

which has been given in the milk can be fed dry in conjunction with the other grains, but it is not desirable to feed it or any other flesh forming substance too heavily.

Fall or Spring Calves.

The question of whether cows should drop their calves in the spring or fall is one that must be decided by each dairyman according to whether he practises winter dairying or not. As regards the calves, the fall-dropped calf has an opportunity to acquire good growth before spring, when it can run out on pasture. It can also be fed ensilage, which has been successfully tried in many instances with calves, and fallen apples cut up fine are also a suitable feed. When calves are dropped in the spring they should not be turned out to pasture in the hot weather. If they are turned out under a mistaken idea of economizing, the young things will suffer so much from heat, and be so tormented with flies that their growth will be stunted, and any saving of feed will be much more than counterbalanced by their lack of growth and thrift. Those who treat their calves in this manner must remember that, while the flesh-forming habit should not be encouraged among dairy calves, yet a continuous, steady, natural growth is always desirable, and any check thereto is harmful to the future success of the animal's career. The necessary exercise for the calves is best obtained by letting them run in a small paddock in the cool of the evening or early in the morning before the flies get troublesome.

Some Requisites for Calf Feeding.

Always keep the calf pens dry and clean, using plenty of litter. A dirty pen is conducive to scouring, that bane of the young calf's existence. When several calves are fed together it is best to fit up on one side of the pen as many narrow stalls as there are calves. In the partition in the front of these stalls there should be cut holes for the calf to put his head through to drink out of a pail placed outside. At the back of the stalls can be placed doors fitted loosely between cleats, which can be raised by means of ropes and pulleys before the calves enter the stalls, and dropped as soon as they are inside. If doors are not used small stanchions can be fitted in the parts of the stalls and the calves fastened there as long as it is desired. By this means the weaker calves get their full share of the milk with no risk of being robbed by the bigger ones. After the calves have finished drinking it is well to keep them tied or fastened in their stalls for a little while, until they have got over the excitement of drinking. Unless this is done there is the danger that some of them may acquire the practice of sucking the ears, navels or teats of the others which oftentimes causes bloating, not to speak of occasional injury to the animal sucked. To prevent this taking place and to divert the animal's attention, a good practice

after they have drunk their milk, is to feed some dry oatmeal and bran in a manger placed on one side of the front of the stall, just as soon as the animal will nibble at it. After it has eaten a little it forgets its sucking propensities and will not molest its companions.

Remedies for Scours.

The most frequent and troublesome disease that affects calves is scouring. Various causes for it have been given above, which it will be unnecessary to repeat here. If steps are taken to remedy the trouble at once a cure is soon effected. If milk has been fed too cold or too hot see that it is given at the proper temperature and perfectly sweet, and be sure that the pails are thoroughly clean. If the pens are dirty, clean them out and furnish with plenty of bedding. Sometimes boiled milk which has been allowed to cool to a suitable temperature will cure the disease. In other cases a little charcoal together with five to ten drops of rennet extract is very efficacious, especially where wind colic is present. Raw eggs given whole with the shell crushed fine are often administered, the lime in the shell being particularly good for this trouble. Lime water is a favorite prescription with many, while in severe cases a cure is generally speedily worked by discontinuing the milk for a little while and giving a small dose of castor oil to remove the source of the disorder in the bowels.

Gains in Weight on Skim-Milk.

Excellent gains in weight have been made with calves on skim milk and grain and linseed meal, as described above. At the Massachusetts Station the average gain was 1.49 pounds per day for seven calves. At other stations the gains have reached from .95 to 1.72 pounds a head per day, according to age, and the value of skim-milk for calf raising has been shown to be from 25 to 35 cents per 100 pounds. Stewart, in his work, "Feeding Animals," reports a number of calves in his experience that made an average growth of two pounds per day for the first ninety days, and individuals were doing equally well when older.

Whey.

Whey is sometimes utilized as a substitute for skim-milk to feed to calves, but it can only be successfully used when fed with care and forethought. In comparison with skim-milk it is by itself a poor food, because the casein, the most valuable constituent of skim-milk, has been all removed, and the milk sugar, the principal constituent that remains, is a carbohydrate and belongs to the class of the cheapest food products. There is a small amount of albuminoids, however, about .8 per cent., also present in it. The value of whey is not more than one-half of that of skim-milk. It should never be fed alone with the expectation of raising good calves.

To ensure success with whey feeding it must be fed sweet—a difficult thing to be managed when it has to be brought back from the factory, because it is generally sour before it leaves there, and it must be warmed to a proper temperature like skim-milk. Then, to bring its feeding value up to a standard akin to whole milk, there must be added, for a young calf, one-quarter pound of linseed meal to each gallon of whey. When the calf is about a month old, add one quarter pound of bran to each gallon of whey mixture, or, instead of bran, an equal quantity of ground oats or barley, which has been scalded in whey or water. A dairyman, writing in the *Ohio Farmer*, carried out the following method of feeding whey: His calves were dropped in the spring. New milk was given till the calves were three or four weeks old; then whey was gradually substituted for the milk, until at the end of a week whey had entirely taken the place of the whole milk. The fat in the ration was made up by adding to the whey Old Process oil meal. When the whey soured in the hot water, hay tea was substituted for it, and oil meal and water and a little bran were added. Two tablespoonfuls of oil meal were given to each calf. This correspondent, after trying whey for some time, finally discarded it altogether, using the hay tea instead from the first.

To be Continued)



Five Shorthorn Grade Calves, seven months old, fed on new milk one week, then a little calf-meal gruel mixed with separator milk, the calf-meal gruel being gradually increased and the milk soon discontinued altogether. As soon as they were old enough they were fed clover hay, oil meal, and chopped hay.