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After the Waters Recede

Producers may face herd health challenges.

by
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If the physical damage to crops and grazing land wasn't bad enough, cattle producers in flood-stricken regions also may face potentially dangerous aftereffects. When the waters recede, certain increased hazards to herd health can remain. University of Nebraska (NU) Extension Veterinarian David Smith advises producers to be aware of the potential disease risks associated with pastures affected by flood.

"Flooding does increase the potential for problems that show up later," Smith says. "If their pastures were flooded, producers should be mindful of the related risks to cattle health."

Leptospirosis

According to Smith, increased opportunity for contact with standing water in pastures means cattle may also have increased opportunity for exposure to leptospirosis. A contagious, bacterial disease of cattle, other mammals and humans, leptospirosis is often transmitted through contact with standing water contaminated with urine from infected animals.

Leptospira bacteria thrive under wet, warm conditions such as standing water and may enter healthy animals through mucous membranes of the eyes, mouth and nose, or through skin abrasions. A reproductive tract infection may persist in cows or bulls, so the disease also spreads during breeding.

In calves, symptoms of leptospirosis include fever, anorexia and difficult, labored respiration. Jaundice may be observed and kidney function is impaired as the disease progresses. Early treatment with antibiotics usually is successful. Progressive cases may not respond to

treatment, resulting in renal failure and death.

Infected adult cattle may not show any of the symptoms described, but breeding herds face a significant and insidious threat from leptospirosis — reproductive failure. Colonization of *Leptospira* bacteria in the renal and reproductive tracts of cows may cause late-term abortions, stillbirths, weak calves and retained placentas. Signs of subclinical herd infections include early embryonic deaths, delayed return to heat and low pregnancy rates.

"If fall pregnancy examinations result in an extraordinary number of open cows, it could be because of leptospirosis," Smith says. "It's one of the diseases we think about when we see low pregnancy rates or high numbers of abortions in a herd. But there's probably more opportunity for infection, after a flood, when there is more standing water."

Many *Leptospira* bacteria serotypes exist, but not all are pathogenic. The types of consequence in the United States include *pomona*, *grippityphosa*, *canicola*, *icterohaemorrhagiae* and *hardjo-prajitno*. Another and distinctly different type is *hardjo-bovis*, which many researchers believe is the most common cause of leptospirosis in U.S. cattle. Producers are advised to consult their veterinarian regarding an effective program for immunization against leptospirosis.

Salmonellosis

"*Salmonella* infections may increase after a flood, for pretty much the same reason," Smith says. "It's transmitted through contaminated standing water."

While the bacterial disease, salmonellosis, is often associated with young dairy calves, it can affect adults, including beef cattle. Bacteria shed in the feces of infected animals contaminate

the water. Transmission through contaminated water sources is considered the most common route of infection.

Cattle can be chronically infected and serve as carriers within the herd without exhibiting clinical signs. It has been reported that one carrier cow can shed 1 billion salmonellae a day in the feces. Ravens, opossums, pigeons, rats and mice can also serve as carriers.

Once ingested, salmonellae colonize and multiply in the intestine resulting in acute infection. Clinical signs of acute *Salmonella enteritis* include fever and severe watery diarrhea followed by dehydration. The diarrhea is usually putrid and may contain blood and mucus.

Salmonellae produce toxins that can contribute to gut damage and have systemic effects. If sufficient damage occurs to the intestinal lining, the bacteria may enter the bloodstream, resulting in septicemia. The bacteria can spread to the brain, skeletal joints and organs, including the uterus. Therefore, salmonellosis also may cause abortions in pregnant cows.

Anthrax

"Producers should beware of anthrax if they start losing cattle in pastures where flooding has moved a lot of soil," Smith warns, noting how the causative bacteria produces spores that can remain viable, in the soil, for decades. "When contaminated soils are disturbed or moved from one place to another — due to a large construction project or a flood — the anthrax spores may be exposed or brought to the soil surface."

Anthrax is endemic to most of the world and all warm-blooded species are susceptible. Cattle, other ruminants and horses typically pick up anthrax spores from the soil while grazing. Evidence suggests anthrax spores revert to a vegetative state and multiply

when environmental conditions of soil, nutrition, moisture and temperature are optimal. Many years may pass between outbreaks, but epidemics have often occurred following events such as heavy rainfall, flooding or drought.

When an animal becomes infected with anthrax, the typical incubation period is three to seven days. In its peracute form, it appears to strike suddenly and lead quickly to death. Infected cattle may stagger, collapse, convulse and die, all within a short span of time and without showing previous signs of illness. Sudden deaths due to anthrax have been confused with clostridial infections, such as blackleg, and cases also have been mistakenly reported as lightning strikes.

Symptoms of the acute form of anthrax include fever, trembling and a period of anxiety followed by depression. Advancing signs include difficulty in breathing, convulsions and death. The disease typically takes the acute form in horses, which exhibit severe colic, anorexia, bloody diarrhea and swelling in areas of the neck and abdomen. Death usually occurs within two to three days of the onset of symptoms, and animals often hemorrhage from the mouth, nose and rectum. Frequently, rigor mortis is incomplete or absent and rapid decomposition of the body is common.

"Producers suspicious that anthrax may be causing death in their cattle should relay their concerns to their veterinarian. It is important to get a diagnosis," Smith advises. "If they feel they themselves have been exposed, producers should contact their physician. Because of the risk for transmission to people or other animals, necropsy and disposal of carcasses should be done with extreme caution."

Poisonous plants

"Another possible health concern can arise when cattle graze weedy regrowth that can occur when floodwaters recede," Smith says. "We sometimes see it during normal years, too — whenever cattle are forced to eat weedy patches that may contain poisonous plants."

Smith says species of poisonous plants will vary by region. Some of the fairly widespread plants that may be toxic to cattle include jimsonweed, snow-on-the-mountain, croton and wild indigo, which are commonly found in open areas of a pasture. Species commonly found in shady areas include white snakeroot, bracken fern, pokeweed and buckeye. Moist areas along creeks or ditch banks are favorable for growth of water and poison hemlock, black nightshade and horsetail. Poisonous plants found in cultivated fields include cocklebur, milkweed, pigweed and Johnsongrass.

"Producers accustomed to pasturing low-lying areas probably are aware of these health issues," Smith offers. "But this year's floodwaters reached farther than they have in a long time, likely affecting more cattle operations. It's better if they know what challenges could occur."