Hickson, 95.66; 4, B. Johnston, Bright, 95.49; 5, J. Cuthbertson, Sebringville, 94.16.

20 1-lb., Creamery Prints.—1, E. M. Johnston, Innerkip, 95.33; 2, Wm. Waddell, Kerwood, 95.15; 3, R. Johnston, Bright, 94.65; 4, T. O. Flynn, Tavistock, 94.49, (won on flavor); 5, H. W. Patrick, St. Thomas, 94.49.

56-lb. Box Creamery Butter.—1, W. G. Medd, Winchelsea, 95.66; 2, Wm. Waddell, Kerwood, 95.15; 3, J. H. Scott, Exeter, 94.99; 4, I. O. Goodhand, Corbett, 94.81; 5, H. W. Patrick, St. Thomas, 94.65.

The auction sale of cheese and butter realized the following prices: September white, 12½c.; September colored, 12½c.; October white, 12c.; October colored, 12½c.; Flatts, 13c.; Stiltons, 14c.; Winter Creamery butter, 29½c.; October creamery, 28c.; prints, 30½c.

OTHER ITEMS.

Among the resolutions was one recommending that cream sent to creameries be cooled wherever possible to a temperature of at least 55 degrees promptly after separating; cool water or ice was recommended for cooling.

A committee was appointed by the directors to confer with committees from any other organiza-