



Hurricane Preparedness for Livestock

Hurricane season is a reality for many livestock producers in the subtropics and certain parts of the continental United States, so it's best to plan in order to (1) promote good health and welfare in your livestock and (2) reduce the amount of property damage incurred to your farm and/or leased lands.

Steps to Take Before Storm Season

1. Ensure that your livestock are current on vaccinations.
 - a. Blackleg protection – usually this is a part of many 7-way or 8-way clostridial vaccines.
 - b. Leptospirosis protection – usually this is a part of many reproductive vaccines.
 - i. Make sure your vaccine protects against the serovar *Lepto hardjo-bovis*.
 - c. Tetanus – sometimes this is included as a part of clostridial 7-way and 8-way vaccines
 - i. Several tetanus toxoid and anti-toxin products are available that confer immediate passive immunity to unvaccinated animals, and this protection lasts about 7–14 days in most livestock species.
 - ii. Hurricane season in Hawai'i often overlaps with the common schedule for the branding and processing of spring calves. If storms are expected to hit close to or following castration, use of tetanus toxoid products is recommended.
2. Make sure all your livestock have some type of identification, such as ear tags, RFIDs, hot brands, freeze brands, or tattoos, in case some of your animals become lost.
3. Have a plan for where livestock will be moved (if necessary) before the storm hits. Livestock are susceptible to injuries and death caused by flying debris, flooding, and exposure to severe weather.
4. Identify areas that will withstand rising water and high wind for storage of feed and supplies.
5. Keep livestock fencing, gates, corrals, and other enclosures in good repair throughout the year. Plan to do a check of all facilities in April of each year before storm and hurricane seasons start.
 - a. Check barns, pens, and fences for any loose boards, wire, fence posts, etc. to reduce the likelihood of flying debris injuring livestock.

- b. Pay attention to any loose sheets of tin roof that need to be replaced or nailed down.

6. Make sure your trailer is safe to haul livestock with. Check the integrity of floor, mats, safety chains, and trailer lights. Ensure that your tires are safe and that a functional spare is on hand.

Steps to Take Before the Hurricane or Tropical Storm Arrives

1. Ensure that your vehicles, heavy machinery, and small-engine equipment are fueled up and in good order, as they may be needed for immediate use.
 - a. Don't transport or store cans of fuel in your vehicle(s) unless you have a fuel transfer tank specifically designed for that purpose.
 - b. Keep extra chains, bar oil, fuel additives, and proper tools (adjustable wrench, flat-head screwdriver, round chainsaw file) on hand to keep chainsaw in good working order. Having additional bar nuts on hand for the chainsaw is highly recommended.

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2. Additional feed, hay, and water supplies should be purchased several days prior to the storm is projected to make landfall, in case those supplies are not available following the hurricane.
3. Veterinary supplies such as bandages, topical antibiotics, injectable antibiotics, and tetanus toxoid should be purchased and stored should they be needed to treat animals. Have enough restraint equipment such as lassos, ropes, and halters on hand just in case veterinary care is needed.
 - a. Have a print-out with instructions for proper feeding and administration of medications in case you cannot be on site to administer during the disaster.
4. Turn off electrical power and water in the barns and storage areas. Leave electric fences on.
5. If at all possible, livestock should never remain locked in a closed barn. Severe damage to a building could lead to animal injury or death.
6. If animals can't be evacuated, turn them out in larger pastures on high ground that contains either solid man-made shelter or natural shelter (large trees, tall brush, etc.) for cover. Again, livestock should never remain in a closed barn.
7. For ranchers on catchment systems in remote locations, having a filled tanker trailer with water on hand prior to the storm helps ensure fresh water availability to livestock following the storm.
8. A first-aid kit along with basic supplies (soap, gloves, flashlights, etc.) should be on hand to ensure that all employees and family members are protected.

Feed and water needs for livestock:

As previously mentioned, several days prior to projected landfall, additional feed, hay, and water supplies should be purchased in case those supplies are not available following the hurricane.

Feed and water needs for different classes of livestock			
Species	Water (gallons per day)	Feed (pounds per day)	Food type
Beef Cattle	25 to 30	25 to 30	Hay, cubes, green chop, silage
Horses	15 to 20	15 to 25	Hay, cubes, pellets
Pigs	2 to 6	2 to 15	Pelleted feed
Sheep	2	2 to 5	Hay, pellets
Goats	2	1 to 5	Hay, pellets

Table 1 provides a quick reference as to the quantity of feed and water needed to maintain a single animal unit (per head) of each species during or after the hurricane or storm when in confinement, or if pasture or water infrastructure has been damaged or is unavailable. Plan

to have at least one week's worth of feed and water available.

Livestock are used to being outside during times of bad weather and will simply need clean feed, a dry place to stand, and clean water to help them recover from stress. Electrolytes and vitamins may be added to their water to help livestock adjust during this stressful time. Make sure your livestock have plenty of water and food, and fresh bedding (if needed) which has not been contaminated by pollutants.

Steps to Take After the Hurricane or Tropical Storm Has Passed

1. After the storm has passed, check livestock and assess your animals' health situation. Observe animals for coughing, hard breathing, discharge around their eyes and noise, lowered heats, unusual behavior, and treat



Figure 1A. Low-lying pastures and grazing cells often have pockets of standing water following a large storm or hurricane.

them as soon as possible. If animals are injured, or show signs of severe bloat, be ready to administer first aid or contact your veterinarian. Closely inspect your fence lines for damage, and make immediate repairs to keep livestock off of roads.

2. Check that buildings, pens, and paddocks are free of debris and standing water before putting your livestock back in them. Make sure that your plumbing to water troughs is functional. Adding small amounts of bleach to standing water especially in low-lying pastures (Figures 1A and 1B) may help prevent the spread of diseases.
3. Extremely bad weather can often trigger pregnant females near-term to give birth prematurely in less than ideal conditions. So watch for newly born livestock and manage them accordingly.
4. For several days and weeks following the hurricane, closely observe livestock for signs of infectious disease such as pneumonia or foot rot and treat accordingly. For foot rot, the standing water allows for gram



negative bacteria like *Fusobacterium necrophorum* and *Dichelobacter nodosus* to propagate and infect the hooves of various livestock such as cattle, sheep, goats and horses.

5. In case of flooding, spray livestock with insect and fly repellent to protect against mosquitoes that may carry disease. The use of insecticide-impregnated cattle ear tags may also be considered for longer term control, as those tags gradually release small amounts of an insecticide which is distributed over the animal topically during grooming or rubbing.
6. If livestock from another farm or ranch find their way to your farm, do your best to isolate them from your animals until they are returned to their owner or examined by a veterinarian. Always use caution when approaching and handling strange or frightened livestock.
7. For ranchers on catchment systems in remote locations, it is important to consider having a portable generator, submersible pump, and tanker-trailer available to provide the necessary means for efficiently pumping and delivering water to livestock following the storm.



Figure 1B. Treating areas of standing water with low levels of bleach may help improve the safety of and minimize the risk to your livestock once returned to those paddocks or grazing cells.

8. Monitor livestock closely for signs of salt toxicity, which is commonplace when animals are deprived of a fresh water supply for more than 24 hours. The incidence of salt toxicity becomes greater when livestock consume high-salinity water collected in salt lick containers, or standing surface water in lower-lying coastline areas.

Takeaway Message

With the proper planning and management, you can protect your livestock from injury and minimize the potential losses to a livestock operation in the event that a hurricane does occur. For more information, please contact your private veterinarian or any of these University of Hawai'i Cooperative Extension faculty and staff:

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