

Hurricane Preparedness and Recovery for Beef-Cattle Operations



Hurricanes can cause severe losses to livestock and livestock facilities. Having a plan and taking preventative measures before a hurricane makes landfall will help to lessen the negative impacts on beef-cattle operations, including animal and financial losses. Furthermore, proper planning may also reduce human and environmental hazards sometimes encountered after a hurricane.

Hurricane season on the Gulf Coast begins on June 1 and ends November 30. Livestock producers can use the following information to help create hurricane-readiness plans and to become better prepared when hurricanes threaten their operations in Mississippi. Good hurricane readiness plans for livestock should include both preparedness and recovery phases.

Hurricane Preparedness

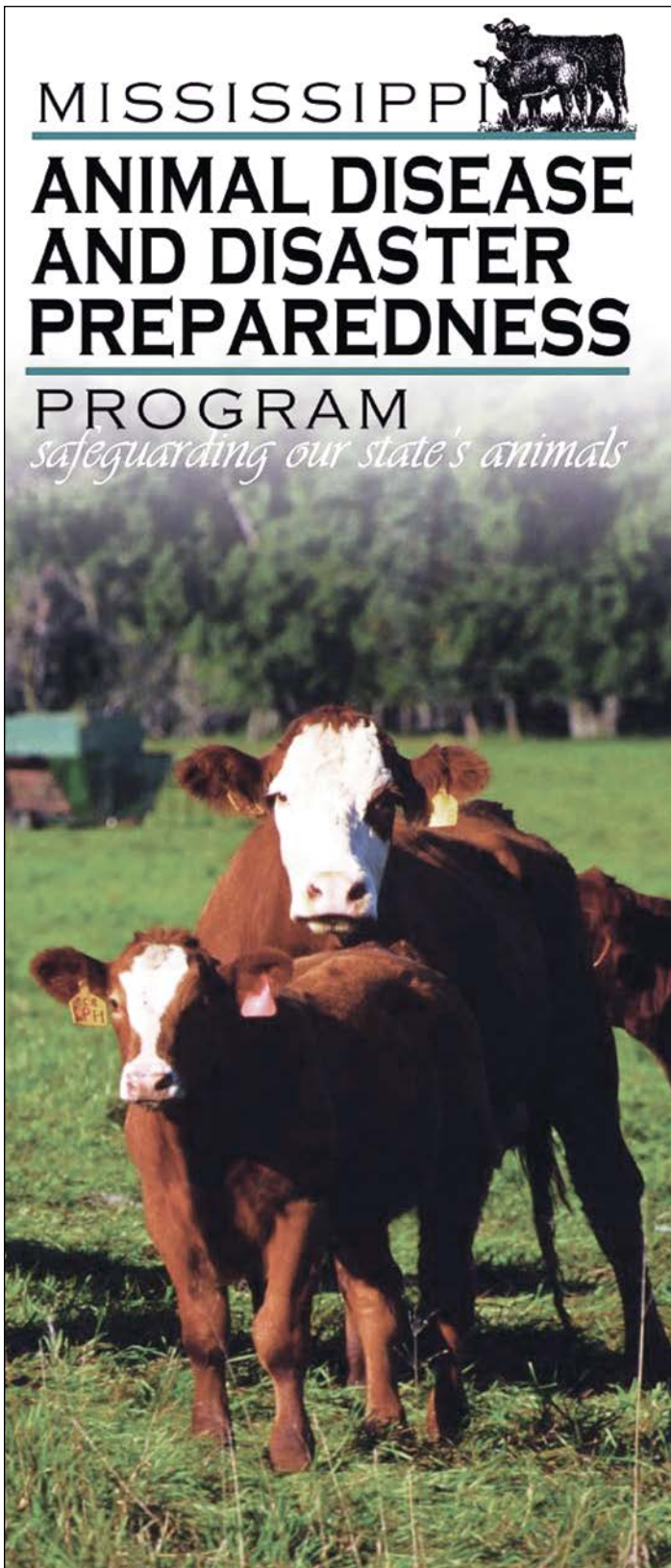
Before Hurricane Season Begins

An ounce of prevention is better than a pound of treatment. This same philosophy, when applied to hurri-

cane preparedness, can save producers time, money, and livestock.

- Ensure a proper herd-health program is in place with assistance of a licensed veterinarian. Proper vaccinations will help protect cattle from conditions that may increase after stress and injury, such as tetanus, respiratory disease, and gastrointestinal disorders.
- Keep phone numbers of your veterinarian, county Extension agent, local emergency management agency, and Mississippi Board of Animal Health on hand in case of emergency.
- Partner with other farms for potential transportation and evacuation needs. Know where cattle can be evacuated to and ensure that agreements are in place with other ranches or facilities so that cattle can be moved quickly if necessary. Discuss biosecurity issues in case animals need to be commingled, or share space with other herds.

- Keep cattle trailers in good working condition so they will be safe for hauling livestock on short notice. Trailers should have safe flooring, working lights, and good tires (including spares).



- Keep barns, water systems, and other essential farm components in good working condition. These steps will decrease the amount of work needed before the arrival of a storm.
- Maintain penning and loading facilities in good working order. Make fencing repairs, such as replacing rotten or damaged fence posts, ahead of time so that fencing will be as strong as possible before a storm hits.
- Provide unique and permanent identification for all cattle, which is important not only for good management practices but also in case there are questions later about ownership of the animals.
- Hanging ear tags are easily visible, but they may be lost and often are not unique enough to positively associate cattle with a particular owner.
- Official animal ID metal tags ("brite" tags) are more secure means of animal identification. These tags are available through the state veterinarian's office.
- Radio-frequency or electronic-identification (EID) ear tags use 15-digit codes that are not likely to be duplicated. They work well to uniquely identify cattle but can easily be removed or lost.
- Hot-iron or freeze brands and ear tattoos are good forms of permanent identification.
- Register the operation for a premise identification number (PIN) with the Mississippi Board of Animal Health as part of the Mississippi Animal Disease and Disaster Preparedness Program, which may be valuable during storm damage assessments and recovery efforts. More information on the Mississippi Animal Disease and Disaster Preparedness Program can be found here: http://extension.msstate.edu/sites/default/files/publications/publications/p2487_0.pdf.
- Maintain good records on your cow herd, including animal identification, breed registrations, treatment, and vaccination procedures. You must maintain proper records for cattle-identification efforts to be meaningful.
- Take pictures and video of livestock, structures, and farm implements to serve as useful records for insurance and disaster-payment purposes after a storm or other disaster has hit.
- Keep insurance up to date, and know the details of what is and what is not covered under each specific insurance policy.



Before the Storm (96 hours)

Evacuation — As it is with people, evacuating cattle before a hurricane is the safest option when feasible. Plan evacuation procedures, places, and routes in advance. A general rule is to start evacuation procedures of livestock 96 hours before a predicted landfall. Waiting too long runs the risk of severe traffic backup and contraflow traffic patterns, which could delay evacuation and put animal health at risk. Cattle stranded in trucks for long periods of time are more susceptible to heat stress and injury.

- Know the possible evacuation routes and any emergency traffic patterns. This information is available on the state emergency management website.
- Know livestock movement requirements if you evacuate out of state. Acquire health papers in advance.
- If you can't evacuate all animals, prioritize them based on value, age, breeding status, and other factors. Record animal identification of those left behind.
- Take plenty of water, feed, hay, and veterinary supplies to the evacuation site.
- Do not return cattle to the affected area until the hurricane has passed, resources are available, and it is safe to return.

Ranch Preparation — If it is not possible to evacuate cattle before a hurricane arrives, the safest thing to do is turn them loose in large pastures or pens on high ground. Ideal pastures should be free of debris, large objects, and overhead power lines.

- Do not pen cattle in small areas or place them in barns to ride out a hurricane.

- Allow cattle access to higher ground, especially in areas prone to flooding.
- If necessary, tie interior gates open to give cattle access to more drinking water and to provide them with a better chance of moving to safer/higher ground. Do not leave any gates loose.
- Flying objects cause most injuries during a hurricane. Secure or tie down loose items that may become airborne in high winds, as they could damage structures and injure people or cattle. Nail down or board up windows and doors if necessary.
- Cover sharp edges of implements and equipment with straw bales or other “padding” to protect livestock from these objects in case high winds push them loose. Try to avoid using hay, as animals may try to eat it and become injured by underlying structures.
- Repair loose boards and tin on barns, pens, and other farm structures near livestock. Fill troughs, bins, and other large vessels with water to help hold them down during high winds.
- Protect feed and hay supplies as well as possible by stacking on higher ground and covering them to prevent water damage.
- Store liquid fuel and other chemicals in secure locations. Secure large containers and barrels in an upright position to prevent spills and leaks.

Animal Preparation — High winds, rushing water, and falling trees can wreak havoc on fencing. Downed fences mean roaming cattle. Make sure cattle are uniquely and permanently identified in case they get displaced, lost, or even stolen.





- In an emergency, cattle and calves can be temporarily identified using spray paint or paint sticks. Paint should not take place of permanent animal identification, but it may provide a quick, visible method of identification after a storm.
- As discussed earlier, photos or video of animals and equipment may be useful for identification and for insurance purposes.

Emergency Supplies — Have emergency supplies on hand and in a secure location before a severe storm because supply channels can be disrupted for long periods after a hurricane or natural disaster. Stock up on critical supplies in advance of extreme weather conditions.

- Fencing supplies to repair existing boundaries should be kept on hand. Consider investing in temporary electric fencing or orange, plastic-mesh fencing for temporary use after the storm.
- Basic veterinary-care products and livestock pharmaceuticals are often needed after a major storm and should be available. Make sure cattle are current on all vaccinations ahead of time.
- Generators, fuel, water tanks, chain saws, and other supplies are invaluable in disaster situations and are often in short supply under these circumstances. Ensure equipment is working and easily accessible before a storm.

During the Storm

Evacuation before a hurricane is always the safest option for people to reduce risk to themselves, as well as others who may have to rescue them after the storm. Individuals who choose not to evacuate should seek shelter in a hardened building, if possible, preferably in a storm shelter or an interior room such as a closet or bathroom. Avoid windows and doors.

- Do not take unnecessary risks by checking on livestock during a storm. Human safety is always most important.
- Given the conditions during a hurricane, emergency responders may not be able to assist those who have put themselves in unnecessary risk by going to check on livestock.
- Wait and check on livestock only after conditions are safe. Pay special attention to rising water levels, hazardous debris, and downed power lines.

Hurricane Recovery — After the Storm

Fencing and Facilities

Downed and damaged fences are likely after a hurricane. It is important to restore fencing as soon as possible (temporary or permanent) in order to keep cattle contained. Cattle that are roaming free could be a hazard to motorists or others in their vicinity.

- Perimeter fencing is the first priority. Share portable facilities with neighbors when available.
- A variety of temporary fencing is available, such as orange, plastic-mesh fencing or polywire electric fencing, which can be powered with solar chargers if electrical

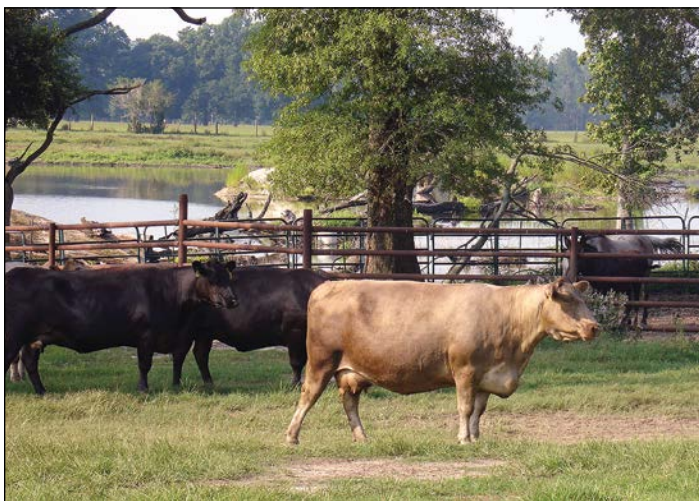


services are unavailable. Electric fencing may require some training for cattle to understand their boundaries, so it should be used for as little time as possible after a storm.

- Utilize low-stress cattle-handling techniques when gathering and moving cattle. Behavioral changes in cattle are not uncommon after stressful events.
- Watch for downed power lines, debris, and other hazards in the process of rounding up cattle.
- Be careful not to overcrowd cattle in small areas for extended periods.
- Separate cattle once necessary facilities are repaired and/or fencing issues are resolved.
- Don't enter barns or other structures until you determine whether they are structurally safe.

Cattle Health Issues

- Unwanted shared space, or commingling of cattle and other livestock, can create herd health and breeding issues. Make notes of commingling situations, and isolate any animals that appear injured or ill.
- Treat lacerations and wounds as soon as animals can be safely contained.
- Fractures or other severe injuries may require humane euthanasia. Trained individuals should perform this service as quickly and humanely as possible.
- Skin conditions may appear days to weeks after a disaster due to excessive exposure to moisture. Monitor cattle closely for footrot and other skin conditions.
- Monitor cattle for stress-related pneumonia and treat accordingly.



- Bloat and diarrhea are common after stress and diet changes. Cattle should have access to fresh water and hay to help prevent these conditions. Avoid concentrates until the animals have had time to calm down and adjust to their surroundings (see “Cattle Nutrition Concerns”).
- For cattle that have been deprived of water for prolonged periods, provide water gradually, and monitor them for salt toxicity.

Livestock Carcass Disposal

After a hurricane, livestock deaths may have occurred. The Mississippi Board of Animal Health guidelines for disposal of livestock carcasses are as follows:

- Bury carcasses deep enough to prevent offensive odors, fly breeding, and unearthing by other animals—under at least 2 feet of compacted earth. After it settles, place more dirt over the surface to prevent a ponding effect.
- Bury carcasses on your own property, in permitted landfills, or on another person's property with their specific approval. Bury them at least 150 feet from adjoining landowners' property, at least 300 feet from inhabited dwellings, and on land not in cultivation.
- The state veterinarian and/or the Department of Environmental Quality must approve alternative disposal options on a case-by-case basis.
- If a catastrophe results in the need to dispose of large numbers of animal carcasses, contact the Board of Animal Health for approval of the disposal site.

For more information on proper livestock carcass disposal procedures, visit the Mississippi Board of Animal Health's website at www.mbah.state.ms.us or call (888) 722-3106.

Cattle Nutrition Concerns

Cattle undoubtedly will be stressed after an extreme weather event. While veterinary care may be needed for some animals, most will simply need dry ground, clean water, and forage or feed. Some management practices may need to be altered if multiple livestock species are suddenly managed together. For example, common cattle mineral supplements can contain ingredients that are unsafe for horses or sheep to consume.

- Cattle must have an adequate supply of fresh water to survive. Water consumption needs are particularly high during hot or warm periods. Use water tanks, and ask for help from neighbors and local fire departments for immediate water needs. Keep water tanks as free of debris as possible.
- Watch cattle closely for signs of distress, and make sure there is plenty of forage or other roughage, along with free-choice, quality mineral supplements and clean water.
- Livestock may refuse to consume forages in areas contaminated by salt water because of palatability problems. Be sure to provide them with another source of forage or feed until rains cleanse pastures.
- Do not feed moldy or otherwise unsafe feeds to livestock, as illness or decreases in production and fertility may occur. Also, ensure that chemicals have not contaminated feed as a result of the storm.
- Baleage exposed to the elements will spoil rapidly. Uncovered baleage is most likely a loss unless it can be rewrapped or placed in a sealed bunker right away.
- Damage to feed-storage structures or feed-handling equipment and disruption of feed supplies can result in abrupt changes to cattle diets. Attempt to minimize these changes as much as possible, and observe cattle closely during this period. Slowly shift animals onto new diets by increasing the amount of the new feed in 0.5- to 1-pound increments over several weeks.

While water and feed consumption are dependent on climatic conditions, feed types, production level, and salt intake, adult cattle will need approximately 15–20 gallons of fresh water and 20–25 pounds of grass or baled hay per animal per day.



- Hurricanes often down trees. Some trees in Mississippi could potentially cause diseases in cattle that consume their leaves or nuts. These trees include buckeye (horse chestnut), wild cherry (black cherry), and oak (acorns).
- High winds can scatter oak twigs with acorns attached across hay fields. Most likely, wind would not drop enough acorns to create a problem in the hay. Many acorns will sift out during hay raking and baling. Cattle would need to consume a considerable amount over several days to create a toxic condition. Typically, acorn poisoning is not seen until late fall or early winter. In most cases, grazing cattle with a good supply of forage and/or hay will not eat acorns.
- Salt-water contamination of soils or water standing on pastures or hayfields for extended periods of time may result in stand losses and soils that will not produce acceptable forage growth. Consider planting grasses that are fairly tolerant of salinity, such as Bermudagrass and bahiagrass.
- Overseeding pastures with cool-season species may be problematic if high soil salinity—the amount of salt found in the soil—is still present during seeding because these forage species are less tolerant of such conditions.

Information Sources

Your veterinarian, county Extension agent, and local emergency management agency, along with the Mississippi Board of Animal Health, can serve as important sources of information after a hurricane or other disaster. Mississippi State University Extension addresses agricultural issues and offers beef-cattle producers much needed assistance during hurricane-recovery efforts in cooperation with the state animal response team and local and state emergency management agencies.

- Information on livestock-related hurricane relief and recovery is posted on the Extension beef cattle website at <http://extension.msstate.edu/content/disease-and-disaster-preparedness-and-recovery>. This site contains public service announcements, contact information for many organizations that assist in livestock relief and recovery, livestock disaster publications, updated answers to frequently asked questions, and press releases relevant to beef-cattle producers.
- Producer information meetings may be organized in response to natural disasters.
- Producers should stay informed concerning relief and recovery efforts.

Conclusions

Developing a thorough hurricane-preparedness and response plan is critical for Mississippi beef producers. Such planning can apply to other livestock disasters and health emergencies. While the outcomes of most disasters are unpredictable, cattle producers can lessen the impact of a disaster on their operations by working closely with other producers and agricultural specialists. For more information on hurricane preparedness and recovery for beef-cattle operations, contact a local county office of the Mississippi State University Extension Service.

Additional Resources

Animal Management in Disasters. SE Heath. Mosby, Inc., St. Louis, MO 1999.

AVMA Emergency Preparedness and Response Guide. American Veterinary Medical Association. https://ebusiness.avma.org/files/productdownloads/emerg_prep_resp_guide.pdf. Accessed July 5, 2016.

Disaster Preparedness. Mississippi State University Extension Service. <http://extension.msstate.edu/community/disaster-preparedness>. Accessed July 13, 2016

Disaster Recovery. Mississippi State University Extension Service. <http://extension.msstate.edu/community/disaster-response>. Accessed July 12, 2016

IS-111A: Livestock in Disasters. Federal Emergency Management Agency, Independent study program. <https://training.fema.gov/is/courseoverview.aspx?code=IS-111.a>. Accessed July 5, 2016.

Temporary Housing and Care for Livestock and Poultry, Standard Operating Guide NO. 003. Missouri Department of Agriculture. http://agriculture.mo.gov/animals/pdf/animalag_guide3.pdf. Accessed July 5, 2016.

Publication 2507 (POD-08-16)

By **Carla L. Huston**, DVM, PhD, DACVPM, Extension Veterinarian, and **Kyle C. Johnson**, MS, MPH, MSU College of Veterinary Medicine student.



Copyright 2016 by Mississippi State University. All rights reserved. This publication may be copied and distributed without alteration for nonprofit educational purposes provided that credit is given to the Mississippi State University Extension Service.

Produced by Agricultural Communications.

We are an equal opportunity employer, and all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, national origin, disability status, protected veteran status, or any other characteristic protected by law.

Extension Service of Mississippi State University, cooperating with U.S. Department of Agriculture. Published in furtherance of Acts of Congress, May 8 and June 30, 1914. GARY B. JACKSON, Director