



Emergency Considerations for Beef Cattle¹

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Hurricanes have the potential to cause severe damage to ranches and cattle production facilities. Included among concerns about potential hurricane damage are considerations for animal care and health management before, during and after the emergency. The following guide is a general overview of beef cattle handling, care, and health concerns which may be associated with a natural disaster such as a hurricane.

Behavior, Handling, Animal Care

Handling practices can be less stressful to the animals and safer for the handler if one understands the behavioral characteristics of beef cattle. Cattle disposition or temperament ranges from docile to wild/highly excitable. Typically cattle with poor dispositions are very fearful of humans or they exhibit aggressive behavior. This behavior is neutralized when personnel handling cattle are experienced and understand the flight zone of cattle.

Behavior During Handling and Restraint

Cattle have a "flight zone." The flight zone of an animal is that space surrounding the animal that will elicit avoidance or escape when encroached upon. When a person moves inside the flight zone, the

animal usually moves away. If a handler penetrates the flight zone too deeply (that is gets relatively close to the animal), the animal will either bolt and run, or, if cornered, turn back and run past, or over the handler.

The best place for the handler to work cattle is on the edge of the flight zone. In this position the cattle will move away from the handler in an orderly manner (will not show extreme flight behavior). The cattle will stop moving when the handler retreats from the flight zone.

The size of the flight zone of cattle depends on their relative degrees of tameness. The flight zones for cattle reared on the range may be many times greater than the flight zones of backyard or small farm cattle. It should be noted that excessively tame cattle can be very difficult to move or handle. Often the best approach is to try to get the animals to follow another animal.

The flight distance (distance from the animal to the edge of the flight zone) can be roughly estimated by walking toward the animal and noticing how close the animal may be approached before it starts to move away.

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1. This document is VM167, one of a series of the Veterinary Medicine-Large Animal Clinical Sciences Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. Original publication date May, 2008. Visit the EDIS Web Site at <http://edis.ifas.ufl.edu>.
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Flight distance can also be influenced by previous experience. Animals that have been handled gently and reared in close contact with people will have shorter flight distances than those that have been handled roughly or with minimal human contact.

Many people make the mistake of invading the flight zone too deeply when driving livestock. If the animals attempt to turn back, the handler should retreat from their flight zone. Retreating will usually terminate their escape behavior.

All species of livestock exhibit a strong tendency to follow. Both sheep and cattle are highly motivated to maintain visual contact with each other. Cattle show visible signs of distress when isolated. A lone steer or cow may injure itself trying to rejoin its herd mates and if highly aroused it may also charge a handler. When a lone animal refuses to move or is agitated, either leave it alone or try to introduce it to another group of animals.

Cattle can be handled most effectively by a person who understands their behavior patterns and who provides handling facilities that complement those behaviors in a positive way. Calm cattle are easier to move and sort than excited cattle. Once they are agitated it takes cattle about one-half hour to calm down. Most cattle are restrained and handled several times during their lifetimes. Ease of handling depends largely on their temperament, size, and previous experience as well as on the design of the handling facilities. Cattle are also creatures of habit and will learn from positive experiences. Some cattle will move/handle easily in response to a positive motivator such as feed.

Following are some important facts about the behavior of cattle.

1. Because cattle have 310- to 360-degree vision, they are sensitive to shadows and unusual movements.
2. Cattle tend to move toward light. (Except blinding direct sunlight.)
3. Cattle have poor depth perception and will often refuse to move through areas where shadows are cast on the ground.

4. Cows and calves handled in an abusive manner develop poor dispositions. Cattle remember painful and adverse experiences.
5. A small flag on the end of a stick is useful for moving or sorting cattle. Cattle should be moved without the use of a whip or electric prod.
6. Cattle usually respond negatively to abuse, loud noises, and other confusing situations that can excite them. Thus noisy equipment should be kept as far as possible from cattle.
7. Metal chutes and alleys should be constructed and used so as to eliminate loud clanging and banging noises.
8. Yelling at cattle increases the stress level of both cattle and handler.
9. Cattle are easily disturbed by loud noises, such as those made by pumps, and compressed air.
10. Cattle are creatures of habit. An established daily routine will result in ease of handling.
11. Handle animals in groups. A single animal will often resist going into a chute or pen by itself. It may become excited and injure itself or the handler.
12. The cattle handler's movements should be slow and deliberate: any sudden movement will frighten cattle and make them difficult to handle.
13. By understanding the flight zone of cattle, a handler can effectively work cattle in a corral or pasture. (Figure 1)
 - a. Cattle can be moved more easily if the handler works on the edge of the flight zone.
 - b. The handler penetrates the flight zone to start cattle movement and retreats outside the flight zone to stop cattle movements. When the handler is positioned behind the point of balance at the shoulder, the animal will move forward. It will move backward when the handler is in front of the point of balance.
 - c. The animal will move forward when the handler walks quickly past the point of balance at the shoulder.

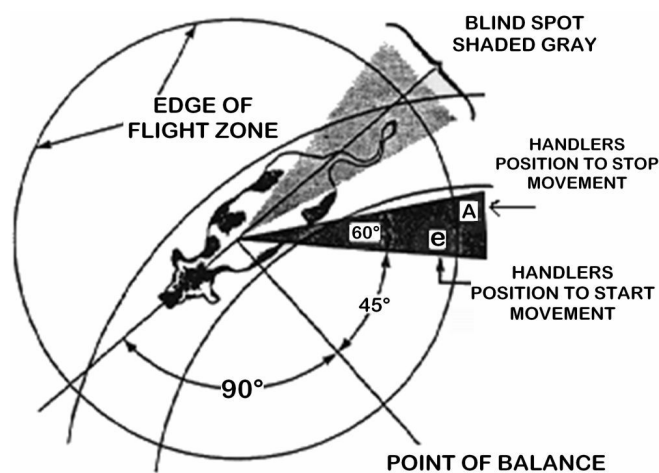


Figure 1. Flight Zone of Cattle (Temple Grandin)

14. If cattle refuse to move through a gate, into a chute or trailer, or even in a certain direction, check for distractions such as flapping coats, noise, objects on the ground, other animals (dogs), movement of people in direction of travel.

15. Round pens enhance cattle movement and prevent injury to excitable cattle.

16. Head catches are necessary to immobilize cattle of large sizes. If the head needs to be restrained, a halter is preferred to nose tongs.

17. Mixing groups of cattle can add to the stress of these animals and make handling more difficult. If groups are mixed, provide plenty of space and observe animals from a distance. Allow the new group to interact and start to develop a social order. The anxiety will be at the highest level for the first few hours after being mixed and will decline fairly rapidly over a few days.

Breed Differences

The breed of livestock can affect the way they react to handling. Brahman and Brahman cross cattle are more excitable and may be harder to handle than the English breeds. Angus cattle may be more excitable than Herefords, and Holstein cattle tend to move slowly.

Brahman cattle often display excitement or agitation by swishing their tails. When Brahman and Brahman cross cattle become excited, they can become more difficult to block at gates, may more readily run into fences and *will run over the handlers*.

Brahman cattle tend to be docile in the pasture but can be claustrophobic in the pens. They are also more intelligent than English breeds. This fact results in Brahman cattle being difficult to handle when they have had previous negative experiences during handling.

Well-Being and Animal Care

Animal care aims to fulfill animal needs. In order to know how to care for animals, their needs must be known and understood.

Physiologic Needs: Nutrition, Environment or Housing, Health

Nutrition

Feed

1. Beef cattle are ruminants and are thus able to use feed stuffs such as hay and grass. If possible provide cattle with access to grass pastures. If grass pastures are not available, provide grass hay as an alternative—1/3 of a square bale/cow/day should be sufficient. Beef cattle are also able to use concentrates (grains) as a source of food. An excellent source and one which is highly palatable would be sweet feeds that are typically fed to horses. Feed approximately 10 to 12 pounds/cow/day.

2. In an emergency situation, mature beef cattle can survive for several days without feed.

3. Small calves <350 lbs nursing cows do not need additional feed, other than what is supplied to their mothers.

4. Orphan calves can be fed a commercial milk replacer. The amount of milk replacer supplied is typically 8% of their body weight. (i.e. a 100-lb calf would need approximately 8 lbs of reconstituted milk replacer per day). Patience is needed when trying to get an orphan calf to accept milk from a bottle or bucket, particularly if they have been used to nursing recently.

Water

Beef cattle need access to fresh water 24 hours per day. The amount of water required depends a lot

upon the ambient temperature. Regardless of the types of feed supplied, beef cattle cannot go without water for any extended period of time (> 24 hours).

Beef cattle are able to use standing water as well as fresh water. Water with high levels of chlorine may be unpalatable. It has been noted by people showing cattle that animals experiencing a change in water source often decrease water consumption. Table 1 provides water requirements for cattle and other species.

Table 1. Water Consumption (gallons per day) for various livestock.

Beef cattle	20-25 gallons per head
Dairy cattle	10-16 per head
Horses	8-12 per head
Extremely hot weather could increase the high values another 20 to 30 percent.	

Environment / Housing

A majority of beef cattle are reared in a range environment. Well-drained grass land with shade available for the entire herd should be adequate.

Fencing should contain animals to a specified area. In general the smaller the area in which cattle are contained, the greater the need for higher quality fence. For example, a corral should be made of rigid material such as steel panels or wooden fencing materials or possibly woven wire. An electric fence for emergencies or a 4-5 wire permanent fence should be adequate for open pasture.

Health Concerns for Beef Cattle During an Environmental Disaster

Generally there are few if any medical emergencies for beef cattle during environmental disasters such as hurricanes.

The lack of available water may leave some animals dehydrated. The remedy is to provide fresh water as soon as possible. If an animal is severely dehydrated, fluids can be provided via a stomach tube. Adequate restraint would be necessary as well as advanced training on the technique for "tubing" a ruminant.

Lack of shade may cause heat stress or heat stroke. Moving animals during periods of high temperature and humidity may also lead animals into heat stress or stroke. Often for beef cattle in hot and humid conditions *the best thing to do to prevent heat stress is to simply leave them alone.*

Table 2 provides a chart for the temperature humidity index for animals. Remember it is the combination of temperature and humidity that determines the severity of the heat stress.

Use the temperature humidity index as a guide to heat stress. Listen to local or regional weather

reports for the temperature humidity index (THI) for your area.

Some levels of concern include:

- a. Above 75 THI - Heat stress on high-producing cows begins to decrease feed intake and lower milk production, especially in dairy cows.
- b. Above 80 THI - Severe heat stress may occur for cows on pasture. Shade and adequate ventilation are essential to minimize stress and animal loss.
- c. Above 83-85 THI - Danger of fatal heat stress occurs.

Heat stress management plan should incorporate the following:

- a. Have ample water available. 2-3 gallons of water per 100 lbs of body weight. Make sure of delivery capability.
- b. If watering from a trough, 3 inches of linear space per animal may be lifesaving.
- c. Avoid handling of cattle if at all possible.

d. Provide shade if possible.

e. Improve air flow if possible. Provide fans or ventilation for confined cattle.

Don't house animals in a small pen in direct sunlight without adequate shade, water and ventilation (air flow).

Temperature Humidity Index

Temperature Humidity Index (THI)

		Relative Humidity												
		30%	35%	40%	45%	50%	55%	60%	65%	70%	75%	80%	85%	
T	100°	84	85	86	87	88	90	91	92	93	94	95	97	
E	98°	83	84	85	86	87	88	89	90	91	93	94	95	
M	96°	81	82	83	85	86	87	88	89	90	91	92	93	
P	94°	80	81	82	83	84	85	86	87	88	89	90	91	
E	92°	79	80	81	82	83	84	85	85	86	87	88	89	
R	90°	78	79	79	80	81	82	83	84	85	86	86	87	
A	88°	76	77	78	79	80	81	81	82	83	84	85	86	
T	86°	75	76	77	78	78	79	80	81	81	82	83	84	
U	84°	74	75	75	76	77	78	78	79	80	80	81	82	
R	82°	73	73	74	75	75	76	77	77	78	79	79	80	
E	80°	72	72	73	73	74	75	75	76	76	77	78	78	
	78°	70	71	71	72	73	73	74	74	75	75	76	76	
	76°	69	70	70	71	71	72	72	73	73	74	74	75	

THI = Tdbf - (0.55 - (0.55 x (RH / 100))) x (Tdbf - 58)

Normal <74 Alert 75-78 Danger 79-83 Emergency >84

Emergency Medical Treatment

If beef cattle are in need of medical treatment during a hurricane, consider the use of local resources: local veterinarians, cowboys, and area ranchers.

If veterinary assistance is required to manage health concerns, more than likely restraint facilities will also be necessary. This will include equipment such as squeeze chutes, corrals, lariats, rope halters and possibly sedatives and or anesthetics. If facilities are needed, adequate preparation should be made accordingly. It may be necessary to consider euthanasia rather than treatment of some animals. If euthanasia is a consideration for severely injured animals, adequately trained personnel will be necessary.

Health concerns regarding debilitated, disabled, or injured cattle will often require a decision of either *treatment*, or *euthanasia*. Criteria to be considered to assist the decision making should include,

a. Pain and distress of the animal

b. Likelihood of recovery

c. Ability to get to feed and water

d. Diagnostic information

e. Welfare for the animal and humane considerations.

During an environmental disaster, beef cattle may have emergency needs for food, water, shelter and medical concerns. In reality, often the best option concerning the needs of beef cattle in a disaster, provided they are in no danger, is to note their location and the approximate number of animals, determine their ownership and then simply monitor the cattle for other needs. The owners of beef cattle, ranchers and cowhands are often the individuals best prepared to handle the emergency needs for their herds. These individuals may need assistance from other producers in the area and occasionally local disaster relief personnel. If producers do need assistance from disaster relief personnel, volunteers providing that assistance must have a basic understanding of beef cattle. In closing, the best approach with beef cattle may be to leave the animals alone, notify local authorities if necessary, let the ranchers and cowboys handle their cattle and provide emergency assistance when producers ask for it.

References

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