

Protecting Livestock and Farms from Floods

Herds of cattle, other livestock, or horses may need to be evacuated early. This is partly because of the number and size of animals that often cannot be moved without experienced help or additional rescue equipment, such as trucks. It is also because these animals naturally move to the most accessible higher ground as floodwaters encroach. However, they may not move to ground that has an escape route. If this happens, only a few inches of water surrounding a mound will trap these animals and they will become impossible to move. Early movement of large animals is best accomplished by planning evacuation routes early and by paying careful attention to the course floodwaters might take. Mitigation is possible by constructing dirt bridges between high-lying areas of a farm so that livestock can move between these higher levels.

The immediate danger from flash floods is from the strength of the water current as it surges through an area, carrying debris and causing injuries and drowning. This is a particular concern for farms and livestock. Floods can interrupt power, disable fuel sources, and make roads impassable. People may be stranded in their homes and farms or be unable to reach their homes.

Landslides may follow flooding. When landslides occur, seconds may make the difference between life and death. Because of the speed with which a flash flood travels, people have no time to save possessions or implement precautionary measures. Human and animal lives are saved by moving to high ground without any hesitation.

Large-scale flooding can disrupt a community for a long time while utilities are restored, debris is cleared, and property is repaired. Dangers include the outbreak of disease, animal death, broken sewage lines, water supply pollution, broken gas lines, downed power lines, and fires. Animals should be kept away from all of these dangers. Agricultural and grazing lands can be ruined and crops destroyed by flooding, decreasing the food supply for people and livestock. Fungal contamination of animal feed can be toxic to animals and to humans who consume the meat or milk of cattle that ingest these fungal toxins (mycotoxicosis).

Prolonged flooding of pastures kills vegetation, reducing the nutritional value of pasture to grazing animals. Flooding also removes organic matter from the soil, which reduces the water-holding capacity of the soil. Soils with low organic matter content are more prone to droughts and landslides and are less productive for plant growth. If livestock graze flood-leached pastures at the same density as before a flood, the pastures easily become overgrazed and may have long-term damage. This starts a vicious circle of flooding, decreased soil quality, overgrazing, and increased susceptibility to erosion, which may continue for many years. In some cases flood-leached pastures that have been overgrazed may be repaired only by leaving them free of livestock and other crops for several years.



A cow and calf stranded by floodwaters.



A horse pasture that was covered in flood debris and may never be usable again for horses.
(Photo by Kerri Marshall.)

Table 7-7 Mycotoxins that can affect feed

Mycotoxin	Diseases
Aflatoxin	Toxic to liver (acute liver failure, long-term liver cancer), immune suppression
Zearalenone	Infertility, estrogenic syndrome
Vomitoxin	Reduced feed intake, reduced weight gain, vomiting in pigs
T-2	Gastroenteritis, intestinal hemorrhage, death
Fumonisin	Equine encephalomalacia, porcine pulmonary edema, toxic feed syndrome in poultry

These are some of the mycotoxins that can affect feed if exposed to floodwaters. Typical conditions for mycotoxin to occur are moisture content greater than 14% and surface temperature higher than 77° F (25° C).

Floods also deposit large amounts of debris in pastures. This debris can be hazardous to grazing animals, which may suffer puncture wounds to their feet and skin. Livestock and horses are predisposed to these injuries following floods because their hooves are weakened from continual exposure to water and mud. Damaged hooves and skin of livestock and horses can become infected, resulting in severe lameness and generalized illness. Debris also reduces the effective grazing area of pastures. Often debris is contaminated with hazardous chemicals that may affect the health of grazing animals and may endanger humans who later consume contaminated meat or milk products.



Patients are rescued from a flooded veterinary practice. (Photo by Kerri Marshall.)

In a barn any water containers that contain floodwater should be emptied and cleaned with chlorine bleach or some other type of disinfectant before they are used again. Any feed or bedding that has gotten wet or damp must be disposed of so that animals cannot eat it. Moldy feed can lead to serious disease in horses and many other livestock.

Before horses or any livestock are returned to property that has flooded, all perimeter fences should be inspected and repaired if necessary. Pastures should be inspected for debris. Pastures

can be screened with metal detectors to find and remove any metallic debris that may puncture the hooves of animals or that may be ingested by cattle.

Hazardous materials are often released in floods. This can lead to poisoning of the animals that ingest or come into contact with the hazardous materials and to exposure of humans who handle contaminated animals. Ingestion of and skin contact with hazardous materials by farm animals could cause the hazardous materials to enter the human food chain. To avoid this, veterinarians, Department of Agriculture officials, county extension agents, or state chemists can be consulted to determine the safety of the feed for animals and of products for human consumption. Buildings in which farm chemicals such as fertilizer, herbicides, pesticides, and fuels will be stored should be constructed in ways to minimize the chance of the chemicals contaminating the environment. Spilled chemicals are a potential cause for liability suits after disasters.

Many farms operate manure pits and lagoons. These waste treatment facilities are susceptible to flooding and can overflow into local streams, rivers, or even the drinking water supply. State Departments of Environmental Management (DEMs) or DNRs may have differing ideas on the problems arising out of flooding lagoons. The DEM is concerned with impact on the soil and groundwater quality, whereas the DNR is concerned about the impact of the lagoon on fish and wildlife. Both agencies have the authority to fine lagoon owners for violations in either of these areas. Solutions include having designated areas where lagoon overflows can be directed, such as a field that can be fertilized naturally.

Diseases are frequently cited as potential problems resulting from a flood. The most commonly discussed ones are leptospirosis; toxic and sewage-related gastroenteritis; injuries; skin infections; foot rot in cattle, sheep, goats, horses, and other hoofed animals; aspiration pneumonia; giardiasis; cryptosporidiosis; anthrax; mosquito-borne diseases; and botulism. However, little confirmed documentation exists that these diseases really emerge after floods. Two theories prevail: one says that floods wash the agents of disease away, the other says that the agents of disease have a better chance of survival or are brought out of dormancy. Without further research in this area it is difficult to say just what happens. Probably agents of disease are washed away from areas where waters flow but also accumulate where water stagnates. Hence both theories could be true.

Even persons who are not sure where to take their animals should not leave the animals behind unless it is unavoidable. In that case an easy escape route for the animal should be ensured. Animals should not be tied up if a flood is pending.