

Developing a
**Storm Preparedness
and Response Plan**

for Dairies

John K. Bernard, Department of Animal and Dairy Science



UNIVERSITY OF GEORGIA
EXTENSION

The Southeast U.S. is susceptible to hurricanes and tropical storms every year. Hurricane season occurs from June 1 through November 30, and these storms are normally forecast several days in advance. Tornadoes, ice storms, thunderstorms, or straight-line winds—potentially damaging winds produced by thunderstorms—are rarely forecast with enough notice to prepare other than to hopefully warn employees. Storms disrupt operations and have the potential to cause injury to people and livestock and devastate facilities and the landscape. While there is nothing that can be done to prevent the impact of a storm, producers should have an emergency plan that safeguards family, employees, livestock, and equipment. The emergency plan should also address how to safely manage the damage after a storm. Emergency plans should include one-day, three-day, and seven-day or longer responses during which power outages, access to vendors, and normal operations may be very limited. Hurricanes that occurred in 2017 and 2018 caused devastating damage in some areas that took weeks to restore power because of the extensive damage to distribution lines. **This bulletin will provide information producers can use to develop an emergency preparedness plan in advance of a storm and suggestions for their potential responses following a storm. No plan will be 100% effective in all situations, but preparing will hopefully minimize damage and help speed the recovery.**

Legal documents and records

There are a number of legal documents that should be protected to prevent their loss during a storm. Some examples include deeds, loans, and insurance policies. While many of these documents could be replaced, it would require time. Other documents such as wills and medical directives may not be readily available, and their loss would present a significant problem should something happen to you or a family member during a storm. Legal documents should be stored in a safe deposit box at a bank or other secure location. A copy should be placed in a waterproof container and kept in a fireproof safe at home. Make sure that family members or business partners know where these documents are located and how to access them in case you are incapacitated. If these are stored digitally, be sure someone knows how to access them (which computer or server, passwords, etc.).

Farm business, financial, and employment records should also be safeguarded. In the aftermath of a storm, you will be asked for records documenting the value of buildings, equipment, and livestock as well as inventory of feed, animals, and other items. Inventories change daily for some items, so these records should be updated routinely. If stored on-site, a copy should be stored in a second location in the event that the original copies are lost. Digital photographs should be taken of all buildings, equipment, and other valuables to establish their condition prior to a storm. With the availability of high-quality cameras on cell phones, pictures should be taken annually to ensure that they reflect the current condition of each item.

Backups of all electronic files and documents should be kept and checked routinely to make sure the device is still active and the records are accessible. Basic production records can be restored by Dairy Records Management Systems (DRMS) from the last test day for producers enrolled in the Dairy Herd Improvement (DHI) program, but health records and user defined data are not backed up by DRMS automatically. Many financial and payroll computer programs use cloud storage for backup automatically, but not all programs back up to the cloud automatically.

After a storm, you will need to keep all receipts to document losses and additional costs incurred as a result of the storm. Notes should be made for each receipt to document what was purchased and why it was necessary.

Farmstead access and facility design

When planning a farm layout, one of the first considerations is access to the site where the barns will be built.

Below are some items to consider related to hurricane and storm preparedness.

- The primary driveway into the farm should have adequate drainage to prevent flooding. The driveway should be well-packed with a solid base that will hold up to heavy equipment and trucks during extreme conditions.
- A secondary entrance should be constructed to provide access from a different road in the event the primary entrance is blocked.
- Trees that could potentially blow down and block the entrance to the farm should be removed as soon as they're identified.
- Power line easements should be kept clean and free of trees that could potentially fall on the lines during a storm.
- Critical operating areas should be wired with a transfer switch to a standby generator to provide backup power when the power goes out. Critical areas that are common to all dairies include: the wells, milking parlor; irrigation pumps and pivots or other irrigation equipment used for maintaining lagoon levels; feed center (feed bins and mixer); and calf barn. The standby generator(s) should be sized to meet the minimum requirements of equipment required for operations and installed to meet local electrical codes. A standardized operating procedure for starting power, switching power, and shutting down after power has been restored should be posted for each unit.
- Additional electrical transfer switches should be installed to allow the use of generators for extended power outages where a standby generator is not installed. Areas for consideration include:
 - ▶ Wells that provide water for animals, clean milking equipment, and other normal activities
 - ▶ Freestall barns to run heat abatement/ventilation systems and lighting
 - ▶ Farm shop to power equipment needed for repairs and maintenance
 - ▶ Home for refrigerators, hot water, and central heat and air conditioning
- Have an approved burial site for catastrophic losses approved by your state Department of Agriculture or appropriate agency in the event that there were a large number of animal deaths.
- Include a safe house or rooms (with no windows thick walls, and a high, wind-resistant roof) to provide shelter for family and employees during the storm.



Emergency action plan

An emergency action plan should be developed to prepare and respond to a hurricane. The plan should include critical contacts, a list of critical supplies to inventory, a plan for taking care of family members and employees during and after the storm, a to-do list to prepare for the storm, and recovery plans that address extensive damage.

Emergency contact information and names of individuals to contact

Prior to hurricane season, communication should be established with your local sheriff's department, electrical provider, and other key groups so that they understand how your business operates, the number of people who may be working at the dairy, the potential impact of the storm on animal welfare, and the potential environment hazards that can occur should the lagoon overflow or dam breach. This will help them understand the nature of your business and what might be needed should a storm occur. These groups will be working to respond to all emergencies and needs in the impacted area, so prior communication will assist them in planning their response. When a hurricane is projected, it is advisable to contact an equipment rental group as soon as possible before the storm to reserve additional standby generators, lifts for making repairs, and any heavy equipment that might be needed for cleanup and recovery. Waiting until after the storm will be too late to secure these items on a timely basis. You will also need to coordinate with feed suppliers, milk haulers, and other suppliers for delivery of supplies before and after the hurricane so that they can make or adjust their plans.



At a minimum, your contact list should include the following individuals or groups:

- Sheriff's office or Emergency Management Agency (EMA)
- Electric company/cooperative contact
- County road department of Georgia Department of Transportation
- Milk hauler
- Contractors: electrician, plumber, etc.
- Employees
- Veterinarian
- Vendors: feed, fuel, supplies, etc.
- Equipment rental for emergency generators, lifts, etc,
- State Department of Agriculture
- State Environmental Protection Division or agency responsible for nutrient management permits and inspection of lagoons

Depending on the severity of the storm, normal access to telephone and internet service could be disrupted or lost. It is advisable to have a hotspot (Wi-Fi) from your cellular provider. This would provide wireless internet service until normal service is restored to access email and internet. In extreme situations, cellular service may be disrupted, preventing any cellular communication. Check with your local EMA to determine whether a location for providing access to communications will be available.

Work with your veterinarian to train key staff on the proper methods of treating injuries and metabolic diseases prior to the hurricane season. Discuss plans regarding how to reduce animal stress and related diseases that are likely to occur after a storm.

Supply inventory

Obtaining supplies may be difficult after a storm, especially if there are downed trees blocking roads, if vendors' facilities have been damaged, or if power has not been restored. Securing an adequate inventory to operate for a minimum of a week should be considered. In extreme cases, the time may be longer, so planning should include both short (one to three days), medium (three to seven days) and long term needs (more than one week).

The following items should be considered:

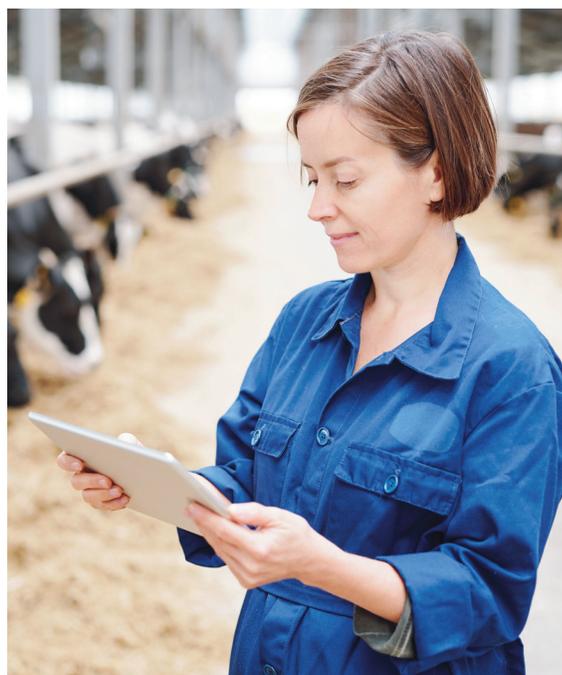
- Diesel and gas (one-to-two-week supply minimum). Also consider the additional fuel needed to operate backup generators. Be sure that the supplier understands how much you use daily and that it is necessary for providing animal care and avoiding a potential overflow of a lagoon.
- Feed (one-week supply minimum). Give the feed company plenty of notice as they will be working to provide additional inventory to others in the area and secure their own facilities. Have a secondary vendor identified who would be able to provide feed or ingredients in case the storm impacts your primary vendor. Work with your nutritionist to develop a backup plan for feeding animals in case you cannot unload feed in bins or restocked ingredients and concentrate inventories.
- Batteries for flashlights, weather radio, AM/FM radio and other devices
- Nonperishable food and water and a place for family and employees to sleep
- Animal health supplies to address potential injuries, the need to euthanize an animal that may be critically injured, and increased cases of mastitis, metabolic, and reproductive disease. Work with your veterinarian to determine the supplies needed and treatment protocols.
- Supplies for milking: detergent, acid, chlorine, paper towels, predip, postdip, and spare parts to repair milking equipment
- Chain saw(s), tools, gloves and safety supplies for removing and handling debris
- Fencing supplies to repair or replace fence damaged by fallen trees, etc.
- Plumbing supplies to repair any broken lines
- Tarps and other supplies to patch roofs

Preparations in advance of a storm

There are many preparations that can be done in advance of a storm to minimize damage and protect livestock.

Some of the preparations that should be considered include:

- Service generators and make sure all are working properly
- Lower lagoon levels to the “stop pumping” levels and empty manure storage to the bottom in order to manage the predicted rainfall and prevent an overflow.
- Secure cash reserves for purchasing supplies after the storm. If there are widespread power outages, credit or debit cards will not work and many vendors do not accept checks.
- Secure loose items that could become flying projectiles and injure people or livestock or damage buildings and equipment.



- Anchor calf hutches and do not tether calves to the hutch. Consider using round bales as a wind break.
- Remove shades and anchor any portable shade frames.
- Board up windows.
- Move and anchor pivots into a position that would minimize potential damage from the wind.
- Move cattle housed in structures that may be damaged by the wind to pastures or other barns that would provide greater protection from the impending storm. Make sure that they have plenty of feed prior to the storm and access to water should the pump go out.
- Delay weaning and other stressful activities prior to the storm. These animals will experience additional stress during the storm which could negatively impact their health.
- Lower grain augers and other items that could be blown over by strong winds to minimize potential damage.
- Move equipment including manure handling equipment to an open location to minimize potential damage should the structure collapse or become flooded.
- Fill a portable water tank for watering cattle in pastures without a pond after the storm. If you do not have a water tank suitable for hauling clean water to cattle in pastures for drinking, purchase one prior to the storm.
- Reserve facilities for employees to use for showers after the storm if electricity is out for an extended period of time. If the housing on the farm or an employee's home is not considered secure, consider renting a hotel room for the employee and their family.
- Secure a caterer or food truck to provide meals for employees and their families after the storm until power is restored and access to a grocery store becomes available.
- Backup data on computers and turn off and unplug computers and other electronic equipment prior to the hurricane's arrival to prevent permanent damage from possible electrical surges.



Look at your operations to assess the potential impact of high wind and heavy rain on livestock and facilities to identify additional items that should be addressed. Consider what would happen if utilities were not available for each task on your dairy. This will help identify additional areas to address that may not have been addressed in the list above.

Family and employee work schedules

Your employees will need time to make preparations at home in advance of the storm to protect their family, home, and belongings. Determine whether individual employees plan to evacuate or stay during a storm. For those who evacuate, establish a schedule for checking in after the storm to provide updates so they know when they can return as well as the extent of the damage. For employees who stay, be sure that they have safe lodging and make a plan for checking on these employees during and after the storm.

As part of the advance planning, inform workers of planned changes to the normal work schedule. Milking and all other activities should cease well before the storm arrives to allow workers time to go home safely. Additional feed should be provided to animals ahead of the storm. This would also include providing hay for animals in pastures.

Make a plan for letting employees know when to return to work after the storm has passed and it has been determined that the conditions are safe to return. Employees should be cross trained so that all work can be completed in case some cannot return to work immediately after the storm.

Assessing the damage after the storm and planning a response

When the storm has passed, proceed with extreme caution as you begin to inspect for damage. If it is dark, it may be difficult to see potential dangers. Consider all downed power lines to be energized and lethal! If there are structures that were damaged, there will be debris that could have exposed nails, screws, splinters, or sharp edges that could potentially cause injury to people and animals.

Items to include in your post-storm response plan include:

- Check on family and employees. Remind everyone of the potential dangers that may exist after the storm.
- Check for the status of all power lines and make sure everyone knows to stay away from all downed power lines. Remember that power lines that fall on fences could energize the fence.
- Check for any natural or liquefied petroleum (LP) gas leaks. If possible, turn off the gas and notify the proper authorities. If the leak cannot be stopped, evaluate the area, notify the authorities, and tell employees to stay clear.
- Inspect cows and heifers. If any animals are injured, work with staff to get proper treatment started as soon as possible. Animals that are critically injured should be euthanized immediately using an approved method.
- Check animals within the pasture and fencing. If fence was damaged, either repair or move animals to another pasture that will keep them secured.
- Check for any toxic plants or trees such as downed cherry trees or broken limes with leaves.
- Check the water source to make sure animals have clean drinking water available.
- Establish a time for providing feed and water to all animals as well as a time to resume milking.
- Clean away debris from driveways and roads.
- If there is limited damage to the facilities and the area has been determined to be safe (no downed power lines, natural or LP gas leaks, etc.), make plans to resume normal operations as soon as employees can arrive.
- However, if there is extensive damage that limits operations:
 - ▶ Assess the extent of damage and potential hazards to people and animals.
 - ▶ If you can milk and manage animals after initial obstacles have been addressed, call for assistance and the equipment needed.
 - ▶ If you cannot milk or properly care for animals, ask for assistance to move animals to other dairies as soon as possible. Work with the sheriff's office, local EMA, or FEMA to make them aware of the situation.
- Contact your insurance agent as soon as possible to report any damage. Document all damage with digital pictures before any cleanup begins.
- Check the lagoon levels and prevent any overflow or berm breaks. If an overflow or breach has occurred, first take steps to stop the flow of manure immediately and then contact the appropriate agency (like the Georgia Environmental Protection Division) to report the spill.
- Inspect all feed ingredients to make sure it is free of debris. If the feed is contaminated, move it so it will not be fed.
- Make sure employees are aware that the animals have been stressed and to expect more health issues including mastitis, dystocia, metabolic disease, and lower reproductive performance.
- Work with the milk hauler to advise about changes in the milking schedule and access to the dairy.



Summary

Developing a plan to prepare for and recover from a storm such as a hurricane will help you to become better equipped to minimize potential injury to people and livestock and reduce damage to facilities and equipment. A well thought out plan will also identify potential risk that could be changed to improve overall operation safety.

extension.uga.edu