

If in addition to these a considerable amount of mineral matter or soil can be given the pigs and they are kept in good airy quarters, or, better still, out of doors, except when in their beds, the best results may be anticipated. Ideal conditions in my opinion would be as follows:

Give the pigs good warm cabins, well bedded, in which to sleep. Let them have a large yard or field in which to run, the feed being given them at some distance from their sleeping place. The food should consist of, say,  $\frac{1}{2}$  to  $\frac{3}{4}$  lbs. of bran per day per sow, and roots (mangels) ad libitum. Sows fed under these conditions and on this ration are likely to come through in good shape and leave large, strong, healthy litters and are likely to nourish them well after they arrive.

J. H. GRIFFITH.

Central Experimental Farm.

### Feeds Clover or Lucerne to Hogs

Brood sows should have all the outdoor exercise that the weather will permit. They should have a place of shelter from the storms where they can go at will. This should be light and airy, clean and well bedded; nothing better than a ground floor. This should be filled in to be at least one foot higher than the ground outside. This will prevent dampness. The sows are better fed outside and not on strong, rich grain food, such as corn, peas, etc., but rather on such foods as bran, chopped oats, mangels, or any kind of rather light soft food. I believe the cheapest and best way to winter brood sows is to feed them largely on red clover or lucerne hay. This should be cut green and well cured. Then cut it fine with the cutting box and moisten a feed ahead.

As much chop as one sow would eat if fed chop alone would be quite enough to mix with this moistened cut hay to feed six or more sows. They would come out in better shape for raising good litters than if fed more largely on grain feed, besides reducing the cost of keep by at least fifty per cent. If convenient, to steam this chopped clover or lucerne would be still better.

When it comes to the time of farrowing in cold weather, the sows must of necessity have a warm place, not damp or stuffy, but dry and clean, with plenty of fresh air and light. A young pig requires light and sunshine as well as a plant. A sow with a large litter should be fed liberally on milk producing food and the young pigs should be taught to eat as soon as possible by having a creep to run through. Sows with small litters, and when small on account of losing a portion of them, should be fed sparingly on dry food, so as to check the flow of milk. The want of pigs enough to take the milk is often the cause of trouble and serious loss.

JOHN JACKSON.

Wentworth County.

### Breeding Pigs

Having been requested by several breeders to state in your paper the principal causes of the great mortality in winter and spring litters, I now do so: It is largely due to lack of vigor in one or both parents, caused by insufficient exercise, improper food, immature breeding and, in the case of excessive service. To avoid loss in this way, have the parents well matured, fed on good food, part of which should be grass or roots, good water at will, and give them a dry sleeping pen free from drafts and plenty of exercise on the ground. If before farrowing the sow is disinclined to move about, she should be induced to do so, and again given exercise a few days after farrowing. At

this time the food should be reduced, only bran in small quantity for the first twenty-four hours after farrowing, to be mixed in luke warm water, given slowly, then increase the feed, giving middlings, with small quantity of crushed oats added, and a little skim milk or whey, with some roots or green feed. Feed this according to the condition of the pigs. Do not fatten them. Keep them growing and lively, but never fat and thick around the throat. When two weeks old, give them plenty of exercise on the ground and if not possible, then in a stable or yard. Have the

pen well lighted from the east or south, moderately warm, clean and dry. After weaning, continue the exercise, feed four times a day for two weeks, then three times, giving skim milk or whey in reasonable quantities, with middlings mixed in. Give this warm, and as they get older, make the feed stronger by adding crushed oats, with the coarse hulls sifted out, along with roots. Never feed too much at one time. If the exercise is attended to and a reasonably well balanced ration given, there will be fewer losses and much better pigs produced.

J. STANDISH, V.S.

## THE DAIRY

### Profits in Butter Making

Butter making, generally speaking, has not paid the farmer as much in direct cash for his milk as cheese making has. In 1906, however, several creameries paid nearly as much per 100 pounds of milk as the neighboring cheese factories did. The Princeton Creamery, near Woodstock, Ont., and in the centre of the great cheese county of Oxford, is a good example. This creamery paid 90¢ per 100 pounds of milk to its patrons last year, while the average for the cheese factories in Western Ontario was \$1.00.

But the profits from a creamery cannot be measured by the direct cash return received. The value of the skim milk and the butter milk must be taken into account. This will vary from 15¢ to 25¢ per 100 pounds, according to the way it is cared for and utilized for young stock. A fair average is 20¢ per cwt., which, if the above figures are taken, would put the creamery away ahead of the cheese factory as a profit maker for the farmer, even if a liberal allowance is made for whey. Skim milk is much more valuable for young stock than whey. In fact, whey is only of value when fed to hogs and to get the best return it must be fed sweet, a condition that is rarely to be found in the whey returned from the average cheese factory of this country. It is usually sour and is of little value for hogs, besides injuring very materially the milk can in which it is carried. Skim milk can be utilized in a number of ways for stock feeding, but is of the greatest value for calves and young pigs. If it can be fed sweet it is almost invaluable. The creamery patron then has a distinct advantage over the cheese factory patron in the value of the by-product, a fact that is not given enough consideration in discussing the relative merits of the two branches of dairying. The production of beef cattle and hogs can very well be made an adjunct to butter making.

There is still another advantage which the butter maker has which is not often referred to. This is the very small amount of fertility taken from the soil, as compared with cheese making. A ton of butter contains fertilizing material to the value of 49 cents, while the fertilizing ingredients in cheese are valued at \$14.19 per ton (Woll). This means that every ton of cheese sent out of this country contains about 29 times more fertilizing material, and which is taken out of the soil, than does a ton of butter. Analyzing this still further, we find that if the value of the fertilizing material be deducted from every pound of cheese sold, the price would be reduced by nearly three-quarters of a cent, while that of butter would only be reduced by hardly one-fortieth of one cent per pound.

Many dairymen completely ignore this important fact when comparing the relative values of the two branches of dairying. In the early days of dairy-

ing in this country this mattered but little, as there was enough and to spare of fertility in the land. But not so today. The farmer must maintain, and if need be increase, the fertility of his land if he desires the greatest return in farm products. If he is patronizing a cheese factory, he must aim to supply the fertility taken out of his land by some other means. And just here let me repeat that this discussion is not undertaken with a view to turning anyone from cheese making to butter making, but rather to show the importance of developing the butter trade in districts where no cheese factory exists at the present time. The limit in cheese production has been reached and further expansion in dairying must be along the line of butter making.

### Left to Arbitration

The difficulty which has arisen between the Toronto Milk Producers' Association and the Retail Milk Dealers' Association of this city, regarding the price which should be paid for milk, has been referred to a board of arbitrators composed of Judge Winchester and Mr. C. C. James, Deputy Minister of Agriculture for Ontario. Both parties have agreed to abide by the decision of the board as to the price that should be paid for the summer's milk supply.

The difficulty arose over the decision of the retailers to lower the price paid for milk on May 1st. During the winter the producer had received \$1.50 per can of eight gallons for his milk, delivered in Toronto, and refused to accept a reduction to \$1.15 per can which the retailer desired to make. He claimed, and rightly so, that it cost about as much to produce milk in the summer as in the winter, and that it was not fair to ask him to accept a lower price when the retailer did not intend to reduce the price to his customers in the city. The retailer, on the other hand, claimed that, owing to the necessity for using ice in handling milk in summer and the greater risk of having the milk spoil, the cost of conducting his business was so much increased that it became necessary to lower the price to the producer or increase it to the consumer. At eight cents per quart the retailer is receiving \$2.56 for the eight gallon can of milk which he is asking the producer to accept \$1.15 for, milk delivered in Toronto, and which should insure a good profit on the investment.

There have been some interesting developments during the progress of the strike. The members of the producers' association for the most part refused to supply milk except at the higher rate. This left some of the smaller retailers short of their usual supply and many Toronto families had to be content with only one-third to one-half of their usual allowances, though none, as far as we can ascertain, had to go without milk "to their porridge." But the producers' association only represented a