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JOHNE'S DISEASE
INFECTIOUS DIARRHEA OF CATTLE

AN INFECTED ANIMAL

By HARRY MORRIS
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INFECTIOUS DIARRHEA OF CATTLE

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During the past year a cow on the University farm developed a case of chronic diarrhea which would not respond to treatment. A definite diagnosis of Johne's disease was made by the Department of Animal Pathology, of the Louisiana Experiment Station.

For a number of years reports of similar cases have been received from different parts of Louisiana. One outbreak occurred in a herd of purebred short-horns in the northern section of the state. Several animals were lost, but the cause of the disease was never fully determined.

This brief report and description of Johne's disease is given for the benefit of the veterinarians of the state and for the cattle owners in general. It is hoped that it will materially assist in the diagnosis and control of this disease before it becomes a menace to the cattle industry of the state.

DESCRIPTION

Johne's disease is commonly known as chronic bacterial dysentery, infectious diarrhea, or paratuberculosis. It is a relatively new disease in the United States, having first been diagnosed in Pennsylvania in 1908. It is now known to exist in eight or nine states and is quite prevalent in certain dairy districts of the north. This disease is very common in the dairy districts of Europe, especially in Germany, Denmark, Holland, Belgium, Norway, and Sweden. Losses in Denmark probably approximate 10 per cent.

CAUSE

Johne's disease is caused by an acid-fast organism (Mycobacterium paratuberculosis) very similar to that of tuberculosis. It is aerobic, non-motile, and does not produce spores. It is found in the intestinal mucous membrane and the mesenteric lymph glands of the infected animal.

SUSCEPTIBILITY

Cattle of all ages are susceptible to the disease, however, it is more prevalent in animals from two to four years of age. It usually appears in dairy cows during the second period of lactation.
PLATE 1. HEALTHY INTESTINAL WALL
The normal intestinal wall shows a smooth, velvety mucous membrane when slightly stretched. Intestine split open and stretched on a flat surface.

SYMPTOMS

At least six months elapse after the animal picks up the infection before physical symptoms appear. The most characteristic symptom is the appearance of diarrhea with a gradual loss of flesh; the animal becomes a walking skele-
PLATE 2. DISEASED INTESTINAL WALL

This specimen was taken from the animal whose picture appears on the front page. Note the wrinkled condition of the mucous membrane, as compared to the normal intestine as shown in Plate I.
ton. The milk flow is decreased, and the thirst of the animal is increased. The appetite is usually normal throughout the course of the disease. In the early stages the symptoms of diarrhea may disappear for a short space of time only to reappear in a more virulent form. The feces are thin, watery, and frequently contain gas bubbles and flakes of mucous. The hind quarters of the animal become coiled, as well as the floors and walls of the stable. The animal may live for months, but the disease finally terminates in death.

**DIAGNOSIS**

In making a diagnosis of Johne’s disease, the physical symptoms should be taken into consideration, especially the chronic course: normal appetite of animal, increased thirst, and general emaciation. A post-mortem will show a general anemic condition; nothing pathological will be noticed except a thickening of the intestinal walls with the mucous membrane thrown up in folds or ridges, as is shown in Plate II. The draining lymph glands are usually enlarged. Slides made from scrapings of the intestinal walls will usually show the presence of the causative organism. The slides should be prepared as for tuberculosis, and sent to the Department of Animal Pathology, of State Experiment Station, for microscopic examination.

A diagnosis of Johne’s disease may be made by applying a specific test, similar in nature to the tuberculin test. This test consists of injecting a preparation, known as “johnin,” into the blood-stream of the animal. The infected animal will show a rise in temperature, often accompanied by symptoms of chills and diarrhea.

**DIFFERENTIAL DIAGNOSIS**

In Louisiana, Johne’s disease may be confused with other troubles. Tuberculosis of the bowels might produce similar symptoms. This condition, however, is easily diagnosed by running the tuberculin test. A heavy infestation of either stomach worms or hook worms will produce emaciation and diarrhea in young cattle. Parasitic infes-
tation usually appears in a great number of animals at the same time and is easily diagnosed, by a fecal examination for the presence of eggs, or by a post-mortem examination. In certain sections of the state a deficiency disease, commonly called "Creeps," might be confused with this disease. Similar conditions of emaciation and diarrhea may develop during the winter months among under-nourished cattle, but when proper nourishment is supplied to such animals the symptoms disappear.

TREATMENT AND PREVENTION

There is no treatment for Johne’s disease, but it may be prevented. All suspicious cases should be isolated from the herd, as the infection is present in the feces of the animal. Grass, hay, or other food may become contaminated in this manner and prove a means of spreading the disease. If a single case appears on a farm, the entire herd should be tested, and all the reactors eliminated, as is done in the case of tuberculosis.

CONCLUSIONS

The Louisiana Experiment Station desires to obtain information concerning the possible presence of this disease in the state, so that proper control measures may be put into operation by the state sanitary authorities. Our warm semi-tropical climate might be ideal for the dissemination of this disease, notwithstanding the fact that it is usually more prevalent in colder climates.

At the present time it is somewhat difficult to obtain johnin for diagnostic purposes. Dr. B. A. Beach, Department of Veterinary Science, University of Wisconsin, kindly supplied the department with enough johnin for this case. Dr. Beach has been working on this subject for many years and has contributed many valuable articles concerning the diagnosis and control of the disease.

The Bureau of Animal Industry, of the United States Department of Agriculture, realizes the importance of this disease in the United States. They hope to include paratuberculosis with the extensive tuberculosis eradication
campaign, which is being carried on throughout the country. It is sincerely hoped that this plan will be put into operation as it will greatly facilitate the diagnosis and control of the disease.

SUMMARY

1. A case of Johne's disease has been definitely diagnosed in Louisiana.
2. This animal was purchased by the University from a breeder in the state.
3. No additional cases of the disease have developed on the farm.
4. The causative organism is disseminated in the feces of the infected animal.
5. Susceptible animals contract the disease from contaminated food and water.
6. All cases of chronic diarrhea, especially in dairy cattle, should be isolated and a veterinarian consulted.
7. If johnin is obtainable such animals should be tested and all reactors destroyed.
8. At the present time this disease is not a serious menace to the dairy industry of the United States.
9. All cases of Johne's disease should be reported to the Louisiana Livestock Sanitary Board.

It is hoped that this bulletin will assist in the diagnosis and control of Johne's disease before it becomes disseminated throughout the state. Imported animals should be carefully guarded to prevent its introduction into clean herds. It is always easier and cheaper to control a few cases of any disease in the beginning rather than to eradicate it after it has become widespread, as is the case of bovine tuberculosis.

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