There are many infectious diseases of cattle that are not present in the United States. These are referred to as foreign animal diseases. The risk of intentional or unintentional introduction of a foreign animal disease into the US is greater today than ever before. Early detection is a key step in reducing losses to animal agriculture from a foreign animal disease.

Over the next several issues of the Michigan Dairy Review, we will provide a general description of foreign animal diseases affecting cattle that are considered high priority diseases by the United States Department of Agriculture. The purpose is to raise awareness about these diseases and hopefully provide the basis for early recognition of these diseases should they somehow show up on your farm.

Contagious Bovine Pleuropneumonia

Contagious bovine pleuropneumonia (CBPP) is a highly infectious disease, primarily of cattle, affecting the lungs and occasionally the joints. There is no evidence to indicate that humans are susceptible to this disease. The disease is caused by a bacterium called Mycoplasma mycoides mycoides. This agent is quickly inactivated when exposed to normal external environmental conditions. M. mycoides mycoides does not survive in animal products and does not survive outside the animal in nature for more than a few days. Many of the routinely used disinfectants will effectively inactivate the organism.

Contagious bovine pleuropneumonia is found in most of Africa. It is a problem in parts of Asia, especially India and China. Periodically, CBPP occurs in Europe with outbreaks occurring in Spain, Portugal, and Italy within the last decade. Contagious bovine pleuropneumonia is considered a foreign animal disease in the United States because it was eradicated in this country during the 19th century.

Contagious bovine pleuropneumonia is spread by inhalation of droplets from an infected, coughing animal, thus requiring close contact for transmission to occur. Outbreaks usually begin as the result of movement of an infected animal.
into a susceptible herd. It is widely believed that recovered animals can harbor infectious organisms within their lungs and can become active shedders when stressed. There are a few reports of transmission by means such as vehicles or cloths, but this mode of transmission is not generally thought to be a problem.

The time from natural exposure to clinical signs of disease is generally quite long. Healthy animals placed in a CBPP-infected herd may begin showing signs of disease 20 to 123 days later. Under experimental conditions, the incubation period is 2-3 weeks.

Usually the first signs of disease are depression, off feed and fever leading to coughing, chest pain and an increased respiratory rate. As pneumonia progresses and breathing becomes more difficult, animals are inclined to stand with their elbows set far apart in an attempt to decrease thoracic pain and improve their ability to breath. They often make a pronounced grunting sound when they exhale.

Occasionally, pneumonia may be accompanied by a polyarthritis. This is most common in calves. Animals affected in this manner may be reluctant to move and stand stiffly with a distinctly arched back. Getting up and down may cause obvious discomfort. Joints may be swollen and warm on palpation. If joint pain is severe, animals lie on their side with legs outstretched.

Contagious bovine pleuroneumonia often evolves into a chronic disease. These animals are typically weak and emaciated and will have recurrent low-grade fever. They are often difficult to recognize as animals with pneumonia.

At necropsy, there is severe pneumonia with abundant yellow fluid in the chest cavity. One or both lungs may be completely consolidated with a characteristic ‘marbled’ appearance. Affected areas are pink to dark red, swollen with a firm consistency. These lesions are usually unilateral. In chronic cases, necrotic lung tissue becomes encapsulated, and the lungs become adhered to the chest wall.

The mortality (death) rate with CBPP ranges from 10 to 70% in various outbreaks. As with many infectious diseases, mortality may depend on other factors such as plane of nutrition, level of parasitism, and general body condition.

Clinical diagnosis of CBPP is difficult. At necropsy, the gross lesions of CBPP are somewhat distinct; however, they may be confused with other pneumonic conditions, especially bovine pasteurellosis. Differentiation of CBPP from other causes of pneumonia requires isolation of the causative agent.

Although Mycoplasma mycoides mycoides is susceptible to many antibiotics, therapy may only serve to slow progression of the disease. In the case of chronically affected animals or subclinically affected carriers, the organisms may be sequestered in an area inaccessible to antibiotics.

Because CBPP is a chronic disease that can exist subclinically in carrier animals, it is important to prevent its introduction into healthy animals. In herds or areas where CBPP is suspected, serologic testing of susceptible animals is a recommended safeguard prior to movement. In endemic areas, successful control of the spread of CBPP requires removing susceptible animals from contact with CBPP-infected animals. In an outbreak situation, quarantine, testing, and slaughter would be the control methods of choice.

Producers who recognize cattle with severe pneumonia or an unusual number of cattle showing signs of respiratory disease should consult with their veterinarian immediately.