

rape cake that is so adulterated that the milk is colored and the cows fall ill. To be good, the rape cakes and other cakes should be thoroughly dry, light, and of greenish color, but not yellow or deep brown. Even though the taste be fresh, they may contain a little mustard. (1) A good way of testing the quality is to grind a small quantity, mix it with hot water and cover it. After a little while, if the cake is good, there will be no smell of mustard or any other bad odor. The cake is adulterated when prepared with impure or damaged seed, or when it has begun to spoil.

Cake from the palm or coconut gives a milk rich in fat.

The palm-nut cake has long been in general use, and it is believed that the cream produced churns well. It is worthy of note that cake made from the palm-nut and coconut have not an injurious effect on the taste or flavor of the butter firm and hard; consequently, it is principally used when the cows are fed on clover and other green fodder.

Cocoanut cakes are hard to keep; they are very spongy, they draw humidity from the air, grow rancid easily, take on a bad odor, and consequently do not suit milk-cows.

The sunflower-seed cakes are imported from Russia, where the sunflower is raised in great quantities. A few years ago some importers said that these cakes gave the butter a nauseous and greasy taste and a smell as of American oil. But of late we have found that first choice butter can be produced by giving a pound of sunflower cake per day to each cow, as long as the cake is good and fresh. A good sunflower cake has a certain taste of nuts, and cows like it very much when given in small pieces.

The ground-nut cake (*tourteau d'arachide*) is very nourishing; it was in great use a few years ago, but it was found that the butter therefrom, even the winter butter, became spongy and soft. For a few years back, however, it has been given in a portion of 1 to 2 lbs. per cow daily, and mixed with good hay, roots, etc., that is to say, in a ration well composed, and the butter resulting therefrom is of good quality.

Denmark does not use much cotton cake. The most given to milk cows is a pound or a little over per day.

Before concocting rations for milk cows, in each case, should be taken into consideration the different fodders raised on the farm, as well as the qualities and prices of the different kinds of food found on the markets. On no pretence should any kind of food, more or less damaged be bought. It should be tested; the cows should have, too, an abundance of good, pure water. The fodder should be cut at the proper time, and given to the cows in good condition.

As to butter, the best thing is to always have plenty of good hay; thus, the butter will be nearly always of good quality. If the water is bad and the fodder damaged, it is impossible to have good products, even by adding to the fodder good grain, bran, or oil cake.

When green fodder is used, or else roots or other purgative food, considerable quantities of other food should be also given, such as grain, bran, cake, which re-establish the digestive equilibrium. So, we give a pound of rape cake, with a little oats or mixed grain, and first-quality bran, if the cost is not too great.

(1) The seed of the *charlock*, *cadluck*, or wild mustard—*Sinapis arvensis*, probably. A. R. J. P.

WINTER FEEDING.

(Translated from Dr. Svendsen's Book on Feeding.)

The winter feeding of cattle is supposed to begin when the animals are taken in from pasture. Yet, the winter rations are commenced two or three weeks before that time. When recourse is had to that rationing in a judicious way, very little difference is noticed in the yield of milk. The date for beginning this new régime cannot be positively fixed. At the end of autumn, the best cows should get different kinds of grain, bran, cake, in addition to the pasture, and the rations should be increased as the grass decreases, or grows less rich.

In selecting the different grains, bran, or cake, to be employed during the winter months, in the first place the price of these articles should be considered. Still we must remark that certain of them are considered indispensable. Of these, we might first mention rape cake, which, despite its often high price, should never be set aside, in view of the fact that it can with difficulty be replaced by others. When this cake is given for the first time the quantity should be very small.

After the rape cake, wheat-bran should always form part of the food of milk cows. Even if the wheat-bran were of high price, it should never be left out; in any case it is profitable to use it, if it costs no more than barley and oats, and if this is relatively low, the ration should be increased beyond the ordinary quantity.

Grains (*drèche*) is another alimentary substance, that apart from the good smell it gives to other food, is of itself rich and digestible, and as it is generally cheap, it should certainly be used for many reasons. Besides, we have many varieties of cake from which to choose. Experience has taught that cake, made from cotton and sunflower seed, the ground-nut, cocoanut and palmit, is very excellent food for milk cows. The three kinds first mentioned are of about the same value; the cocoanut cake generally is very dear; the palmit cake has an excellent effect on the butter.

Barley and oats should be used, if the cost is not too great. It often happens that the price of barley and oats is higher than that of wheat; it is then preferable to sell the grain and buy bran.

It must not be forgotten that food is more relished when it includes several different ingredients, and, for that reason, it is better to make up a ration composed of small quantities of different kinds of food, than to give larger quantities of a smaller number.

Roots should always be given in abundance. The root-rations should begin the end of September, and at that period the leaves or tops may be given, though not in too large quantities. In the first weeks of October the root-rations may be slightly augmented, and, in the middle of the month, a full rationing of vegetables may begin, because they are all ripe at that period.

Hay should always form part of the ration from the first of the winter's diet. At that period there is often a disordered digestion with the animals, and for that reason it is well to give hay, without counting that this feed is more valuable than in winter. In the spring, too, it is well to give hay. Straw may also largely enter into the early winter feeding.

In some places, where large herds are kept, the cows, after they have calved, are usually classed according to their yield of milk. That classification, according to the milk value

of each head, is based upon the principle that the feed should be proportionate to the dispositions of each animal respectively. Theoretically, this is exact; but is the object in view thus attained? It is difficult to say. It is perfectly well known that certain cows that give a large quantity of milk in the first period after calving, give but a small yearly yield, because they run dry quickly, and remain dry a long time, whilst others, without being great milkers, give, however, a good amount all year round. For this reason it is wrong to place those cows in the second and third class at the time when they give the most milk, for full feeding may influence the yield of milk, not only then, but also for the remainder of the year.

It has often been found that a cow which receives, say 8½ lbs. of grain, of bran or cake, can generally produce 26 lbs. of milk, and that she can give a larger yield on receiving a fuller ration; and it is undeniable that, in all cases, a full ration will produce a greater annual yield. It is a well known fact, that the best cows in a herd are not only those which can answer to good feeding, but also those that can give a higher profit with a less amount of food.

The classification according to size is excellent, for a cow weighing 1,100 lbs. requires more food to support her than one that only weighs 880 lbs. It is well to give cows, after their first or second calf, less food than to adult cows; first, because they are not yet sufficiently developed, and next, because it is well to avoid increasing, by heavy feeding, an inclination to fatten.

For mixed rations of milk-cows, it is impossible to indicate exact recipes that would suit all conditions, and serve as guides in the choice and quantity of feed to be given. Experience proves that the same food will not suit under all circumstances.

Great circumspection is needed, when there is a question of adopting new varieties of food, to proceed little by little, and gradually, and not to calculate on great results at once. As a general rule, long observation, before coming to a decision on any new food, is necessary. The effect of the food on a cow should be the subject of careful study; only by this means can the most suitable rations for all conditions and all time be discovered.

By comparing the different rations used for years we can perceive the changes accomplished. Thus, roots have taken a front place, while grain, bran, and cake have slightly fallen off, because it has been recently established that a cow is not able to assimilate the same quantity of grain, bran and cake, if the ration of roots is doubled or tripled. Besides, the introduction of several kinds of cake has produced another change that allows of feeding from several different standpoints. To ordinary food may be added another kind; but, generally speaking, the following precepts should not be forgotten: 1st, that mixed rations should be as varied as possible; 2nd, that the "Kraft Fodder," grain, bran and cake, is in great part composed of cake; 3rd, that roots may be given in large quantities, without disturbing the digestion of the cows, or injuring the quality of the butter.

TREATMENT OF THE CREAM BEFORE CHURNING.

The greater part of the cream received in the Danish creameries is made into butter. Both sweet and sour cream are churned, but here we are not concerned with sweet cream, but with butter made from acidulated cream.

The reason why the practice of ripening cream obtains, is partly because the churning of ripened cream gives more butter, but principally for the sake of the improved flavour and aroma thus obtained.

Makers have often stated that proper ripening tends to make the butter keep better; but this is doubtful. On the other hand, it is certain that, under certain unfavourable circumstances, ripening (when injurious bacteria are present) may be the cause of the inferior quality of the butter, and that it contains numerous micro-organisms which rapidly bring on injurious transformations; while proper ripening is a certain indication that the cream is what it should be.

Ripening chiefly consists in fermentation by means of lactic acid; this has latterly been, and is still more now, the subject of the earnest investigation of bacteriologists. It has been proved that many kinds of bacteria possess the power of converting the saccharine matter of the milk into lactic acid, and it is beyond doubt true that, in practice, many concur in the ripening of the cream.

(To be continued.)

COMPETITION OF AGRICULTURAL MERIT.

The competition of Agricultural Merit will be held, in 1896, in the counties of:

Bagot, Beauharnois, Brome, Chambly, Chateauguay, Compton, Drummond, Huntingdon, Iberville, Laprairie, Missisquoi, Napierville, Richelieu, Richmond, Rouville, Shefford, Sherbrooke, Stanstead, St-Hyacinthe, St-Jean, Vercheres and Yamaska.

In accordance with the regulations of the Council of Agriculture, those persons wishing to take part in this competition must enter their names at the Department of Agriculture and Colonisation on or before the 1st May, each year, on blank forms, which will be sent to them by the department at their request.

In late years, a certain number of persons tried to get their farms inspected by the Judges, after the competition was opened, under pretence of not having heard before that the competition was to be held in their district.

We are anxious that, in future, there should be no misunderstanding on this point; and, therefore, no entry will be accepted after the lapse of the delays fixed upon by the regulations of the Council.

NOTES AND NOTICES.

Marion & Laberge, No. 185 St. James Street, Montreal, send The Inventor's Guide free to any inventor asking for it.

We would draw attention to the sale announced in the advertisement of the ISALGIR GRANGE FARM, Danville. These herds are well known, their representatives taking many prizes wherever shown. Amongst the lots offered for sale will be some of the principal prize winners; the number offered is so large that everyone should be able to secure what they want. The date of sale is October 15th.

The Hon. M. H. Cochrane, Hillhurst, will also hold a sale of Shropshire and Dorset Horned Sheep early in October, particulars of which will be announced later.

I. J. PARNELL Spring Road, P. Q.

— Breeder of —
Leicester Sheep and Improved Yorkshire Swine.
Two Sows and one Boar 3 months old for sale. Orders booked for fall letters. 10-25-95

GUY CARR, Compton Station, P. Q.
Breeder of REGISTERED CANADIAN CATTLE, Southdown Sheep, Plymouth Rock Poultry. Was 1000 prices in Quebec, Ontario, Vermont and New York. 95-10-37