



Worms are a frequent cause of loss after weaning, but the trouble can be minimised under a system of controlled grazing when calves are shifted every one or two days ahead of the cows. These identical twins at the Department of Agriculture's Animal Research Station, Ruakura, show at left one rotationally grazed and at right the other set stocked.

young animals on the farm to digestive upsets and bowel infection.

Over-feeding is the commonest cause of nutritional scours in young calves. It is better to allow calves to develop more slowly than to risk increasing the amount of milk beyond their capacity to digest it in two feeds daily. The risk of indigestion is also increased if the milk is too rich.

Strict rationing of milk or milk substitute and the dilution with water of whole milk with a fat content of over 3.5 per cent. are therefore the two most important factors in the prevention of dietetic scours.

Also of importance is the maintenance of clean, tidy surroundings to prevent calves developing indigestion caused by chewing straw, bits of string or wood, or other foreign objects.

Three pints of whole milk fed twice daily may seem a small amount to give a Jersey calf in the first week or 10 days, but this amount must not be exceeded where there is trouble with scours at this stage. The need to feed colostrum followed as far as possible by the milk of recently calved cows has already been emphasised. Special care is needed with calves which have been bought for rearing and transported to new quarters. It is then wise at the first feed to allow only 3 to 4 pints of water to which sugar or glucose may be added and at the second feed 2 to 3 pints of milk diluted with an equal quantity of water.

Nutritional scours will often respond to simple treatment in the early stages. The first essential is to remove as much as possible of the undigested material and allow the stomach time to recover. A dose of castor oil as recommended in the summary of treatment should be given. Milk should be withheld for 24 hours, only boiled water being given during that period; the calf should be fed only a restricted quantity of milk diluted with equal parts of water, the strength being increased gradually as recovery takes place. More-persistent cases may need treatment with sulphonamide or other drugs which are effective against the secondary infection.

Infectious scours: If it is clear that the feeding is not at fault, infection may be the primary cause of trouble. There are two main types of infections causing calf scours—bacterial infections and coccidiosis, which is due to a protozoan parasite. Coccidiosis is a frequent cause of scours, especially in calves 3 weeks to 3 months old. Scours are sometimes described from the nature of the faeces passed. Thus in white scours there is a whitish, creamy, or yellow diarrhoea, and this type is most common in the first fortnight. Blood scours, in which the faeces may contain clots of fresh blood and also mucus, is an indication of an acute and severe infection which has caused bleeding from the wall of the bowel. It is particularly common in coccidiosis. In certain stages of their development the coccidia penetrate the wall of the intestine and cause severe damage. Severe infections of both types may cause death in from 2 to 7 days or calves may reach a more chronic stage, which is associated with loss of condition and general unthriftiness.

Preventive measures must include a thorough clean up and disinfection of infected premises and feeding utensils and the isolation of infected calves. If calves are confined to small paddocks, arrangements should if possible be made to give them greater scope on clean pastures with frequent shifting.

Treatment for bacterial infections or coccidiosis should be the same as recommended for nutritional scours with the additional use of sulphonamide or other drugs as prescribed by a veterinarian. Diagnosis of coccidiosis is made by examination of faecal samples.

Scours due to worm parasites: Worms are not usually a cause of serious trouble until after weaning. They are particularly likely to cause losses in the first autumn and winter. The symptoms apart from scouring (which is usually present) are unthriftiness, gradual loss of condition, and anaemia.

Preventive measures and treatment are the same for all the usual types of stomach and intestinal worms. Under favourable conditions the worm

eggs hatch out within 24 hours, but the larvae do not reach an infective stage for 5 or 6 days. Some may persist on the pastures for many months, but most die within 3 weeks after reaching the infective stage, so that spelling paddocks for even a short time helps to reduce the worm population. Therefore the system of grazing management has a most important bearing on worm infestation. The worm population on the pasture is reduced by an adequate system of controlled grazing. At the same time the extra thriftiness of the calves under these conditions increases their resistance to infestation and may make drenching unnecessary. About 14 separate paddocks are needed for best results and to allow shifting of the calves every one or two days ahead of the cows.

Under less favourable conditions drenching should begin at weaning time and if necessary be repeated every 3 weeks. Particular care is needed when a mass hatching of worm eggs is caused by rain after a dry period in autumn. Calves should be drenched 3 weeks after the wet period began.

Probably the most effective worm medicine is phenothiazine. In a few instances calves after drenching with phenothiazine have developed an inflammatory condition of the eyes when exposed to sunlight, but these cases occur too seldom to be viewed seriously. Any ill effect may be avoided if calves are kept under observation on the day after drenching and at any sign of weeping are put into a shed out of the light for the remainder of that day. Any risk should then be past.

The bluestone-nicotine sulphate mixture or bluestone alone is also a useful worm drench and may be more effective than phenothiazine against certain types of worms. Both may be used alternatively with phenothiazine.

Summary of Prevention and Treatment of Calf Scours

1. Feed colostrum for the first few days and then milk from recently calved cows.
2. Avoid over-feeding, especially in the first fortnight.