Implications of Flooding in Livestock and Horses

Late February brought with it heavy rain and storms that wreaked havoc across the state of Indiana resulting in Governor Holcomb declaring a disaster emergency in 31 counties. As flood recovery moves forward, veterinarians continue to play a critical role in preparing clients for such natural disasters and responding to animal victims. Veterinarians can assist their clients in implementing proactive measures prior to a flood, provide advice on what to do, and not do, during a flood, and know what health issues to look for after a flood recedes.

Preparedness Tips to Convey to Horse and Livestock Owners Ahead of a Flood:

- Keep an accurate and current inventory of horses and livestock on the farm including their location, identification, veterinary records, and proof of ownership. Permanent identification is best and includes ear tags, tattoos, and microchips. Pictures of animals will help with identification and reuniting animals with owners. For ease of identification during a disaster, painting phone numbers onto large animals or braiding luggage tags into horses' manes can be helpful in addition to permanent forms of ID.

- Ensure animals are properly vaccinated prior to storm season. Consider that in a flood event, animals may be stressed, exposed to diseases transmitted through water or vectors new to the area, and may be exposed to other horses or livestock if evacuated or rescued together.

- Having a plan and identifying local resources for dealing with disaster situations is crucial. Networking with local horse and livestock owners, county extension educators, and county emergency managers is a great way to pinpoint resources like livestock trailers and identify potential shelters for evacuation.

- If evacuation is a possibility, prepare an evacuation kit with halters, lead ropes, feed, buckets, medications, supplies for manure clean up, and gas powered generators if available. Determining possible evacuation areas ahead of time is beneficial. These may include higher elevation areas, alternate production facilities, temporary milking parlors, county fairgrounds, etc. Having animals conditioned to being loaded and transported is often the key to a successful evacuation.

- Have at least a two to three week supply of hay (wrapped in plastic or waterproof tarp) and feed (stored in plastic, water-tight containers, securing the container seams with duct tape).

- Fill clean plastic garbage cans with water, secure the tops, and place them in the barn for use after the storm.

- Remove dead trees or objects from fields or livestock areas that may serve as potential debris during a flood situation.

- Provide feed and water. Thirsty animals may try to break out to get to floodwaters. If clean water is in short supply, limit feed intake. Do not rely on automatic watering systems as power may be lost.
- If animals are housed with machinery, fasten bales of straw in front of sharp edges and protruding parts such as cutter bars or crank handles.
- Block off narrow passageways where animals would be unable to turn around. A few heavy animals in a narrow dead end can be dangerous both to themselves and the building.
- Be absolutely certain that herbicides, pesticides and treated seeds are not even remotely accessible to livestock and are stored where floodwater will not contaminate livestock feed or water.
- Turn off electricity at the main switch. Livestock could damage electric fixtures, causing fires, or electrocutions.
- If there is a possibility that dairy barns may become inundated, drive cattle out of the barn. During rapid rise of water, cattle often refuse to leave the barn and may drown inside if the water rises high enough.
- If high flood waters are inevitable and planned evacuation of horses and livestock cannot occur, consider leaving gates or buildings open so animals can escape.

Operations During a Flood

- Emergency field response during an event should be carried out by an experienced team due to safety concerns for both humans and animals. This may include veterinarians, first responders, and trained handlers. Technical rescue of submerged large animals is one of the most dangerous procedures performed by first responders
- Mud can pose a serious hazard for stranded large animals. If trapped and immobile they can fracture a limb or seriously injure themselves struggling in deep, sticky mud. Be sure the path you intend to lead the animal over is safe. If the area is still flooded, there can be unseen hazards such as holes, sharp metal or other debris.
- Chemical restraint is often indicated to calm flood-stranded horses in order to safely rescue them and complete medical evaluation and treatment.

Post-flood Precautions for Horse and Livestock Owners

- Flooded barns can become unstable and collapse. Survey damage to barns and other structures and assess their stability and safety prior to returning animals. Be sure to check for and avoid downed power lines prior to inspection of any type on the property.
- Promptly remove dangerous debris from pastures and barns.
- Record any animal deaths and check with local and state authorities for proper disposal methods.

- Remove bedding, feed, and manure along with mud and debris to clean and disinfect surfaces exposed to flood waters. Using a 1:10 ratio of household bleach to water in a spraying device is easy and economical.
- Animals should be bathed with a detergent such as Dawn dish soap in order to remove toxins, debris, or microorganisms from the skin and hair coat. This will also allow one to identify sites of trauma. Additionally, debris and mud should be picked out of horse hooves.
- Provide non-contaminated feed and water. Flood damaged feed or forage is subject to mold as well as contamination by chemicals or pesticides.

Health Hazards to Consider After a Flood

- Lacerations, abrasions, and fractures are commonly seen in large animal flood victims due to flying storm debris or from struggling to escape. Likewise, corneal ulcerations and uveitis are common medical emergencies for the same reasons.
- Large animals that are recumbent for long periods of time can develop myositis or nerve damage.
- Hoof rot or foot abscesses are common from standing in mud or water for extended periods of time. Similarly, lactating animals are at an increased risk of mastitis from residing in wet and contaminated environments and/or from lack of power and having to milk erratically.
- Clostridial diseases including blackleg, botulism, and tetanus are likely to be seen at an increased rate in the flooded area.
- Respiratory disease from aspiration of water or from commingling with other animals during a rescue situation are not uncommon.
- Parasites and the diseases they vector may flourish in the wet environment and move long distances with flood waters. Expect potential surges in mosquito-borne diseases after flooding.
- GI distress or colic from ingesting contaminated water or feed leading to colitis or severe diarrhea is not uncommon. The degree of feedstuff destruction will depend on the relation of moisture, time, temperature, and how rapidly drying occurred to suboptimal moisture levels for microbial proliferation. If moldy feeds are fed, owners should test for mycotoxins, monitor for feed refusal or illness, and dilute with safe feeds. Mycotoxin-absorbing products may be helpful. Mycotoxins can be especially problematic in young stock and pregnant animals
- Flood affected animals may develop dermatitis and cellulitis due to standing in contaminated water for long periods of time. Bacterial and fungal infections are possible which can lead to more serious complications such as septic arthritis if not treated appropriately.

Forward planning will greatly reduce the amount of animal and human suffering in any emergency situation including floods. Veterinarians can play a unique role in both preparedness and response to animal issues during natural disasters.