

Disaster Planning for Animal Facilities

The U.S. Department of Agriculture gratefully acknowledges the Florida Animal Disaster Planning Advisory Committee (ADPAC) for permission to use the following article and checklist. Their website is <http://www.fl-adpac.org/>

ADPAC is an ad hoc group of organizations and individuals interested in promoting the effective development and implementation of disaster plans to protect animals. The group was organized after Hurricane Andrew killed, injured, and displaced tens of thousands of dogs, cats, horses, cattle, birds, exotic pets, and other animals.

ADPAC is not a formal legal entity. Its members seek to open lines of communication among the various animal groups in the state, and with governmental entities that develop and implement disaster plans with the goal of protecting human lives and property. It is the belief of ADPAC that the plans for humans and animals must be intertwined if either is to be effective.

If you would like information on ADPAC, contact Laura Bevan, Southeast Regional Office Director, The Humane Society of the United States, 1624 Metropolitan Circle, Suite B, Tallahassee, FL 32308, call (850) 386-3435, or e-mail lbevan@unr.net for more information.

Introduction:

It is vital that animal facilities prepare for disasters, not only for the animals housed inside, but so that the facility will be viable in the aftermath. These facilities will include animal shelters, kennels, veterinary clinics and hospitals, pet shops, horse stables and other facilities where animals are routinely housed. The following guidelines are appropriate for all and will help determine which disasters and dangers a facility may be vulnerable to, and what plans they can make now to mitigate damage and downtime.

Evaluate your Animal Facility

A. Know the dangers of the facility's location. Are you:
in a storm surge area for hurricanes of any category?
in a flood plain for nearby lakes, creeks or rivers?
located near any hazardous waste plants or disposal sites?
near any railroad tracks with trains carrying hazardous wastes?
near any interstates that have trucks carrying hazardous wastes?
near any fuel depots?
in an area prone to wildfire?
near any area with earthquake faults?
in an area that a power outage could create a heat or cold emergency?

Fire: we all run the risk - our most common and deadliest single disaster. Check with your local emergency management department or fire department for assistance in assessing the potential disasters in your area.

B. Know the dangers of the actual structure:

What is the building made of (wood, concrete, brick, etc.). Is it solid enough to withstand hurricane force winds?

Does it have sliding glass doors, large windows or a large number of windows? Do these have hurricane shutters or appropriate coverings for heat or cold emergencies?

If the facility has kennels, are they indoor/outdoor runs or all indoor?

What areas of the facility would be safe in a hurricane or tornado? Are there interior areas that would be protected?

Is the roof secure? Is it hurricane clipped or strapped? Is it capable of water loading from heavy rains, snow or ice?

Do you have exposed, overloaded, or old electrical wiring that could start a fire?

Does the facility have a number of fire extinguishers, and are they in convenient and easy to locate?

Do you have smoke detectors throughout the facility, and are the batteries checked at least twice a year? (An alert system and sprinklers are preferred.)

Do you allow smoking in or around the building? If so, is a proper smoking policy in effect?

Is the area around the facility cleared of underbrush and trees to prevent wildfire from spreading to the building?

It would be advisable to have the building properly evaluated by an engineer or another professional experienced with the requirements necessary for a facility to withstand a major disaster. Check with your emergency management department to see if this is a service it provides or if it can recommend a professional.

Insurance

Is your insurance adequate to cover all losses? You need to properly evaluate your coverage at least once a year.

A. Identify your facility on the flood plain and or storm surge map located at your local Emergency Management Department.

B. Make a complete inventory of the property, including photographs of each room. Store this written or videotaped inventory with insurance papers in a safe place, keeping a duplicate inventory file off-premises.

Set Priorities

A. Identify the most expensive or irreplaceable items (the animals in the facility will be your top priority) and create plans to preserve and protect them.

B. Identify what items are most necessary to get the facility operating again. (i.e. records, equipment, etc.)

C. Movable Inventory (i.e. animal control trucks, cars, etc.) - make arrangements now for a safe location where these items can be moved well in advance of the storm. Make sure your vehicles are not moved to a location where they can be immobilized, such as by falling trees, flying debris, or flood waters. Tie them down if appropriate.

D. Move important inside equipment to the center of the room as high as possible (upstairs if available) and wrap it with waterproof tarps or plastic. Secure with a rope or tape. Anchor downstairs furniture.

E. If you are in a floodplain, make arrangements to move as much as possible from this location well in advance.

F. Glass - Shutter or board all glass to prevent it from flying around doing additional damage or injury. Whenever possible, large windows or sliding glass doors should be covered with commercial hurricane shutters, since it is difficult for them to be properly boarded. In case of wildfire, remove drapes when one threatens to prevent them from catching fire as the glass becomes heated.

G. Contact your local fire service and ask them to do a fire drill at your facility so they are familiar with where the animals are housed. Also ask them to do a walk through to point out situations which might be fire or chemical hazardous.

H. Install a fire alarm system, if you do not already have one. Have it connected directly into the fire department. By the time an internal alarm is heard, it could be too late.

I. Have fire extinguishers readily available throughout the facility and make sure all employees know how to operate one.

J. Install a lightning suppression system.

K. If in a wildfire prone area, keep hoses attached on all sides of the building with lawn sprinklers for wetting down roofs.

Create a Pyramid of Employee Release

A. Release all non-essential personnel as soon as possible so they can assist their families in making preparations. See that all employees have written personal disaster plans covering their home, family and pets - if they are prepared, they are better able to concentrate on assisting in getting the facility prepared effectively.

B. Release second level of employees as soon as they have completed their assigned disaster preparation duties.

C. Remaining employees leave as soon as premises are prepared and secured. Always start well in advance - the key to minimize damage and injury is evacuated as quickly as possible. All employees should be released in time for them to reach safe shelter. In the case of hurricanes, this should be before sustained winds reach 45 mph.

D. Explain:

Watch: generally issued 72 hours prior to an expected event - preparations should begin at that time. The radio should be monitored constantly.

Warning: generally issued when the expected event is imminent within the next 24 hours or sooner. Depending on when the Warning is issued (day, night, weekend) your plan may change

dramatically. Depending on your operating hours you may have to plan to call in key employees to prepare the facility. Home phone numbers should be kept with the manager or director at all times. Also call non-essential employees and tell them not to report to work until further notice. Have a plan to recontact employees if telephone lines are inoperable.

E. It is not recommended that you demand participation of employees in responding to the aftermath of a disaster. Your disaster plan could fall apart if you depend on certain people who are not available because of family concerns.

F. Recognize in developing the personnel section of your disaster plan that even those employees who make a commitment to assist before or after a disaster may not be able, for reasons beyond their control. Cross train employees in disaster duties.

Specific Preparations

A. Hazardous Materials

Make sure all hazardous materials are labeled - if they do get washed away or strewn about your local clean-up crews will know what they are dealing with.

Attach all outside storage cylinders to the building (attach at top and bottom); if attached at only one place, cylinders can be battered against the building and possibly break valves. Remember, nothing is too heavy to worry about!

If small quantities of hazardous materials are stored on open shelves, make sure the shelves have adequate lips to keep materials on the shelves. Make sure cupboards are fitted with positive latches.

Separate all incompatible chemicals!

Keep up-dated inventories of all hazardous materials - store this in a safe place off premises or take it with you upon evacuation.

Shut down the valves on all tanks before leaving.

B. Records

If possible, put vital records on hard disk to be taken along when leaving, or electronically transfer all important records to a location outside the expected disaster area.

If records are not computer compatible, place them inside plastic bags and then pack in boxes. Seal the boxes with tape.

Mark the outside of the box with pertinent information, such as department name and/or name of supervisor responsible for records.

If records are confidential, indicate this on the outside of the box.

Take boxes to a central location to receive an assigned number and to be inventoried.

Remove boxes to a safer location outside of the disaster area - this location should be pre-determined.

C. Assign employees to clear outside area of all loose objects. Remove flags from poles as this substantially increases the ability of the flagpole to withstand wind.

D. If the shelter has any refrigerated inventory (drugs, medicines, etc.) immediately set all refrigerators to the lowest setting. However be aware that once the power is off refrigerated items

generally will stay cold for approximately 48 hours. If the power outage is expected to be longer than this, or if the items will otherwise be lost, relocate them or donate them to relief efforts.

E. Drive any motor vehicles to a safe location, if there is none at the facility. Make sure the vehicles are fully fueled, since gas stations will be unable to operate due to lack of power.

F. Empty freezer of any dead carcasses and dispose of properly. Turn freezer on as cold as possible for holding of dead animal bodies immediately after the disaster.

Final Securing of Premises

A. Contact your alarm System Company and local officials advising that you are shutting down operation of the facility.

B. Provide employees' with appropriate identification showing employment or relationship to the animal facility so that they will be able to return after the storm.

C. Unplug all equipment and turn off electricity at breakers before leaving - including air conditioning, water heaters, gas and water (this helps prevent contamination).

D. Recheck valves on hazardous materials tanks to make sure they are fully closed.

Returning after the Disaster

A. Avoid all metal as it may be energized. Wear rubber boots and rubber gloves.

B. Enter with extreme caution; check structural integrity. Always use a buddy system when entering the structure.

C. Don't strike matches, as gas leaks or leaks of other hazardous materials are common. Use flashlights only.

D. Make a written assessment of the building and its contents. Photograph as similarly to the original inventory photographs as possible, to expedite insurance processing.

E. Make any safety repairs immediately that are necessary to protect employees and minimize further damage.

F. If there has been flooding or rain damage, have an electrician inspect the premises before turning on the breakers.

G. DON'T connect emergency generators to the building wiring as unsuspecting repair crews may be injured or killed. Operate any necessary equipment directly off the generator. Use generators outside only as they expel carbon monoxide.

H. Continue to use communication systems only for emergencies.

I. Remember that water will be contaminated, creating a health hazard.

J. Employees should be instructed not to attempt to return to work until notified.

K. Notify outside agencies, such as national or state humane and animal control organizations, of your status. If you need assistance of any kind, the faster you call, the faster it will arrive. It is generally much easier for you to call out of a disaster area than it is for others to call into one.

On-Going Planning

A. Flood-Plain Map - Keep one posted at all times in employee and public lounges or waiting areas.

B. Provide regular training for all employees in CPR, First Aid (for humans and animals) and disaster preparations, particularly in tornado, earthquake, and fire response (use of fire extinguishers and their locations in the facility).

C. Hold quarterly fire, tornado, and earthquake drills.

D. Review and update your disaster plan annually.

E. Supplies needed at all times:

Flashlights with batteries (refrigerated for longer life).

Transistor Radio with batteries

Fire Extinguisher

Tarps and/or plastic

Rope or cord

Tape

Tools necessary to shut down equipment, tanks, etc.

First Aid Kits for human and animals

Food and water to last for 1 -2 weeks

Portable corrals for livestock

Collapsible cages or crates

Additional collars, leads, leashes, halters

Additional office supplies of those items used frequently

Weather Alert Radio

Police Scanner

F. Make sure personnel are up-to-date on protective shots such as rabies, tetanus, hepatitis, etc.

G. Develop a telephone tree of employees and, possibly, volunteers to notify them of disasters or pending disasters. Make provisions, however, for communication in case telephone lines are down. Pre-arrange meeting sites with needs list in case communication is impossible.

H. Obtain, or get a commitment for, a generator with the capacity to operate basic functions of the facility. If you have obtained a generator for permanent use, have the hook-up to your electric pre-wired by a qualified electrician. Make sure staff know how to properly operate after a disaster.

I. Keep a list of telephone numbers of local, state and national groups that could provide assistance.

J. Develop a communications system with flexibility. Do not depend on one form of communication after a disaster.

Telephone tree - those whose telephones are working and who can relay information around and out of the disaster area.

Make contacts with local ham radio operators. See if someone can relay messages for the facility after a disaster.

Become part of your emergency management department's system.

Portable CB's will work short distances if all other systems are down. Information can be relayed by CB until better systems are operating.

Cellular phones may not work because of downed relaying towers or crowded airwaves, but are useful to have on hand.

K. Check electrical wiring regularly.

You must also plan for incidents such as tornadoes, earthquakes, or hazardous material releases for which you will have little or no advance warning.

1. Someone should be designated to make the decision on whether to evacuate or stay in the building.

2. If the decision is to remain in the building, safe areas should be identified in advance and employees should be regularly instructed as to the location of the safe areas.

You should also consider the impact of a disaster not just on your facility, but on the neighboring community or region. A disaster in your area may bring a flood of animals to your doorstep, creating a ripple disaster in your shelter.

Developed by Laura Bevan, The Humane Society of the United States, using information from the "Hurricane Action Guidelines for the Business Community" developed by Sarasota (FL) County Emergency Management.

Disaster Plan Quick Check List

This plan developed for: _____

Date: _____

I. EVALUATION OF FACILITY

A. Known dangers to facility in area

_____ Storm Surge area

_____ Flood Plain

- _____ Hazardous material plants or disposal sites
- _____ Railroad tracks
- _____ Interstates
- _____ Fuel depots
- _____ Wildfires
- _____ Earthquake faults
- _____ Fire inside facility
- _____ Heat or cold emergencies
- _____ Emergency Management has assessed dangers to facility

B. Dangers of structure

Construction quality of building: _____ Excellent _____ Good _____ Fair _____ Poor

Glass: _____ Sliding doors _____ Large windows _____ Large number of windows

Kennels: _____ Indoor / outdoor _____ Indoor only _____ Outdoor only _____ Other

- _____ Presence of interior "safe" areas
- _____ Roof hurricane strapped or clipped
- _____ Exposed, overloaded, or old electrical wiring
- _____ Professional evaluation of facility
- _____ Area cleared around structure

II. INSURANCE

- _____ Annual check for adequacy
- _____ Location identified on flood plain map
- _____ Inventory done

III. PRIORITIES

- _____ Identify vital property and protect
- _____ Movable inventory (i.e. vehicles)

- _____ Secure furniture
- _____ Glass secured
- _____ Fire drill conducted
- _____ Fire alarm installed
- _____ Fire extinguishers installed
- _____ Employees trained to use extinguishers
- _____ Lightning suppression system installed
- _____ Adequate hoses attached to building

IV. EMPLOYEES

- _____ Pyramid of release
- _____ Personal disaster plans
- _____ Non-business hours plan
- _____ Notification of return
- _____ Training in C.P.R.
- _____ Training in First Aid (human & animal)
- _____ Training in Disaster Planning
- _____ Cross training done
- _____ Up-to-date protective shots

V. SPECIFIC PREPARATIONS

- _____ Hazardous Materials - Labeled, secured
- _____ Outside tanks - secured and valves closed
- _____ Incompatible chemicals separated
- _____ Update inventories regularly
- _____ Vital business records protected and secured
- _____ Prepared for loss of power

- _____ Outside area clear of loose objects
- _____ Flags down
- _____ Refrigerated inventory protected
- _____ Movable inventory, fueled and protected
- _____ Freezer emptied of carcasses
- _____ Generators available

VI. FINAL SECURING OF PREMISES

- _____ Contact alarm companies
- _____ Take identification
- _____ Unplug equipment, shut off breakers, gas and water
- _____ Recheck hazardous material valves

VII. RETURNING AFTER THE DISASTER

- _____ Rubber gloves and boots
- _____ Enter with buddy
- _____ Flashlights only
- _____ Inventory
- _____ Safety repairs
- _____ Building checked by electrician
- _____ Outside agencies notified of status

VIII. PLANNING

- _____ Flood Plain Map posted
- _____ Flashlights with batteries
- _____ Transistor radio with batteries
- _____ Weather alert radio
- _____ Police scanner

- _____ Fire Extinguishers
- _____ Tarps and/or plastic
- _____ Rope and tape
- _____ Tools
- _____ First Aid Kits (animal & human)
- _____ Food/Water
- _____ Extra cages and crates, halters
- _____ Quarterly disaster drills - test smoke detector batteries
- _____ Disaster plan updated annually
- _____ Annually recharge fire extinguishers
- _____ Identify safe areas from tornados, earthquakes, etc.
- _____ Telephone tree created
- _____ Electrical wiring checked

On _____ this plan should be re-evaluated and employees should be re-trained.

Signature & Date

Preparing the Farm and Farm Animals for Disasters

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Introduction

Disasters such as hurricanes, tornadoes, floods, earthquakes, severe winter weather, hazardous material spills or nuclear power plant accidents can occur any time. The event may occur suddenly or be anticipated for several days as with an approaching hurricane or flood. The time to prepare for these events is long before they occur. Even at the farm level, procedures should be written. They should be kept in a safe, fireproof, quickly accessible place with other important documents and taken along if it becomes necessary to evacuate the farm. Each member of the farm family and herd personnel should know of and practice the plan so that action may be taken even in the absence of key management personnel.

The first step in planning for a disaster is to determine what type of disaster could occur on the farm and with what frequency. It would be useless to spend time and money, for example, to plan for severe winter weather if the farm is located in a tropical environment. If the premises are near a nuclear power plant, even though the risk of an accident occurring is slim, the owners would want to consider how to protect their animals from radioactive fallout. If the farm is near a major highway, one might want to consider a hazardous material spill from a road accident in the planning. Living next to a river or stream would put planning for flooding or a barge accident in the forefront.

Only after farm owners have considered their risks can they prioritize the time, money, and other resources they wish to allocate to each potential hazard. An all-hazards plan is most desirable; however, plans should also be customized for specific situations. Once the risks are known, decisions can be made about what actions can be taken in advance and what actions would be required once the disaster occurs. Generally, the effects of a disaster on livestock are lessened by avoiding the disaster, mitigating its effect if it cannot be avoided, or sheltering the animals. The approach taken would depend upon the type of disaster anticipated. Sometimes only one approach may be appropriate such as sheltering. In some instances, combined approaches, such as mitigation and sheltering, may be required. In events such as floods or firestorms, sheltering may be the wrong thing to do.

Mitigation

Hazard mitigation is defined as any action taken to eliminate or reduce the long-term risk to life and property from natural or technological hazards. Some examples of hazard mitigation might be hurricane seeding to reduce the intensity of a storm, tying down homes or barns with ground

anchors to withstand wind damage, redirecting the impact away from a vulnerable location by digging water channels or planting vegetation to absorb water, establishing setback regulations so building is not allowed close to the water's edge, and constructing levees or permanent barriers to control flooding.

The farm and farm buildings should be surveyed to figure out what mitigation procedures should be followed based on the hazard risk. These procedures include:

! Building or repairing barns and outbuildings so they exceed building codes;

! Constructing or moving buildings to higher ground;

! Replacing or covering glass windows and doors with sturdier materials;

! Keeping drainage furrows sodded;

! cleaning or moving trash piles and burial sites (Many farms contain burial sites contaminated with lead-based paints, machinery grease, motor oil, lead-lined tanks, batteries, roofing nails, asphalt, shingles, caulking compounds, linoleum and plumbing lead. During flooding this material may leech into the crops or feed supply or be moved to a more accessible area where animals could consume them.);

! Moving or storing toxic chemicals, pesticides, herbicides, and rodenticides in secured areas to prevent their washing onto pastures where animals may be exposed;

! Securing loose items; and

! Draining or building levees around ponds that could flood.

A list of resources and people should be developed by the farmer and kept with important papers. This list should contain emergency phone numbers, suppliers, truckers, and people that can help with the animals, especially if normal working conditions are disrupted.

Supplies that may be needed during or after the disaster should be obtained. Many of these items may not be readily available after the disaster. By obtaining them in advance, more reasonable prices will be paid. Unfortunately, disasters attract individuals who gouge and prey on the misfortunes of victims. Items that could be obtained are portable radios and TV's, extra batteries, flashlights, candles, portable generators, salt, gravel, litter, fuel, antifreeze, stored feed such as hay (the amount to store would depend on the hazard--after the Washington State flood, most producers vowed never to inventory large amounts of hay due to excessive flood damage and spoilage), ropes, halters and other animal restraint equipment, and medical supplies. Once obtained they should be stored in such a manner that they will be usable after the disaster. While in storage they should be checked at regular intervals--i.e., once a week--to assure that they do not spoil, and that electrical or mechanical appliances are still working. They should also be rechecked and evaluated after the event to assure they are still usable. A log should be kept to record when and how often the items were monitored. Animals should be kept current on all appropriate vaccinations and booster shots before the disaster. Keep a written record of the products given and the date of injection. Because the stress of the event and the disruption of the

environment could cause an increase in infectious disease spread, proper vaccination could protect the animals.

Representation to Governmental Agency Managing the Disaster Response

As the disaster approaches or after it arrives, the most important thing the farmer needs is truthful, accurate, and current information. Government's response to most disasters is coordinated by a county, State, or Federal emergency management agency. Representation to this agency for the farmer is critical. In most instances, this is competently done by a member of the State or Federal Department of Agriculture. It is strongly suggested that farm organizations lobby for veterinary representation either through their State or Federal Department of Agriculture or separately to the emergency management agency. Often, the needs of animals during disasters are given low priority. Veterinarians, who are aware of these needs and can also verify the validity of requests for help, are most suited to bring animal problems to the forefront. In many instances, actions required to protect animals, such as sheltering or evacuation, must be done before a similar action is taken for people. This is because moving animals to shelter from pasture or evacuating them to other locations takes considerable time and many workers. However, governmental agencies will not issue such directives for animals before similar instructions are issued for people. They fear that a panic situation might occur and people might be critical about animals being protected before them. (Animals can always be released from the shelter or returned from their point of evacuation if the disaster does not materialize.) What they do not consider is that it must be done while it is still safe for people to do the task since animals cannot shelter or evacuate themselves. After the disaster, government usually limits access to the disaster area. However, animals have to be fed, watered, and milked. Who is better suited to do this than the owner? Designation of farmers as emergency workers by government solves the problem of who will be responsible for this task. A veterinarian located in the emergency operating center can get these messages across.

Evacuation

If evacuation of the animals is being considered, then evacuation procedures, places, and routes should be planned. Since all animals may not be able to be evacuated, owners should decide ahead of times which are the most important ones to save. Various decision criteria can be used such as sale value, breeding quality, stage of pregnancy, stage of production, or simply sentimental preference. These animals should be identified ahead of time and a written list kept. If the owner is not home when the disaster threatens, others would then know which animals to save.

Animal evacuation routes must not interfere with human evacuation routes. Alternate routes should be found in case the planned route is not accessible. Places where animals are to be taken should be decided in advance and arrangements made with the owners of these places to accept the animals. Trucks, trailers, and other vehicles should be obtained in advance and the animals acclimated to them so they are not frightened when they have to be used. Restraint equipment, feed and water supplies should be available to use and move with the animals and sufficient people should be on hand to help move them. The animals should be photographed and permanently identified by metal eartag, tattoo, brand, registration papers, or microchip. A permanent record of the identification must be kept as this information is useful in resolving

arguments of ownership in case animals get loose. Papers documenting the identification should be kept with other important papers. Ultimately, the decision to evacuate will depend on the distance to be traveled, the amount of time before the disaster will affect the farm, and whether there is any advantage to moving the animals to the place selected. Sometimes evacuation may be done after the disaster, provided the roads are passable and the equipment needed for travel usable. If this is the case, the accepting location must be contacted to find out its condition.

Sheltering

Whether to move farm animals to shelter or leave them outside will depend on the integrity and location of the shelter being used and the type of disaster. During Hurricane Andrew, some horses left outside suffered less injury than those placed in shelters. This was because some shelters selected did not withstand the high winds. Horses were injured by collapsing structures and flying objects that may have been avoided on the outside. Another reason for possibly leaving animals unsheltered is because flood waters that inundate a barn could trap animals inside, causing them to drown. During severe winter weather, shelter animals from icy wind, rain, and snow. Generally, if the structure is sound, the animals should be placed indoors. Once they are inside, secure all openings to the outside. As mentioned previously, the sheltering should be ordered and completed before similar action is taken for humans.

Farm cats and dogs should either be placed in a disaster-proof place or turned loose, as they generally will stay close to their home in the immediate period following a disaster. If they are loose, however, attempts must be made to immediately catch them after the threat is over to prevent these animals from becoming feral and a public health hazard. Some farm dogs are dangerously aggressive, and under normal circumstances should be kept chained. These dogs cannot be kept chained or turned loose during a disaster. If an inside shelter cannot be found, then the only safe and humane thing to do is to euthanize these dogs as a last measure before evacuation.

Human Evacuation

What can be done with the animals if there is a need to evacuate the premises and the animals have to be left unattended? There is always the risk that animals left unattended for extended periods could die or suffer injury. Sometimes, this may be the only option to protect human life. Protecting human life should always take priority in planning. Regardless, after the animals are secured in appropriate shelters, food and water should be left for them. The amount necessary for survival is considerably less than for other purposes. If the animals survive, then the decision can be made after the disaster whether it is worth the time and expense to bring them back to their previous condition.

Consult the table as a guide to the amount of food and water to leave. Every practical effort should be made to leave animals with sufficient food and water for their survival--enough for 48 hours should be left. Usually, within that time the initial effects of the disaster will be over. During the recovery phase, the decision can then be made as to the best way to mount a rescue effort.

Special Considerations

Some practices that may be followed in planning for disasters, especially during the winter, require a special alert. During winter weather it is common to use portable heaters, gritty substances on the floor to prevent slipping, and antifreeze. When using these heaters, be sure they are working properly and are located in an area where there is adequate ventilation. Heaters not working correctly could be a source of carbon monoxide, a deadly, odorless, colorless gas. Antifreeze used in vehicles is a deadly poison. Animals seem attracted to it and will readily consume it because of its sweet taste. Take care to properly label all containers. Do not use containers previously filled with antifreeze for other purposes, especially feed and water. Promptly clean up all leaks and spills. Water supplies should be checked for freezing. Many animals have died of thirst during the winter, even with abundant water sources, because they could not drink the water as it was frozen solid. If gritty material is spread on floors to prevent slipping, use only approved nontoxic materials. Recently, a farmer mistakenly used Furadan, a fungicide, for this purpose and several cows that licked it off the floor died.

Farms can be insured against catastrophic events. Insurance policies are available for replacement of damaged materials, repair work for recovery, boarding of evacuated occupants and animals, lost production, and relocation. These should be investigated and purchased before the disaster threatens. For a farmer to claim compensation for lost production, which in many cases is the largest economic cost during a disaster, the farmer must have substantial records that document the level of production his/her herd has achieved in previous years. This is generally only successful in herds with recognized herd monitoring programs, such as Dairy Herd Improvement or other programs that are available for various species. To verify the validity of these records a herd health program, based on a valid veterinarian-client-animal relationship, should be in place. A copy of all production records should be kept in a secure place so that the details are not lost during the disaster. Many veterinarians are willing to keep copies of their clients' production records, if they are computerized and space efficient.

Conclusion

Depending upon the event, disaster preparation may or may not be successful. However, it is known that effects of disasters are lessened by proper planning. Economically, it is cheaper to prevent the problem or lessen its effect than to pay the costs of recovery. The time to do this is NOW, before the disaster occurs.

ANIMALS**WATER/DAY****FEED/DAY****DAIRY COWS**

IN PRODUCTION

9 GALLONS SUMMER

20 POUNDS HAY

7 GALLONS WINTER

DRY COWS

9 GALLONS SUMMER

20 POUNDS HAY

7 GALLONS WINTER

WEANING COWS

6 GALLONS SUMMER

8-12 POUNDS HAY

3 GALLONS WINTER

PREGNANT

7 GALLONS SUMMER

10-15 POUNDS

LEGUME HAY

COW WITH CALF

6 GALLONS WINTER

9 GALLONS SUMMER

12-18 POUNDS

LEGUME HAY

CALF (400 POUNDS)

8 GALLONS WINTER

6 GALLONS SUMMER

8-12 POUNDS

LEGUME HAY

4 GALLONS WINTER

SWINEBROOD SOW WITH
LITTER

4 GALLONS SUMMER

8 POUNDS GRAIN

BROOD SOW
(PREGNANT)

3 GALLONS WINTER

1-2 GALLONS SUMMER

2 POUNDS GRAIN

150 POUND GILT OR
BOAR

1 GALLON WINTER

1 GALLON

3 POUNDS GRAIN

SHEEP

EWE WITH LAMB

1 GALLON

5 POUNDS HAY

EWE, DRY

3 QUARTS

3 POUNDS HAY

WEANING LAMB

2 QUARTS

3 POUNDS HAY

POULTRY

LAYERS

5 GALLONS/100 BIRDS

17 POUNDS/100 BIRDS

BROILERS

5 GALLONS/100 BIRDS

10 POUNDS/100 BIRDS

TURKEYS

12 GALLONS/100 BIRDS

40 POUNDS/100 BIRDS

HORSES

ALL BREEDS

5 GALLONS/1000 POUNDS

20 POUNDS HAY/1000
POUNDS**DOGS AND CATS**

ALL BREEDS

1 QUART/DAY/ANIMAL

AD LIBITUM DRY FOOD

Bibliography

American Veterinary Medical Association (1997). ***Emergency Preparedness and Response Guide***. Schaumburg, Illinois: American Veterinary Medical Association, 10 sections. Available from the American Veterinary Foundation Disaster Relief Fund for \$55.

Descriptors: operations of the AVMA emergency response force, agency coordination, enrollment procedures, planning and preparation, disaster resource material, animal care and handling, training procedures and materials, sample reporting forms, acronyms, key contacts in Federal and State agencies, and commercial organizations, includes copy of **Veterinary Services in Disasters and Emergencies**.

Anderson, S.L. (1998). **Hazard analysis: Preparing for natural disasters**. *Lab Animal* 27(1): 24-31.

NAL call number: QL55.A1L33

Descriptors: hazard categories, risk assessment, resources for emergency planning, list of criteria to follow when analyzing a facility and preparing a response, check lists, laboratory personnel, coordinating response, planning the facility program.

Dorn, C.R., J.G. Gordon, and C. Sherry (1993). **Veterinary service and animal care emergency operations plans**. *Journal of the American Veterinary Medical Association* 203(7): 1005-1008.

NAL call number: 41.8 Am3

Descriptors: veterinary services, emergencies, disasters, planning.

Gerrity, L.W. (1998). **Expecting one disaster and getting another**. *Lab Animal* 27(1): 29.

NAL call number: QL55.A1L33

Descriptors: A case study of the effects of Hurricane Opal on the animal resources program of the University of Alabama at Birmingham.

Heath, S.E., R. Dorn, R.D. Linnabary, J. Casper, J. Hooks, and K. Marshall (1997). **Integration of veterinarians into the official response to disasters**. *Journal of the American Veterinary Medical Association* 210(3): 349-352.

NAL call number: 41.8 Am3

Descriptors: veterinarians, disasters, emergencies, planning, responses, coordination of relief efforts, not specifically for animal facilities but may be useful for universities with large laboratory animal, agricultural, or veterinary facilities.

Heath, S.E., R. Dorn, R.D. Linnabary, J. Hooks, J. Casper, and K. Marshall (1997). **An overview of disaster preparedness for veterinarians.** *Journal of the American Veterinary Medical Association* 210(3): 345-348.

NAL call number: 41.8 Am3

Descriptors: veterinarians, disasters, emergencies, veterinary services, planning, funding, programs.

Heath, S.E. (1995). **Preparing horse farms, horses and their owners for disasters.** *Journal of Equine Veterinary Science* 15(4): 206-209.

NAL call number: SF951.J65

Descriptors: farms, disasters, farm planning, local planning, transport of animals, fires, legislation, telecommunications.

Leonpacher, R.J. (1991). **Disaster planning in animal facilities.** *AALAS Bulletin* 30(6): 20-21.

NAL call number: SF405.5.A23

Descriptors: disasters, laboratory animals, designing a plan, damage or destruction of building contents even though the building is still sound, loss of communications, loss of access, loss of utilities--electrical supply, water, steam, gas, drainage, key elements in disaster plans.

University of California (1998). **Division of Agriculture and Natural Resources Guide to Disaster Preparedness Resources.** D. Klingborg, D. Dawson, and S. Donahue (eds.), Davis, California: Veterinary Medical Extension, University of California at Davis, 60 p. Available at http://www.vetmed.ucdavis.edu/vetext/INF-DI_DANRGuide.html

Descriptors: overview of emergency services in California, guide to roadblocks and fire designations, standardized emergency management system, articles, training manuals, workshops, videotapes and other information resources, disaster planning--a comprehensive look at developing a response program, contacts in California, emergency contacts in California--includes animal transporters, animal shelters, feed and supply stores, pet stores, veterinary personnel, sample animal care guidelines and forms.

Vogelweid, C.M. (1998). **Developing emergency management plans for university laboratory animal programs and facilities.** *Contemporary Topics in Laboratory Animal Science* 37(5): 52-56.

NAL call number: SF405.5.A23

Descriptors: creating your plan, establish a planning team and obtain authorization to develop the plan, analyzing response capabilities and identifying specific hazards that are likely to effect an animal facility, develop your plan, include proper authorities--fire, police, environmental safety, community outreach, recovery and restoration of services, implementing the plan, training.

Useful World Wide Web Sites

American Red Cross Disaster Services

<http://www.redcross.org/disaster/safety/guide.html>

The mission of American Red Cross Disaster Services is to ensure nationwide disaster planning, preparedness, community disaster education, mitigation, and response that will provide the American people with quality services delivered in a uniform, consistent, and responsive manner.

Federal Emergency Management Agency (FEMA) Virtual Library and Electronic Reading Room

<http://www.fema.gov/library/>

Pertinent resources include full-text documents in the following categories:

Animals in Emergencies

Preparedness, training, and exercises

Response and recovery

U.S. Fire Administration

The online library of FEMA contains full-text resources for planning your disaster response program. Also includes information in Spanish. An excellent resource provided by the Federal Government.

Florida Animal Disaster Planning Advisory Committee

<http://www.fl-adpac.org/>

ADPAC is an ad hoc group of organizations and individuals interested in promoting the effective development and implementation of disaster plans to protect animals.

University of Colorado Health Sciences Center Animal Care & Use Program

<http://www.uchsc.edu/animal/>

This document is designed to do the following: Guide you during emergencies; Inform you of potential emergency situations before an emergency occurs; and Help you to avoid and anticipate dangerous situations. To access this site, scroll down the left frame and click on After Hours Emergencies/ Disaster Prep.

University of Florida Emergencies

<http://www.health.ufl.edu/acs/emergency.htm>

The Animal Resources Branch is responsible for emergency planning and implementation with regard to the research animals. This manual will serve as an annex to the University of Florida Natural Disaster/Hurricane Emergency Plan in addition to other Emergency Procedures (i.e. fire, flood, threats by animal activists, etc.) as established by the University of Florida.

University of Florida Institute of Food and Agricultural Sciences and the Florida Cooperative Extension Service

<http://disaster.ifas.ufl.edu/>

The Disaster Handbook Web site is one component of the Comprehensive Disaster Preparedness and Recovery Education Module, which also includes: The Disaster Handbook (Print and CD-ROM Editions) and "Are You Ready?" a video based on the Disaster Preparedness Satellite Video conference.