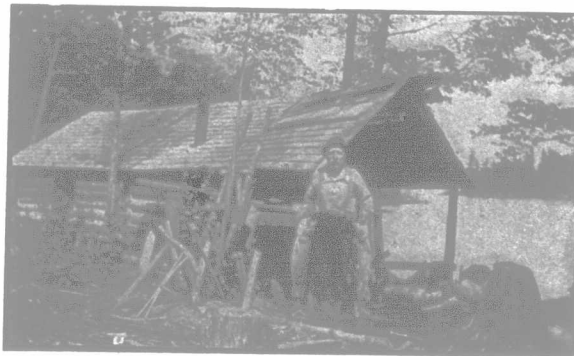


### "Doubling-up" the Implements.

To secure suitable help has been difficult on many farms for years, but this spring the problem is more acute than ever before. The call for young men to keep the ranks of the army filled has drained the country districts, as well as the cities and towns, of their stalwart youths. In many communities there is not an average of one man to one hundred acres. Improved implements have done a good deal to lessen the arduous labor of the farm, but with the most modern farm implements men are still required to sow and reap in order that humanity may be fed. With an ever diminishing supply of farm labor, how is production of foodstuffs to be kept up to normal? A kind Providence may send a bountiful harvest, but man must prepare the seed bed, sow the seed and garner the crop. Necessity is said to be the mother of invention, and so the tiller of the soil devises ways and means of accomplishing, single-handed, what two men are usually required to do. The sooner the seed can be sown, after the land is ready to work, the better the returns from many of the spring crops. Cultivating, rolling, sowing and harrowing take time if one man is required to go over a field several times. This spring there is an abundance of horse-power, and, by use of wide implements, the work can be done more quickly than if narrow cultivators and seeders are used. Four horses hitched to a cultivator or disk, and three horses to a drill, can be kept going steadily throughout the day, and if the driver rides, he is not too wearied to do chores in the evening. The use of the harrow-cart is becoming common, and with four horses hitched to a wide harrow a large acreage can be covered in a day. However, there are farms on which narrow implements are kept, and the owner is not in a position to exchange the old implements for new and wider. He may overcome the difficulty of shortage of man-labor by using two implements at once. We have seen men driving one team on the cultivator or drill and leading another team hitched to the harrow. In this way the work was accomplished with only slight inconvenience to the driver.

Possibly a lesson might be taken from the users of farm tractor power. By use of power two or three wide

implements are operated by one man at one time. Four horses could draw a narrow cultivator or disk with the drag harrow attached behind. The same would work with the drill, and when the grain was sown, the ground would also be harrowed. This method of using horse-power and fewer men to do the spring cultivating is followed quite satisfactorily on some farms. Some go even farther and attach roller and harrow to the cultivator. In preparing the ground for spring seeding, or for roots, corn, summer-fallow or fall wheat, the soil requires the use of several implements. By making use of horse-power and using two implements at once, the work may be done more quickly. True, working the implements tandem may be a little inconvenient at first, but it is one method of giving the soil the necessary cultivation at the proper time even with a scarcity of farm help.



The First Catch.

## THE DAIRY.

### The Final Ruling Re Cheese Boxes.

In the summer of 1914 a meeting was held at Montreal, where several interests affected by the produce

trade were represented. At this time cheese boxes were discussed, and the outcome was that the specifications printed in the following paragraph were adopted by the Canadian Freight Association and approved by the Board of Railway Commissioners for Canada. These were to come into effect on September 1, 1915, but an extension of time was granted setting the date on which they would become effective as December 1, 1915. Owing to the fact that a considerable stock of boxes and material is still on hand which do not conform to the new specifications, it was felt that an unwarrantable loss must result from the ruling. The matter was again taken up with the Board of Railway Commissioners and a second extension of time has been granted, making the date August 1, 1916, when cheese boxes must conform to the following specifications:

NOTE.—When cylindrical cheese boxes are used as outside containers, they must meet the following requirements:

(a) Tops and bottoms (headings) to be not less than 5-8 inch in thickness, and consist of not more than 3 pieces.

(b) Hoops and bands to be not less than 1-5 inch in thickness.

(c) Hoops to overlap at joint not less than 5 inches, and to be fastened with staples or nails not more than 1 inch apart and firmly clinched on the inside.

(d) Bands to be nailed to the heading (top and bottom) as follows: 1 nail on each side of every joint, with additional nails not more than 4 inches apart.

(e) Bottom rim to be not less than 1½ inches in width, and top rim not less than 3 inches in width.

(f) Covers must fit closely and boxes must be trimmed flush so that the heading of the cover shall rest on the cheese.

Cheese in cylindrical boxes not meeting these requirements not taken.

# From Cream Can to Butter Box.

The labor entailed in manufacturing dairy butter has been the cause of dairymen practically ceasing to make butter on the farm. Creameries were built in different sections of the country and there was almost as much cash in selling the cream, as in making butter and the labor involved was considerably less. The skim-milk could still be retained on the farm and this by-product is highly valued by most stockmen. Its use facilitates the raising of calves and pigs. The creamery permits of a double revenue from the dairy-herd. Competition is very keen among creameries but the bids are for quantity instead of quality in too many instances. A dairyman need not live close to a creamery in order to find a market for his cream. If he lives near a depot the express will carry the cream many miles to a creamery. Provided he is not so located, the auto-truck from large creameries penetrates the remotest part of the district in search of cream. Consequently, there is no dearth of outlet for his product. If one creamery refuses to take the cream, owing to it being off flavor or of a nature that may tend to deteriorate the quality of the manufactured product, the dairyman immediately transfers his patronage to the creamery that will take it. Herein lies the weak link in Ontario creameries. There is no standard at present to which all cream must measure in order to command the top price. If one creamery will not take the cream, another will. Good and bad cream are emptied into the same vat and the result is only medium-grade butter. All first-grade cream is required to make first-grade butter, and if Ontario dairymen are to maintain their reputation as producers of high-quality products, the producer must receive more for his high-quality cream than is paid for just ordinary kind. When the time comes that all manufacturers will refuse to purchase anything but the best cream, here will soon be a marked change in the quality delivered. Some creameries do discriminate in the cream they accept and thus receive the top price for their manufactured product, which directly benefits the producer, but these men do not receive the support from the dairymen they deserve.

Reesor Bros. own and operate the Locust Hill creamery in York county. These men have built up an exclusive trade, and while their output of butter is not so large as that of some creameries, the quality is first-class and commands the highest price on the market. Quality sells the butter. The process of manufacture in Locust Hill creamery is similar to that of other creameries, and a description of the labor entailed in gathering the fat globules of the cream into the substance known as butter may not be out of place.

### Building and Equipment.

It is essential that a creamery be located where a liberal supply of clean, cold water can be secured, as a good deal of water is used during the process of manufacturing cream into butter. The building is substantially constructed and presents a neat appearance from the outside. The inside is of material that can be easily kept clean. Many creameries are built with the floors on the level and the cream is pumped from one receptacle to the other during the process of pasteurizing and ripening. Reesor Bros. have built

their creamery so that the cream will flow by gravity from vat to churn and thus save the pumping. One room is required for receiving and ripening the cream, another for churning and printing the butter, also an engine room, ice house and storage room are essential. Water is pumped from a deep artesian well to an elevated storage tank. By the use of water alone cream can be cooled to 60 degrees. Engine, boiler, pasteurizer, coolers, vats, churns, butter workers, and testers, are some of the larger pieces of equipment necessary for manufacturing butter. The average creamery building and equipment costs around five thousand dollars. Before investing in a plant, one should be assured of a large supply of cream for a number of years.

### Securing the Cream Supply.

Most of the 140 patrons of Locust Hill creamery are engaged in mixed farming. From six to a dozen cows are kept to a hundred-acre farm. The patrons arrange for the drawing of their own cream. Those living near the creamery draw it themselves, or maybe a dozen patrons co-operate and pay one man so much for delivering their supply. The owners of the creamery do not engage wagons or trucks to gather cream, nor do they have any shipped in. They depend on the dairymen in the district to support a home industry. By square dealing, they have succeeded in holding their patrons and having them supply a high-quality cream, in spite of the keen competition for cream and milk from other concerns. Some whole milk is shipped from the community to Toronto, and the city creameries endeavor to encroach on the territory now served by the local creamery. It is believed that cream is of better quality when delivered by the patrons than is possible if a truck is used and cream hauled long distances. The first gathered cream becomes partially churned before it reaches the creamery. The same conditions exist more or less when cream is shipped. Sweet cream, testing from 30 to 35 per cent. butter fat, is desired in order to make the best grade butter. The patrons know this and endeavor to meet the wishes of the manufacturers, knowing that by so doing they are directly benefited by it. Consequently there is only one grade of cream in this creamery.

Each patron's cream is delivered in a separate can and for convenience in emptying the can the driveway is arranged so that the bottom of the wagon is on a level with the top of the receiving can on the inside of the building. The cream is emptied into this can which stands on scales. The weight is recorded and a copy given to the patron. A sample is taken and put in the composite bottle for testing at the end of the month. After the sample is taken a valve is opened and the cream runs into a large receiving tank. When sufficient cream has been received, the pasteurizer is started and the cream passing through it is heated to 180 degrees Fahrenheit, which destroys any germs that might be injurious. From the pasteurizer it passes over a circular cooler which lowers the temperature to 60 degrees. The cream is then piped to the ripening vat, where it is prepared for churning.

Cream ripening is a process of fermentation or souring of the cream, which is the development of

lactic acid bacteria, and is under the control of the buttermaker. The amount of starter used and the temperature at which the cream is held are factors in determining the length of time required for the ripening process. It may vary from six to twenty-four hours in an ordinary creamery. Ripening develops flavor in butter, makes the cream churn easily, and increases the keeping quality of the product. Butter may be made from sweet cream, but it lacks the flavor and keeping qualities of that made from well ripened cream.

Pasteurized cream has most of the bacteria in it destroyed. Lactic acid bacteria are introduced by use of a starter and a favorable temperature is given for the development of the lactic organisms. By this treatment there is only one type of bacteria in the cream and a uniform quality of butter can be secured from day to day. Starter is the term applied to culture of the lactic acid organisms. Either natural or commercial starters may be used. A natural starter is made by taking whole milk or skim-milk, and allowing it to sour by holding it over till the following day. The difficulty is that on warm days milk becomes over sour, while on a cool day there is trouble to get it to sour properly. Consequently, this method of securing starters is giving place to the commercial kind which consists of the proper species of lactic acid organisms prepared in laboratories. These cultures are usually sent out in hermetically sealed bottles, and are used with sterilized skim-milk to make the first starter, after which it is a matter of saving a certain amount of one day's starter to inoculate a can of milk for use the next day. After starters are propagated for some time they become intensely acid producing, and sometimes become contaminated with other bacteria, and many creameries make a practice of renewing the starter once a month by purchasing a new bottle of culture. In Locust Hill creamery the commercial starter is used and cream is held over a day for ripening, especially in the winter. The ripening vat used has a water-jacket around it for use in keeping the cream cool. Ice is used in this during the summer.

### Churning and Working the Butter.

Churning is a gathering together of the fat globules of the cream into butter granules. The temperature, character of butter fat, acidity and richness of cream, amount of cream in the churn, and speed of churning, all have an important bearing on the process of churning and must be regulated by the butter-maker in order to insure an exhaustive churning and leave the butter in a condition in which it can be handled without injury to the texture. Reesor Bros. use a large combined churn and butter worker, and have it located on a floor six or seven feet below the floor on which the vats are placed so that the cream flows by gravity from vat to churn. The churn is scalded, then rinsed with cold water before the cream is strained into it. Butter coloring is added before the churn is put in operation, the amount varying with the season of the year and markets. During the winter about one ounce in one hundred pounds of butter is used, but considerably less is required in the summer. The cream is churned at a temperature of 56 degrees, and from twenty-five to forty-five minutes is required for

the work. butter at c buttermilk i tank, then t Usually two depends on t not necessa butter as it ing the bu granules maker soon salting the uniform prod three-quarter of cream. C distributed th is used in t moisture an Just when t been worked the appeara ing it to stan ance of white the butter ha soon becom and working butter is ren table where c In this cream the butter. a person soo take long to p The butter w Hill Creamer Butter is pack The butter in connectio A team and commission ho manufactured Last year abo but the capac more butter supply of crea to do the wo pasteurizing a by no means The engine mu small utensils as well as the the heavy wor of detail wor making of goo must know eve out a high-cla ing after the result in serio

### Testin

Testing is taken, from ea preservative u posite sample prevent evapor For testing, t with a pipette the Babcock to order to accom possible. The as high as fort testing from th by the butter- advantage to sk have more ski draw or ship.

The patrons is attached a s livered is mark pounds of but retained by the for payment.

Every cream to market. If may be retaile ially auctioned it away every d in connection v feeding hogs a Bros. sell the b hood at so much While the n in all creamerie Some buttermak and others test the weight an may be a better it is doubtful if it of creameries the for testing.

Instead of p pack it in boxes butter in solids All buttermakers butter coloring, butter to meet appearance coun

Correct weigh maker, in order the patrons is ess up a large busin perform in order a product of fir finished article is used. Every pat dairy industry to