Animals in Disasters

MODULE A
UNIT 8

The Care of Livestock and Horses in Disasters

Overview

This unit gives practical advice for the farmer or large animal caregiver. It is the most comprehensive of the units in terms of protecting your livestock and horses in a disaster. It reviews the four phases of emergency management and gives specific recommendations for mitigating, preparing for, responding to and recovering from all types of disasters. Emphasis is given to issues such as evacuation of large animals and the restoration of farms as businesses.

Objectives

Upon completion of this unit, you should be able to do the following:

- Prevent flooding, fire or power failures from harming your livestock and horses
- Safely transport, communicate and obtain medical assistance for your livestock and horses in disasters
- Evacuate, feed and identify your livestock and horses in a disaster
- Take steps to ensure that your animal-related business fully recovers from a disaster
- Apply the four phases of emergency management to the care of livestock and horses in disasters

The care of livestock and horses in disasters

Many farms are vulnerable to natural disasters and require special consideration in the protection against disasters. Their owners depend on the farm's income for their livelihood. There are often many chemicals, such as fertilizer, herbicides and pesticides, that can be spilled in a disaster. In this section, you will learn about some of the basic principles of disaster mitigation for livestock and horse farms.

Farms in disasters are of concern for many reasons, some of which are listed below.

- The safety of the human food supply depends on the health of food-producing animals.
- Owners have personal and financial investments in their animals.
- Farm owners may be injured or killed attempting to rescue their animals in disasters.
- For many States and businesses, livestock, poultry and horses are a vital source of revenue.

Protecting and saving human life is the first priority of disaster relief. Protecting property is of secondary concern. Because of this, emergency management officials are not trained to deal with animals as property or the restoration of animal-related businesses. Therefore, farm owners should work with their emergency management agency and other groups before a disaster. Though, they should remember that the care of and responsibility for all animals lies with their owner or designated care provider.

Mitigation

There are many things that can be done on farms to mitigate disasters. Some of these are listed to follow.

- Build and repair buildings to meet or exceed construction codes and consider ease of evacuation.
- Replace or cover glass windows with materials that will not shatter and injure animals or personnel.
- Make sure that drainage ditches have grass covering (maintain sod).
- Prevent ground-burrowing animals from damaging dams and levees.
- Avoid accumulating piles of trash that can spill onto other persons' property and injure animals and people.
- Store chemicals in storm-proof buildings and secured containers.
- Do not leave construction materials unsecured. In high winds, these may become projectiles.
- Drain or build levees around ponds that could flood.

- After evacuating the barn, always close the barn doors to prevent animals from running back inside the barn.

Flooding

Many farms are in floodplains, but some farm owners and managers have a false sense of security. Many people do not realize that living in a 100-year floodplain means that the chance of flooding is calculated as 1 percent chance of flooding per year or 30 percent chance in the life-span of many mortgages. The following resources are available.

County area planning offices compile information on floodplains in their community. The natural resources department can provide maps and flood-risk assessment information on every property in their State. Farm owners should gather this information, review the location of their property, and engineer access to their property that will not leave them stranded during flooding. Civil engineers can help in the design and construction of flood-protected farm accesses and make recommendations on suitable locations for barns, stables, paddocks and high-lying areas that may be used as pasture ground in the event of a flood.

A common aftermath of flooding is the overflow of manure pits and waste lagoons. This can contaminate the environment, rivers and the drinking water supply. If this occurs, the environmental department will be interested in the environmental impact and the natural resources department will be concerned with river contamination and potential fish kills. Farmers can be fined for violations against regulations of both departments. To prevent this from happening, farmers should take the following precautions.

- Have lagoons regularly inspected.
- Diligently keep records on the impact lagoons have on the environment and water shed.
- Discuss plans to divert manure from streams and rivers with the local county extension educator and representatives from the appropriate State departments. (Similar issues surround all waste disposal systems on farms.)

Another common problem on farms in disasters is hazardous materials spills. Storing hazardous materials in locked buildings with securely strapped containers should prevent these from leaking into the environment and water supply.

After floods there may be an increase in infectious disease.

- Animals that have stood in contaminated flood water will be at increased risk and may develop infections of the hooves and skin (dermatitis).
- Cuts acquired from disaster debris make animals more susceptible to tetanus and contaminated floodwater may contain toxins, including botulinum toxin from rotting carcasses. Contact with wildlife may also increase the potential for rabies.

Fire safety

Barn fires tend to break out in the winter and summer months when barn doors are closed and the demand for heating, cooling (fans) and lighting is at its highest. Many livestock facilities are built of flammable materials and some contain gas heaters. Safety measures to prevent the damage caused by fires include the following.

- Fire extinguishers, sprinkler systems, smoke detectors and enforced no smoking policies can greatly reduce the risk of fires.
- Electrical wiring of barns and stables should meet appropriate safety standards and be installed by qualified electricians. Professional advice is available to help with these.
- The State department of building and fire safety and most local fire departments provide low-cost inspections and recommendations on fire safety for properties. The recommendations are detailed and will provide the highest standards by which to prevent fires.
- Farm owners should consult with their local fire department on how to fireproof their stables. This also familiarizes farm owners and local firefighters with one another. This familiarity is helpful in the event of an emergency. Knowing where a farm is located, how to access facilities, how many animals are there, and where large volumes of water are available can make the difference when firefighters are responding.

Power supply and miscellaneous repairs

Priority for restoration of power following an emergency is usually based on human population density. Because many farms are in rural areas, it could be some time before power is re-established. Many livestock operations depend heavily on electrical power to milk cows, provide heat and cool air (fans), and operate feed elevators and machinery. Owners can find out about the relative priority of their farm from their local utility company. This important information can help farmers prepare for times without power.

Farm owners should consider securing a generator for emergencies. A representative from the electricity company or Cooperative Extension Services can advise on the energy requirements to run a farm, the size of generator and provide information on sources, maintenance and costs of generators.

Preparedness

The priorities for disaster planning for farms varies to some extent with the type of animals and facility. In general terms, the greatest priorities, i.e., the most likely disasters to occur, are trailer accidents, floods, fires, power outages and contagious disease outbreaks. Some locations will have additional hazards to consider, such as high winds, landslides, and hazardous materials. Owners should consult their local emergency management office on what type of help is available and where to get it.

Safety in animal transport

Transportation accidents are one of the most common disasters that horse and livestock owners will encounter. Preventive measures include regular inspection of trailers and tow vehicles for safe operation (including checking tire pressure). Reading materials and videos are available. Refer to the appendix for some recommendations.

Communications

Dependable communication is fundamental to identify immediate sources of help and where it will be needed most. A few methods of emergency communication are described to follow.

Buddy System	Neighbors and friends determine ahead-of-time who will be responsible for checking on and helping whom, which resources will be shared, and generally improve their knowledge and sensitivity of animal welfare.

Telephone tree	Every person in an affected area phones two to three other people to see if they need help. These people in turn phone two to three others, and so on. Telephone trees should be tested periodically and revised if necessary.
"Help" or "OK" signs	Visible from the road, these are a simple, effective method of advising others as to your status.

Veterinary preparations for a disaster

The priorities in veterinary care vary with each disaster.

- In high winds, tornadoes and hurricanes, traumatic injuries will predominate.
- In droughts and in severe winter weather, starvation and dehydration may be problems.
- Following fires, smoke inhalation and burn wounds will be issues that require veterinary attention.

Many disasters also have distant effects on animals, e.g., debris on pastures many miles from a tornado touchdown and moldy corn following a flood can be a problem after a disaster. If you are concerned about diseases that may result from a disaster you should consult your veterinarian. If animals die or have to be euthanized, it is recommended that a post-mortem examination be performed at the State diagnostic laboratory so that insurance and legal claims can be settled should they arise. Photographs and videos can aid in documentation.

In disasters, farm animals may be forced to congregate. Horses from several farms may mix resulting in contagious diseases. Be aware that changing social structure may result in aggressive behavior leading to injury. Some measures can safeguard the health of horses and livestock in disasters – vaccinations, deworming, and Coggins tests for horses.

Veterinarians can also instruct their clients on first aid for horses and livestock and advise on the contents and appropriate use of first aid kits.

Response

Evacuation

Farm evacuations present unique problems. Appropriate planning is essential. Evacuations are best coordinated with neighbors, friends, livestock associations and horse clubs, and county extension educators. Both the destination and the method of transport need to be sorted out well in advance of any need.

Feeding

When livestock and horses are evacuated and housed in large numbers, adequate amounts of feed may be difficult to procure.

- Develop lists of feed and hay suppliers in your area.
- Avoid dietary changes. When the diets of horses or livestock change, they become predisposed to colic, laminitis and metabolic diseases. Feeding diets that have moderate energy levels and meet the minimum nutritional requirements reduces the likelihood of illness.

Use the following table to judge how much water and feed your animals may need.

Short term dietary requirements for farm animals during disasters — For specific amount and type of feeds, consult your veterinarian

Animals		Amount of water per day (higher amounts apply to summer months)	Amount of feed per day
Dairy cows	In production	7-9 gal	20 lb hay
	Dry cows	7-9 gal	20 lb
	Heifers	3-6 gal	8-12 lb hay
	Cow with calf	8-9 gal	12-18 lb legume hay
	Calf (400 lb.)	4-6 gal	8-12 lb legume hay
Swine	Brood sow with litter	4 gal	8 lb grain
	Brood sow (pregnant)	3 gal	2 lb grain
	Gilt or boar	1 gal	3 lb grain
Sheep	Ewe with lamb	1 gal	5 lb hay
	Ewe (dry)	3 qt	3 lb hay
	Weanling lamb	2 qt	3 lb hay
Poultry	Layers	5 gal per 100 birds	17 lb per 100 birds
	Broilers	5 gal per 100 birds	10 lb per 100 birds
	Turkeys	12 gal per 100 birds	40 lb per 100 birds
Horses	All breeds	5-12 gal per 1000 lb	20 lb hay per 1000 lb
Cats and Dogs	All breeds	1 qt per animal	ad libitum dry food

In areas where legume hays such as alfalfa are routinely fed, this type of hay alone is likely to provide sufficient amounts of nutrition under emergency conditions. In other situations, 25 percent of the energy should be supplied from oats or sweet feed and 75 percent from hay. All horses should also be regularly fed bran as a laxative.

Identification of animals

In large-scale disasters when many animals are evacuated, identification of the animals and their owners is difficult. Ideally all animals should be uniquely and permanently identified. Consider that identification serves two purposes:

- The owner can positively identify their animal, and
- Others can trace the owner.

Horses can be permanently identified by microchips, freeze marking or tattoo. Owners should have current front and side view photographs. However, when this is not the case, e.g., when livestock and horses have to be evacuated suddenly, emergency identification methods can be used. These include:

- Painting or etching the hooves,
- Body marking with crayon,
- Clipping phone numbers or farm initials in the hair,
- Neck banding,
- Identification tags on halters, and
- Glue-on numbers.

Hazardous materials

During floods, following tornadoes and earthquakes, hazardous materials can be knocked over and contaminate the environment and animals. While farmers are often qualified to handle hazardous materials commonly used on their farms, farm owners should be aware that proper training and hazardous materials certification are required to deal with releases and the potential contamination of the food supply. Untrained persons should not deal with hazardous materials at all. If you are concerned about a hazardous materials release, phone 911.

Recovery

Farms are traditionally concerned with restoring the animal industries following a disaster.

- The long-term recovery phase of a disaster can be protracted, with substantial adjustments occurring in the disaster-stricken community.
- Restoration of businesses is facilitated through low-interest loans supplied by the Small Business Administration and local banks. Businesses with appropriate insurance coverage are most likely to have the best recoveries.
- Farms often have special claims programs for recovery from disasters – farmers should pay special attention to these and consult their State emergency management officials and county extension educators on what is available. In the past, farmers have been unaware of the sources of funding available to them to help recovery.

Relocation

Every farm owner should have alternative accommodations planned for their animals in the event of a disaster. These contacts should be confirmed at least once per year. County extension educators often have good relationships with the owners and managers of fairgrounds, racetracks, etc. and may be consulted when identifying facilities that may be available. Be sure when selecting facilities to choose those that will not likely be affected by the same disasters you are planning for.

Consideration should be given to how large amounts of manure will be disposed – this will accumulate and pose a significant animal and human health problem. Plans should be made for disposal of carcasses.

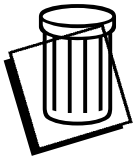
Restoration of farms as businesses

Farms are often affected by local disasters, such as fires, floods, chemical spills, and tornadoes. It is estimated that only 5 percent of small businesses affected by a major disaster ever recover to a functional state. This is likely due to inadequate insurance coverage. Farms without sufficient records will have a difficult time making an adequate insurance claim. Major concerns for small businesses, including farms, in disasters include the following.

- Personnel,
- Cash flow,
- Continued income for employees,
- Continued provision of quality care for animals,
- Restoration of a functional business,
- Changes in community infrastructure, and
- Customer, buyer and supplier loyalty.

Many of these issues can be addressed before a disaster by obtaining adequate insurance coverage and entering into agreements with neighboring farms to share facilities and resources.

In addition, farms may obtain assistance from the Small Business Administration and if the President requests special funding from congress, the Federal government. Agricultural emergency assistance funding is administered through the Secretary of Agriculture. The chairperson of this board is usually executive director of the State's Agricultural Stabilization and Conservation Service.



LEARNING CHECK – WHAT HAVE YOU LEARNED ABOUT THE CARE OF LARGE ANIMALS IN DISASTERS?

This activity is designed to assess your understanding of the information presented in this unit.
Directions: Answer the questions – use the Answer Key in Unit 10 to check your answers.

True or False

1. Barn fires usually occur in the spring.

2. The buddy system is an effective means of communication in disasters.

3. Video and photos can aid in identification and documentation of deceased animals.

4. Manure disposal is not a concern following disasters.

5. There is no permanent method of identifying livestock.

6. Farmers are often qualified to handle hazardous materials commonly used on their farms.

7. Because farms are businesses, they are usually high in priority for the restoration of power during outages.

Multiple Choice

8. The chance of flooding in a 100-year floodplain is _____ per year.
   a. 0.1 percent
   b. 1 percent
   c. 10 percent
   d. 100 percent

9. Which of these is a temporary method of identifying livestock?
   a. Microchip
   b. Freeze marking
   c. Tattoo
   d. Etching hooves

10. Which type of veterinary concern will predominate following high winds, tornadoes, and hurricanes?
    a. Starvation
    b. Dehydration
    c. Traumatic injuries
    d. Bacterial infection

Summary

In this unit you learned how the four phases of emergency management – mitigation, preparedness, response and recovery – can be applied to the care of your livestock or horses in a disaster. At each level you were given practical advice to protect yourself and your animals from the dangers that all types of hazards cause.

Review

Instructions

Now you have completed the units of instruction for this Module. Before moving on to the final examination, let us revisit the scenarios presented in Unit 2. As you will recall, the scenarios included information and questions for animal owners and emergency managers. Having completed this Module, think about how your answers to these questions may have changed.

1. A train carrying propane derails and prompts the immediate evacuation of 1000 households in a 2-mile radius. You estimate that approximately 50 percent of families in the evacuation area own animals.

   Emergency Managers: Do you have an action plan to evacuate people with their animals, and know where to house the animals?

   Animal owners: How would you evacuate with your animals? What supplies would you take for your pets? Where would you shelter your animals?

2. During Hurricane Jackie many persons become separated from their horses.

   Emergency Managers: How would you reunite the horses and their owners?

   Animal owners: There are 35 bay mares in a temporary enclosure for horses. If one of them were yours, how would you positively identify it to a security guard at the pasture?

3. In a tornado, a tank of herbicide is knocked over. It may have contaminated the grain bin on a dairy farm and been sprayed onto the skin of some pigs at a neighboring farm.

   Emergency Managers: What are the potential public health risks associated with contaminated livestock feed and food-producing animals?

   Animal owners: Who would you contact to determine the safety of your cows' feed and to determine the potential contamination of the milk?

   The pigs do not appear to be affected.

   Who can determine the withdrawal times for safe slaughter of the pigs for human consumption?

4. Many farms are in low-lying areas close to rivers. Flooding is a problem that can result in animals drowning, and difficulty in supplying feed to stranded animals.

   Emergency Managers: How many farms in your community are potentially affected by floods and what types and numbers of animals do they have? How would you obtain this information?

   Animal owners: How could the problem of recurrent flooding be prevented? What department in your State could help you in this regard?

5. During a heat wave there is a local power failure that results in the death of 500,000 chickens in two adjacent barns.

   Emergency Managers: What emergency power supplies could have been mobilized and prevented this costly loss?

   Animal owners: How would you dispose of this large mass of dead birds?

6. A brush fire precipitates the escape of a large private collection of exotic animals. The animals include lions, tigers and bears. There is great risk of people being injured. The animals are very valuable and belong to an influential local resident.

   Emergency Managers: Should the escaped animals be killed or captured?

   What factors would help you reach the most appropriate decision.

   Animal owners: Whom would you call in your jurisdiction to help you with this situation?