ANIMAL HEALTH IN A FEEDLOT

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SUMMARY

The animal health problems most commonly encountered in a feedlot are either associated with physical injuries or are metabolic in nature. Lactic acidosis and bloat have caused quite serious losses on some properties while an outbreak of actinobacillosis was a problem on another. Vaccines have been used to control sudden deaths associated with the organisms causing blackleg, malignant oedema and black disease.

Bovine virus diarrhoea, parainfluenza 3 infection, pasteurellosis and bovine rhinotracheitis are discussed briefly as they are considered the diseases most likely to become a problem in feedlot cattle in New Zealand.

Internal and external parasites have not been a problem but precautionary treatment for these has been carried out. A strict management routine and good animal husbandry are necessary to minimize losses from existing problems and to help prevent the occurrence of new ones.

In this discussion on the health of feedlot cattle reference will be made to problems that have been encountered in a number of intensive feeding systems. In addition some diseases known to exist in New Zealand but not currently causing serious problems will be briefly discussed because they are considered a potential threat to a feedlot industry. Emphasis is given to aspects of preventive medicine and management designed to minimize the introduction or spread of infectious diseases and to help prevent losses from metabolic diseases and injuries.

Among the enterprises used as a basis for this discussion were a grain finishing feedlot with a turnover of up to 1 000 bullocks annually and several properties wintering up to 800 cattle.

LACTIC ACIDOSIS (RUMENITIS)

This condition is associated with accidental engorgement or poor husbandry methods when cattle first enter a feedlot where concentrates are used. Thomson (1967) makes the point that it is not the total amount of soluble carbohydrate that is eaten so much as the amount that this is, in excess of what the animals are presently accustomed to being fed.

A gradual introduction of concentrates over a 2- to 3-week period will usually result in adaptation and no ill effects (Allison *et al.*, 1964; Tremere *et al.*, 1968).

In one serious outbreak, affected steers had been accustomed to a daily ration of 6.4 kg of barley meal and about 15.9 kg of lucerne haylage. When the barley meal was fed with no haylage or other roughage, 30 out of 100 animals showed clinical signs of lactic acidosis. The severity of the condition was extremely variable. Some animals died within 36 hours while others suffered a prolonged illness and died 2 weeks later. Most of the steers that recovered had a moderate to severe diarrhoea, and many also showed evidence of laminitis.

Where high concentrate diets are fed for long periods of time a chronic form of rumenitis characterized by thickening of the walls and papillae, increased pigmentation of the epithelium and the presence of multiple small abcesses or inflamed nodules, may develop (Fell, 1969; Fell *et al.*, 1968). There is no record of this condition occurring in New Zealand, nor does there seem to be any record of the occurrence of the rumenitis liver abscess complex (Rowland, 1966; Jensen and Mackey, 1965; Thomson, 1967).

BLOAT

Bloat can be a problem among feedlot cattle, especially when the ration fed contains a high proportion of concentrates or when freshly harvested legumes and grasses are used (Blood and Henderson, 1963; Jensen and Mackey, 1965).

One outbreak of bloat was associated with the feeding of potatoes. The affected cattle had just been introduced to a diet consisting of 13.6 kg of potatoes with some hay and silage. All cases occurred during the first two or three weeks suggesting that some adaption takes place. The problem was avoided in subsequent groups of cattle by a more gradual introduction of the potatoes over the first three weeks.

PHYSICAL INJURIES

In general these are the result of poor management or inadequate facilities and are attributable to one or more of the following factors: underfeeding, over crowding, inadequate feeding space, fighting, riding, faulty yard or trough construction or poorly-sited gateways and water troughs.

The injuiries most commonly seen involve the legs and feet but on occasions other areas of the body can be involved. Because of their riding habits bulls are particularly liable to feet injuiries and where other management is poor (*e.g.*, underfeeding causing restlessness) serious economic losses may result. Sharp concrete edges, nails, wire and bolts on

gates and races are common causes of injury to legs and feet. Penetration wounds of the neck, shoulder or brisket can result from wood splinters, nails or wire around feeding troughs and may lead to serious carcass and hide damage when bacterial infection follows.

It is highly desirable and in many cases necessary under present legislation to have cattle dehorned.

CHOKE

Choke is a problem quite commonly observed in cattle fed on potatoes. It is usually caused by a whole, medium-sized potato lodging in the pharynx or the entrance to the oesophagus. Inability to eructate may cause secondary bloat and quite severe dehydration may result because of the animal's inability to swallow saliva. Provided adequate restraining facilities are available, most potatoes can be easily removed manually.

NUTRITIONAL HAEMOGLOBINURIA (RED WATER)

The aetiology of this condition is obscure but it is associated with the feeding of brassica species. Clinically discoloured urine is the first indication of illness and this may be followed by inappetence, weakness, anaemia, jaundice and death (Blood and Henderson, 1963; Clegg, 1966).

An outbreak of this condition was associated with the prolonged feeding of chopped choumoellier and hay. The choumoellier was fed first thing in the morning followed later in the day by a ration of hay. The problem was controlled by reversing the feeding regime and giving the hay first. It was assumed that some animals had been eating more than their share of choumoellier and very little hay.

STARVATION

A surprising number of animals do not adapt to a feedlot environment and fail to do well despite the fact that they may appear to be getting their share of the ration provided. Another group will simply not eat although they have adequate opportunity to do so. This problem is more common where only one type of feed is offered, maize silage on its own, for example. A third group of animals fail to thrive because of lack of opportunity to eat. They are low in the social order and are often bullied excessively by others in the group. Good husbandry is required to prevent these problems. A daily check should be made and any animals in this category removed. Animals that fail to make reasonable weight gain after 2 to 3 weeks compared with the rest of the group should also be removed.

PARASITISM

Sucking and biting lice and gastro-intestinal helminths are commonly found parasites of beef cattle in New Zealand and in some circumstances they may be associated with obvious ill thrift. Their significance in feedlot cattle, however, is difficult to assess especially when most animals entering these facilities are reasonably mature and thrifty.

Along with overseas practices (Jensen and Mackey, 1965), precautionary drenching and spraying of all animals as they come on to a property are usually carried out. Although there is no good evidence to support this practice the small additional financial outlay seems justified. Except for the odd animal, one treatment can give adequate protection for at least three months. In those cases where further treatment has been necessary some stress factor such as disease, injury or a failure to adapt to the new environment has been present.

ACTINOBACILLOSIS (WOODY TONGUE)

Actinobacillosis is a relatively common disease among beef cattle in New Zealand, usually affecting the soft tissues of the mouth and pharynx. Isolated cases are common among cattle in feedlots and are easily treated. An unusual outbreak of actinobacillosis occurred in a group of 200 cattle in which lesions were found on the neck, shoulder and brisket of about 10% of the mob. Infection apparently took place via wounds caused by splintered woodwork on a feeding trough. Following the repair of this feeding trough no further cases occurred. Treatment of the affected animals was expensive and prolonged and quite a serious loss was incurred as a result.

CLOSTRIDIAL DISEASES

The clostridial organisms associated with blackleg, malignant oedema and black disease have been commonly isolated from cases of sudden death that have occurred in several feedlots. The incidence of these deaths is sporadic, usually associated with either potato or grain feeding and affected animals are usually in very good bodily condition. Since clostridial vaccines have been used on all cattle coming on to these properties, losses of this type have been minimal.

BOVINE VIRUS DIARRHOEA (MUCOSAL DISEASE)

Bovine virus diarrhoea (BVD) is most commonly found in cattle in the 6- to 24-month-old age group. Reports from North America indicate that the morbidity rate, while highly variable, may be as high as 90% and the mortality rate, equally variable, may be as high as 30% (Jensen and Mackey, 1965).

Serological evidence of the reasonably widespread occurrence of BVD in dairy cattle in New Zealand was obtained by Fastier and Hansen (1966) and Jolly *et al.* (1967) made the first successful isolation and identification of the virus from an affected animal. A vaccine for BVD is available and is used with apparent success in feedlot cattle overseas (Jensen and Mackey, 1965). It is assumed that the vaccine which is available in New Zealand would give similar results here if BVD became sufficiently prevalent clinically to warrant its use.

RESPIRATORY DISEASES

The respiratory diseases that are considered a potential threat to feedlot cattle in New Zealand are infectious bovine rhinotracheitis (IBR), pasteurellosis and parainfluenza 3 infection (PI 3). The causative agents are reasonably widely distributed throughout the country (Fastier and Hansen, 1966) and according to overseas reports they are capable, either individually or collectively, of causing serious economic loss (Sweat, 1968; Moeller, 1969; Collier, 1968; Ramsey *et al.*, 1968). In the North American feedlot industry widespread use of vaccines against these diseases is made, and while these vaccines are not entirely without problems reasonably good results are obtained (Jensen and Mackey, 1965; Sweat, 1968; Moeller, 1969). Again similar use of these vaccines could be made in New Zealand if the incidence of these respiratory diseases became serious enough to justify such action.

DISCUSSION

It is highly desirable that veterinarians and other advisory personnel concerned with lot feeding should work together and that they should be involved in all stages of the enterprise from the planning and layout of facilities to the management and feeding of the stock. They should also make themselves available for regular visits and consultations. The veterinarian should make a weekly inspection of all stock for evidence of disease or injury that may not be apparent to the operator.

Such inspections can be carried out at any convenient time and need not necessarily require the presence of the operator who can easily be informed of any advice required or the identity of a sick animal requiring attention.

The management of new groups of cattle coming on to a property will obviously vary depending on the circumstances operating at the time. The following programme could, however, be used as a guide.

The new group should be isolated from other stock, particularly from those already on the property, for 2 or preferably

3 weeks. Ideally they should be allowed to rest for the first 2 days with access to good feed and water. After this settling down period individuals can be weighed, identified with easily-read tags or brands and dehorned if necessary. Vaccines and trace elements considered necessary can be administered and miscellaneous problems such as lameness and actinobacillosis can also be dealt with. Treatment for internal and external parasites can be carried out a few days later.

A further 2- to 3-week period should be allowed for adaptation to the new environment and diet when the group finally enters the feedlot. Special care is required when a high proportion of concentrates are being fed. The operator should be encouraged to spend at least one period a day observing the group as a whole in order to identify shy feeders, non feeders, animals being bullied excessively and animals that are sick or injured.

Regular weighing allows the group's progress to be monitored and identifies poor doers that may not be apparent visually.

Repairs and maintenance should be kept up-to-date at all times to minimize the risk of injury and spread of disease. Water troughs should be cleaned out, holes and muddy areas around troughs, gateways and concreted areas should be filled in and any ponded water lying about should be drained away.

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