

Grown. Of course Grimms Variegated was first, although Northern Grown proved very good.

This ended the different varieties of grain under experiment, but I had another one on thin and thick seeding. I had a piece of ground probably two rods and a half long, by one rod wide. About half this I sowed to grain at the rate of about five bushels to the acre, then part of what was left I sowed in hills about fourteen inches apart each way. In some of the hills I put four kernels, and as high as eighteen in some. Then I sowed some in rows at different widths from each other. They ran from six inches to two feet. Out of all the experiments the grain was the best quality in the rows that were sown about eight inches apart.

Where it was sown so thick it was poorly headed, the straw was light and it lodged badly before it was ripe, so by this I might suggest that ordinary seeding is best.

The plots made considerable work, but the information I gained well repaid me for my trouble. I believe that the best way to find out anything is to get it for yourself and then it will stay with you.

Middlesex Co., Ont.

ARCHIE D. LIMON.

THE DAIRY.

Keep the Dairy Business on a Safe Basis.

EDITOR "THE FARMER'S ADVOCATE":

I was much pleased with your very comprehensive and well-reasoned editorial in Nov. 9th issue of "The Farmer's Advocate".

I agree with your answer to all three questions propounded in the body of the article. We, in Canada, cannot afford to risk jeopardizing the dairy industry by allowing imitation butter entrance to the Canadian market.

There is one point, however, our dairymen should carefully consider. Is it a wise policy to advance the price of dairy goods to such a point that the consuming public begin to look for substitutes? While we are thoroughly convinced that in the past, dairy products have been selling below their actual food value as compared with other food products, and also that when there is an opportunity to make up for past low prices, there is a great temptation to do so, yet it would seem to the writer as if there is an element of danger in forcing prices too high. Personally, we are convinced that if the prices for milk, butter, and cheese are maintained at a good point, and if the people are supplied with a first-class article at a price that allows reasonable profit, this method of procedure is to be commended, rather than one of extreme prices in either direction. While we are aware of the law of supply and demand in its effect on prices, milk and its products are so essential for the physical and mental development of a nation, that they should, so far as possible, be independent of this cast-iron law of economics.

All dairymen will support your policy of keeping the dairy industry free from such unfair competition, as will ensue the moment that "Oleo" is allowed entrance to Canada.

O. A. C., Guelph.

H. H. DEAN.

Overcoming Difficulties in Churning.

In many districts the cheese factory affords a market for milk during the summer months, but from November to May dairymen must seek other avenues through which to dispose of this product. Where factories are closed during the winter, summer dairying is most in vogue. The cows are bred to freshen early in the spring so that the bulk of the milk can be disposed of to the local market, consequently by the time cold weather sets in the cows are not giving a very large flow. Winter dairying is more generally followed where the cream instead of whole milk is sold. The facilities for marketing cream are good, and the price paid by the creameries is about as remunerative as selling it in the form of butter. It does away with a lot of hard work. A combination of circumstances has largely robbed the market of dairy butter, especially during the summer. Between seasons many factory patrons make butter, but some continually have trouble in getting the butter to gather, etc. Others find that the separator does not skim clean, and gives more or less trouble. Many of these annoyances can be overcome by a little extra care in looking after the separator, and properly ripening the cream.

It is tantalizing to have to churn for an hour or more when the butter should gather in about twenty minutes, and it is equally aggravating to have it come in a few minutes and be so soft that considerable work is necessary to get it ready for printing. The solution is to remove the cause. The trouble may be attributed to several things. Having the cream or churn too cold is the most frequent cause. Another is that cream from cows well advanced in the lactation period contains fat globules which are small and require a high churning temperature. The trouble is usually alleviated by having a fresh cow or two in the herd. Sometimes the system of feeding is to blame. Dry feed produces butter-fat, which requires a higher churning temperature than the fat produced under summer conditions. Increasing the succulency of the ration frequently makes an improvement. Silage, roots and oil cake added to

the ration of hay and straw aid in making churning easier. The fat globules of the cream are gathered together by concussion. If the churn is too full, the butter is not likely to gather readily and there is not a complete separation of the fat from the buttermilk. A churn should not be over half full, and better results are attained by only filling it about one-third. Having too much milk in the cream also has a tendency to make churning difficult. By turning the cream screw of the separator a thicker cream can be secured. If the long can or flat pan is used, care should be taken to skim them close. Possibly it will pay to leave them set a little longer. There is always a loss of fat when churning poor cream. It is advisable to have cream testing around thirty per cent. butter-fat. There is no harm in having it a few degrees richer. The richer the cream the more skim-milk is retained, and the less bulk there is to ship if cream is sold. There is a possibility of having the cream so rich that there will be no concussion in the churn. This difficulty is easily remedied by adding water at churning temperature. Frequently the cream foams up and almost fills the churn. This condition is due to the presence of gas-producing ferments, accentuated by cold or low fat content. The addition of a little water at ten degrees above churning temperature, or a handful of salt, will usually relieve the situation. Yeast-producing organisms sometimes get into the cream and cause trouble. Practically all churning difficulties are overcome by pasteurizing the cream and using a pure culture to ripen it.

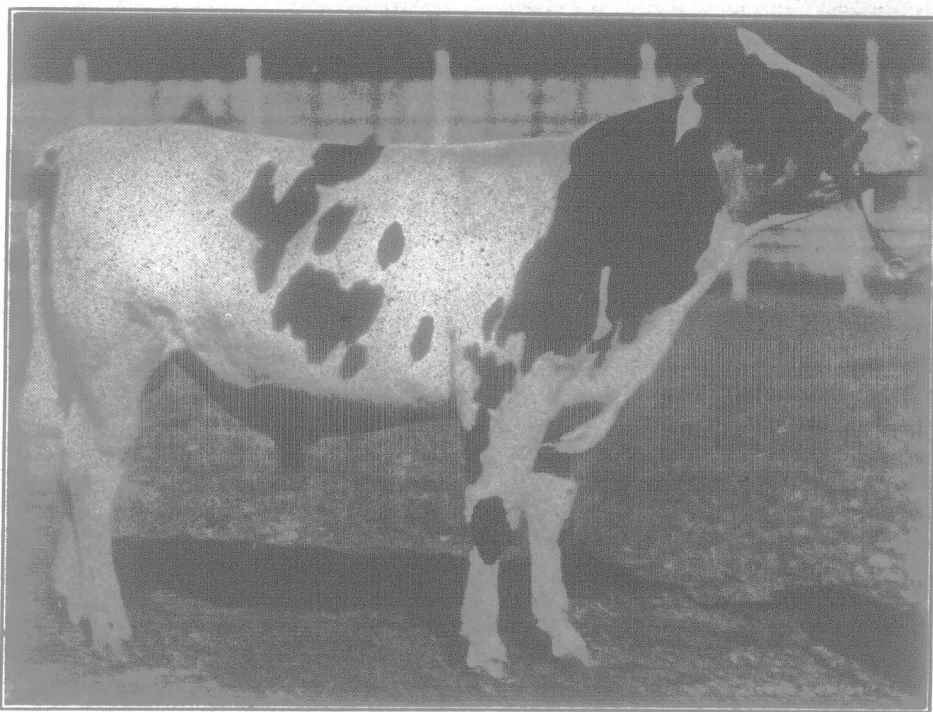
If the separator is in the stable, the cream should be removed to the cellar or milk-house immediately after separating is finished, as warm cream will absorb odors. It is a mistake to mix warm cream with previous milkings; first cool it to about fifty degrees. In cold cream bacteria are dormant, but warm cream starts them growing and multiplying. It is not enough to allow the cream to cool gradually, cold water or ice should be used and so check any bacteria the fresh cream might contain. The cream for churning should all be mixed together at least twelve hours before churning. This produces a uniform ripeness and gives uniform results in churning. Adding new cream to that which is ripened causes a loss of fat. Greater care of cream is necessary, not only for home dairying but when shipping to a creamery.

heat the cream a little more for next churning. The cream should always be strained into the churn in order to remove any lumps of curd. Coloring is added to the cream in the churn, but if it is forgotten it may be mixed with the salt and thoroughly worked into the butter. When the butter gathers, draw the buttermilk off and wash the butter; then work it to expel as much of the buttermilk and moisture as possible before salting. Poor quality cream and carelessness in handling it are frequent causes of difficulty in churning, and bad flavored butter. The dairyman has direct control over these things, and the aim should always be to produce cream of the best quality, then neither he nor the butter manufacturer will have much difficulty in placing on the market butter of the highest grade.

The Bull Requires Ample and Regular Exercise.

In order that a bull may maintain his health, virility and prepotency, it is necessary that he receive regular exercise. Too often this essential item in the care of the head of the herd is neglected, resulting in serious loss, due to failure to get calves, or having calves come weak. It is not an easy matter to provide a means of exercise for an aged bull that has become cross. When turned loose he is often inclined to tear things to pieces, and it is seldom that the attendant can find time to lead him about every day. A bull often becomes cross and hard to manage by not being properly handled when a calf. He should be halter broken when young, and always made to recognize man as his master. Stalls, fences and method of tying should be strong, so that he will not learn how to break loose. If he breaks the stall down or gets away from the attendant once, he is harder to control afterwards and appears to be always on the watch for an opportunity to break loose. A box stall with a paddock adjoining makes ideal quarters for either young or old bulls; the chief trouble being that they are oftentimes difficult to catch when wanted. During the summer the door of the stall may be left open and the bull can exercise in the paddock at will, or else lie in his stall. We have seen the same system used to allow the bull to take exercise during the winter.

A strong swing door closes the opening between stall and yard, and keeps the cold from entering the stable. The animal soon becomes accustomed to opening the door and taking exercise when he feels like it. If allowing the bull to run loose is not feasible, owing to the difficulty in catching him, a cable may be stretched from the stall to the end of the paddock and the bull attached to it by a sliding chain. He will walk up and down the paddock, which is better than allowing him to be continually tied in a stall. The fresh air aids in keeping up his vigor. If a yard is not available, keep him in a box stall and attach a light rope to the ring in his nose. Run the rope through a small pulley, fastened to the ceiling above the manger, and tie a light weight on the end. In this



Prince Bonheur Abbekerk.

Junior champion Holstein bull at Toronto. Owned by A. E. Hulet, Norwich, Ont.

Many dairymen lose dollars by not taking proper care of this product. Unless the raw material is looked after, the manufacturer cannot make a high-class article, consequently the producer suffers in the end. No creameryman can make butter, which will command the highest price, from poor quality cream. This also applies to the farm dairy.

In creameries the cream is pasteurized in order that a uniform quality of butter may be made from day to day from the different qualities of cream gathered. When the cream is properly looked after this process is not essential on the farm. However, it tends to overcome difficulties in churning and "off" flavors in the butter. It also adds to the keeping qualities of the butter. Pasteurizing milk or cream is not a difficult process. Place the cream can in a vessel containing hot water and gradually bring the temperature up to about 175 degrees Fahrenheit. Hold it at this temperature for twenty minutes, then cool rapidly to around fifty degrees. Add a culture to ripen the cream for churning. The receptacle should not be kept in too cold a place during the winter, nor too warm a place in summer.

Having the cream properly ripened, it should be heated to churning temperature, which is around fifty degrees in summer and from five to ten degrees higher in winter. The use of a thermometer is the only accurate method of determining the temperature. There is really no standard, as the richness of the cream, the size and temperature of the churn, and feed of the cows are influencing factors. Aim at having the butter come firm in about twenty-five minutes. If it takes much longer,

way the bull can move around the stall but may easily be caught at any time. The purpose of the weight is to take up slack rope as he approaches the manger, so that there is no danger of becoming entangled. Where several bulls are kept, long, narrow yards are found to be serviceable. A strong fence separates them, and the bulls walk fore and back for hours at a time. This might not work with only one animal. Some stockmen exercise the bull by using him on a tread power to do useful work. Regular exercise by some means is essential if the bull is to be kept at his best.

The ration for a bull in full service is similar to that of a cow in milk, except that less silage is advisable. Legume hay, a small amount of silage, and plenty of roots make up the roughage and succulent portion of the ration. Six or eight pounds of concentrates daily, supplying a fair amount of protein, should be sufficient. If idle, the concentrates could be reduced. It is a mistake to neglect the sire in any way, as the improvement of the herd depends largely on him.

In 1900 the output of oleomargarine in the United States was 107,045,028 lbs. In 1915 it was 145,468,730 lbs. Let the white stuff into Canada and in a short time the colored would come too, butter's trade mark would be stolen, trade disrupted, cows sold, fertility would fall, and prices of something else would go up to the consumer, to say nothing of the difficulties of legislating to control it.