JOHNE'S DISEASE OF CATTLE*

JOHNE'S disease is a malady particularly affecting cattle with lowered resistance, irrespective of breed. It is a chronic infectious disease, and it can only occur as the result of a pre-existing case. Bad management and care, improper feeding and overproduction will seriously lower the resisting powers of an animal, but cannot produce this disease. It is necessary for the specific microbes to gain entrance into the body of the animal before Johne's disease can develop.

Health, disease, or death, from a technical viewpoint, is in reality the result of a struggle for victory between the resisting forces inherent in the individual body and the disease-producing germs which invade it.

When an animal, maintained under conditions which lower its resisting powers to disease, comes in contact with this infection, the germs are able to multiply in its body and to increase their activities to such an extent that the normal functions of the tissues in which they are located are deranged and disease results. When, however, the germs gain entrance to the body of an animal with high resisting powers they are destroyed by the body cells and disease cannot then develop.

This particular microbe is an organism of very low virulence and the disease which it produces progresses very slowly and develops in a very insidious manner. Months and years may pass before the animal shows noticeable signs of illness.

SYMPTOMS

Infection may occur during calfhood, but symptoms have not been observed in animals under eighteen months of age, and rarely before they are two years old. Symptoms are usually first observed after calving, at a time when the animal's resisting powers are at a low ebb. They are more frequently seen in animals ranging from two and a half to six years of age, and occasionally in older animals.

The characteristic symptom of this disease is a diarrhoea, and until it occurs little change can be detected in the appearance and behaviour of the animal.

The attacks of diarrhoea occur periodically and become more frequent and of longer duration as the disease progresses. The animal begins to lose flesh more rapidly and there is soon a marked reduction in the milk secretion of lactating cows. The appetite as a rule remains relatively good.

It is a painless disease until the last stages are reached, when the animal, reduced to a mere skeleton, may show evidence of discomfort and suffering.

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* By George Hilton, V.S., H.A.R.C.V.S., Veterinary Director General, Health of Animals Branch. Extracted from the Dominion of Canada — Department of Agriculture, Bulletin No. 167 — New Series, 1934.

The periodic attacks of diarrhoea generally observed until death occurs and the extraordinary loss of flesh during the later stages of the disease, are typical of this infection.

The periodically appearing, but persistent diarrhoea of Johne's disease, with its mash-like watery fæces, which soil the hindquarters as well as the floor and walls of the stalls, should at once create suspicion. It should not be confused with the haemorrhagic diarrhoea of young calves caused by a minute animal parasite producing coccidiosis, nor with the diarrhoea affecting young cattle from calfhood, caused by stomach worms (Parasitic Gastritis).

POST-MORTEM APPEARANCES

Many diseases do not produce significant changes in the body which can be recognized at post-mortem by individuals who have not studied the body in health and disease. Johne's disease, however, generally produces marked changes along the lining of the small intestines (bowels). This surface presents a corrugated appearance similar to the corrugated zinc surface of a washboard, except that the corrugated lines are not as uniform. The walls of the intestines are much thickened and the intestinal lymphatic glands are swollen.

It has also been observed that the fat in the carcass of an affected animal is of a marked yellow colour.

It is remarkable that this chronic fatal disease does not cause other visible changes in the body, although it is not a difficult one to recognize after symptoms develop, nor to confirm for all practical purposes after death takes place.

METHODS OF INFECTION

The germs producing this disease generally gain entrance into the body with feed and water which have been contaminated or polluted with the discharges from affected animals.

Animals may become infected by direct contact with an infected animal, and by contact with infected premises or anything that has been soiled by the discharges of infected animals through the act of licking. They may also become infected by grazing on pastures on which infected animals have grazed.

While it has not been definitely determined how long the germs of this disease can live outside of the animal body, it is not considered safe to place animals on pastures which have been contaminated until the pastures have been vacant for a period of at least two months.

Contaminated ponds and pools are particularly dangerous and should be permanently excluded as a source of water supply.

Manure piles are also particularly dangerous, and the practice of leaving manure where animals can come in contact with it cannot be too strongly condemned. It is a certain means of spreading this infection through a herd; is often responsible for the spread of other diseases and for the infestation of the animals with parasites or worms. It is consequently important, and it pays under any circumstances to store manure at all times where animals cannot have access to it.

HOW THE DISEASE SPREADS

The infected animal is the original source of infection and it will infect those that come in contact with it.

The movement of infected animals by any means for any purposes anywhere leaves a train of infection.

The discharges, and particularly the fæces in this disease, and anything that may be contaminated with these discharges, including the hands, clothes and boots of attendants and others, may carry the infection.

Dogs, cats, and other smaller animals coming in contact with these discharges may spread the infection to many premises.

PREVENTIVE MEASURES

It cannot be stated too emphatically, nor repeated too frequently, that Johne's disease is a malady affecting cattle with low resisting powers and that the chief preventive measures consist in the maintenance of cattle in the highest possible state of vigour.

Caution should also be exercised in the selection of animals for addition to herds, and it is good sound practice to isolate them for at least thirty days before putting them with the herd.

As there is reason to believe natural infection frequently takes place in the early days of life by contact with infected dams or surroundings, calves should be removed immediately after birth from the contaminated place and raised where they will not be subject to exposure to infection.

With a better knowledge of disease brought about by scientific research, diseases causing enormous losses in the past have been eliminated over vast territories and brought under better control elsewhere.

While the incidence of certain serious diseases has changed under modern conditions, other diseases are slowly but surely increasing and are spreading and invading new territory.

SANITATION

Animals kept in badly ventilated dirty stables, lose their vigour, and when exposed to infection easily contract disease. Dark, dirty, crowded and ill-ventilated stables, are especially favourable to the propagation of disease, and when infection is introduced into such premises disease not infrequently spreads with startling rapidity.

Good ventilation must provide for two things, first, the removal of foul air from the inside, and, second, the bringing in of fresh air from outside the building. No system is good that fails to accomplish these objects without causing unnecessary draughts. When both inlets and outlets are proportioned to the size of the building there should be a constant circulation of air, and no sensation of closeness should be perceptible in the stable.

Stables should be cleaned out often and the manure should be stored in a locality where animals cannot gain access to it. Cleanliness includes keeping the walls and ceilings free from dirt, dust and cobwebs. These are all good resting places for disease germs.

Whitewashing the interior of the stable at least twice a year is a great aid to cleanliness, and also has a destructive action upon disease germs.