

Barn Disaster Planning

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Horse Program

Providing research-based information to Minnesota Horse Owners

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Most horse owners would rather not think about a worst case scenario that would affect their animals or their property. However, planning before an emergency is important for managing risk from an unexpected event. When a disaster strikes, people do not have time to think. Whether it is a fire, tornado, or flood, having a plan in place a head of time can prevent or reduce the impacts of these events.

A disaster is an event that is not planned for, with devastating impacts. The goals should be to prevent an emergency from becoming a disaster. Horse owners need to consider not only situations around the house, but the barn as well. This fact sheet will help identify steps that horse owners can take to minimize the chance of a disaster in the barn and to reduce the impacts of one, should it happen.

I. GENERAL PREPARATION

Each barn owner has their own idea of a disastrous event for their facility. For one barn it may be a tornado, for another it may be an outbreak of an infectious disease like strangles. Barn owners should consider what types of situations would be the most devastating for their barn. By identifying these situations and planning for them, negative effects can be minimized. Planning will also help prepare horse owners for other, unforeseen events. For instance, if fire is a concern, have an evacuation plan. This can also be used for a tornado or flood. The following information discusses steps that will help horse owners plan for any emergency situation.

Get the house ready first

The following is a list of essential items a horse owner should keep in or near their home and possibly in another location off the property as well.

- Human first aid kit
- Emergency kit with food and water for 3 days
- Important paperwork
- Photos and written descriptions of all horses
- Extra halters and lead ropes
- Generator with enough fuel for 3 days
- Working flash lights
- Battery operated radio

For more details on preparing your house, contact American Red Cross Twin Cities Chapter at (612) 871-7676 or www.redcross.org.

Equine First Aid Kits

There are several pre-assembled equine first aid kits that can be purchased. The University of Minnesota fact sheet "Equine First Aid: What to Have and How to Use it" (publication #08459) outlines what to have in an equine first aid kit and how to use it.

Evacuation Plans

It is important to have an evacuation plan that quickly and safely moves animals and people out of barns and other equine facilities. It is also critical that boarders and others engaged in the barn/facility know the plan. Having others know the plan ensures it is followed, even if the owner is not present when the emergency occurs. Developing a plan is also important because it helps horse owners think through potential emergencies that may occur, and helps determine potential problems in the barn prior to an emergency. Put the plan in writing and post it. Here are the nine major issues to consider when developing an emergency evacuation plan:

1. **How will each horse be removed from the barn?** Will they be lead individually or herded? In what order? Can they be herded out the door to a holding pen? Keep in mind it may not be possible or safe to put a halter on a panicked horse. Plans for an evacuation like a flood may be different than for a fire where there is less time.
2. **Do you have spare halters and lead ropes located in an area away from the barn?** This is often overlooked and can be a major problem (i.e. during a fire), especially if there are large numbers of horses on the property.
3. **Are there horses that need to be handled differently?** Stallions, foals, elderly horses and others may need to be treated differently.
4. **Where will the horses go if the barn is damaged?** Ideally horses will be put in a safe paddock away from barn. During a fire, ensure the horses are placed far from the burning facility to avoid illness from smoke inhalation. Is there space to separate horses (i.e. stallions)? During an emergency, it is common for a frightened or disoriented horse to try and return back to its stall, where it feels the safest.
5. **Is there more than one exit from the barn?** This is especially important during a fire. Horses are creatures of habit. Practice using all exits occasionally.
6. **Will you be able to get food and water to the holding area?** This is more important if they need to stay there for extended periods of time.

7. **Can you trailer the horses if necessary?** Is there access to a functional truck and trailer? Will the horses easily load?
8. **Have everyone involved in the horse facility practice the evacuation plan?** A lot can be learned from practicing an evacuation plan, and improvements can then be made.
9. **Do you know your neighbors or other horse owners in the area?** Neighboring horse owners can be a huge resource during an emergency.

Animal Identification

Here are several methods to identify a horse. Identification is valuable if the horse is lost or stolen. If you have a horse without identifiable markings, this is particularly important. Choice of identification is a personal preference, but may also be a breed requirement (different breed associations have different requirements). If the horse is registered, one or more of the below identification methods are probably in place.

Permanent Identifiers

- Photographs and written descriptions
- Brands
- Tattoos
- Microchips

Temporary Identifiers

- Washable paint
- Etch hooves
- Braid luggage tag with contact information into mane
- Pastern bands

Frightened Animal Behavior

Human safety is always the first priority. This includes the horse owner, family members, employees, boarders, visitors, and others.

Frightened animals are unpredictable. Even the gentlest horse can become dangerous when frightened. Take specific actions to avoid being placed in harms way. For more information on equine behavior, see the University of Minnesota fact sheet “Horse Behavior and Stable Vices” (publication #08538).

II. FIRE

Fire Prevention



Figure 1. Barn fires burn fast. Prevention is your best defense.

Preventing a fire for starting is the best way to avoid a fire emergency. Fires start when fuel and ignition sources come together in the presence of oxygen. Following is a table of common barn fuel and ignition sources and a list of steps you can take to prevent barn fires.

Table 1. Common Barn Fuel and Ignition Sources

Fuel Sources	Ignition Sources
Hay	Faulty electrical wiring (including extension cords)
Bedding (Straw, shavings)	Smoking materials (cigarettes, matches)
Liquid fuels (gasoline)	Sparks from motors
Wood for building materials and stalls	Improperly cured hay
Cloth, blankets, cleaning rags	Small appliances (heaters, fans, heat lamps)

Fire Prevention Steps

1. **Identify all fuel and ignition sources.** Draw a picture of your barn, mark the fuel and ignition sources.
2. **Separate fuel and ignition sources as much as possible.** For example, move hay away from wiring. Move stored liquid fuels away from ignition sources. Remove any of fuel or ignition sources that do not have to be in the barn.
3. **Post and enforce no smoking signs.** This is inexpensive and will have immediate results.
4. **Check hay temperature before storing it in the barn.** Hay that was baled too wet can become hot and ignite due to microbial activity and spontaneous combustion. For more information on hay, see the University of Minnesota fact sheet “Selecting and Storing Horse Hay” (publication #08463).

Fire Detection

Fire detection is not a substitute for fire prevention. The three main types of fire detection are smoke, thermal and flame.

- Smoke detectors are not good choices for barns due to the amount of dust and other aerosols in the environment. They can be use in relatively clean areas like tack rooms or lounges.
- Thermal detectors are activated either by a rapid increase in temperature or when the temperature reaches a certain point.
- Flame detectors are the most expensive and most accurate. They detect the wavelength of light emitted by flames.

One feature that horse owners like is the ability of a fire detection system to be connected to a telephone dialer, which can automatically place calls to homes, cell phones, and/or emergency responders. This technology can allow time to evacuate the barn, speed emergency response times, and is an investment that can reduce damage from a fire.

Fire Containment

Slowing the spread of a fire will give owners a chance to remove people and animals from the barn safely. Containment may also limit the spread of the fire. Below are four guidelines designed to limit fire spread and devastation. These guidelines may not be possible for all horse owners. However, in the design of a new facility or remodeling of an existing facility, they should be considered.

- 1. Separate fuel sources from where horses are housed.** For example, move hay and other flammable materials to a separate structure. This can greatly reduce the size of a fire. Insurance companies may not provide coverage to barns without proper separation between animals and fuel sources.
- 2. Install fire walls or fire curtains.** These structures are designed to slow or stop the spread of fire from one part of a building to another.
- 3. Install fire extinguishers.** Extinguishers should be placed throughout the barn, in easily accessible areas. See the section on fire extinguishers below for additional details.
- 4. Install sprinklers.** While this is not cost effective for everyone, sprinklers are very beneficial at providing time for an evacuation. Cold weather must be considered when choosing a sprinkler system. See the section on sprinklers below for details.

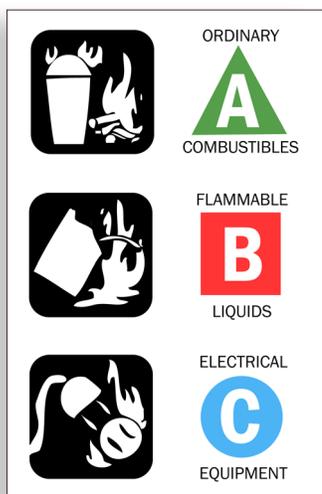


Figure 2. Fire extinguisher ratings

Sprinklers

Sprinkler systems are designed to give people a chance to escape a fire, not to put out a fire. There are three types of sprinkler systems used in barns.

- 1. Wet pipes-** Water is held in the pipes under pressure and will flow immediately when triggered. This is a problem in cold weather states and they are generally not used in unheated barns.
- 2. Dry pipes-** In a dry pipe system, pipes are pressurized with an inert gas and the water supply is pumped out into the pipes only as needed. This prevents water from freezing in the pipes. Besides being more expensive, dry pipe systems require more water pressure to force the water through the pipes quickly.
- 3. Preaction pipes-** In this system, the line is also pressurized with gas, and the valve is controlled electronically. This is the least prone to accidental tripping, but is the most expensive.

Fire Extinguishers

- The ABC type extinguisher will control the vast majority of small barn fires. The 10-pound size is portable and practical for most horse owners. Make sure to space extinguishers throughout the barn in convenient locations.
- Extinguishers must be checked every few months to ensure they maintain their charge.
- Check with your local fire department to test and refill extinguished annually.

Posting Information

Put emergency contact information in an easy-to-find location and make sure that family, employees and clients know where it is. The list should include first responders, veterinarian, your contact information, and others who are willing to assist during an emergency.

III. SEVERE WEATHER

Severe weather is beyond the horse owner's control. In Minnesota, severe weather includes; tornado, lightning, flood, drought, or blizzard.

1. Tornadoes

Animals are generally safer outside than inside if a tornado hits. Horses in the barn are more likely to be hurt if the barn is damaged. However, horses moved outside will have greater risk of being struck by lightning.

2. Lightning

Lightning is attracted to the tallest point in an area. The safest place for animals during a lightning storm is inside of a building. If this is not possible, make sure to move away from the tallest point and keep out of standing water. Having a properly installed lightning rod and ground system for your barn can be helpful.

3. Blizzard

If a blizzard is predicted to affect an area for a long period of time, ensure there is enough forage for the horses. A generator, and fuel, may be needed to run necessary electrical equipment (heating systems, water pumps, and lighting).

4. Drought

Fortunately, in a drought situation there is time to prepare. Unfortunately, the length and severity of the drought is unpredictable. Following is a list of steps horse owners can take to prepare for a drought:

- **Stockpile hay if possible.** Identify backup sources for hay.
- **Identify alternate water sources.** This is especially important if you rely on surface water or a shallow well. A horse's water intake needs increase during hot, dry periods.
- **Be alert to fire hazards.** The risk of fire increases during a drought.
- **Remove horses from pasture to maintain the health of the pasture and the horses.**
- **Look for poisonous plants.** When feed is short, or horses are hungry, plants normally avoided become a tempting source of feed. For more information on poisonous plants, see the University of Minnesota Extension book "Plant Poisonous or Harmful to Horse in the North Central United State" (publication #08491).

5. Flood

Horse owners need to have a plan if their horse facility is located in a low area, close to a stream or river, or in or near a flood plain. During a flash flood there is limited time, so preparation is key. Below is a list of steps horse owners can take to prepare for a flood:

- **Have an evacuation plan.**
- **Watch for down power lines.**
- **Have an electrical generator and supply of fuel ready on higher ground.** A generator is a critical piece of equipment to have during a power outage.
- **Scout for debris before returning horses to paddocks and pastures.** Significant amounts of debris can be deposited in pastures and paddocks after a flood.
- **Listen for reports of infectious disease outbreaks.** Outbreaks of diseases such as anthrax or Potomac Horse Fever can occur among animals in some areas of the country, particularly during hot weather that immediately follows a flood.

IV. MEDICAL ISSUES

Have emergency contact information and first aid kits accessible in the barn.

Severe Human Injury

Take a first aid and CPR training course. Check American Red Cross for dates and locations of classes.

Severe Horse Injury

The University of Minnesota fact sheet “Equine First Aid: What to Have and How to Use it” (publication #08459) outlines what to have in an equine first aid kit and how to use it.

Infectious Disease Outbreak

In the event of an infectious disease outbreak:

1. **Have a quarantine area.** Be able to isolate infected horse(s). Consider this when planning a facility and in an emergency plan. Use separate grooming equipment and tack for infected horses.
2. **Have materials available to sanitize grooming equipment and tack.** Soak what you can in disinfectant solution. Do not soak leather in bleach. Wash blankets when possible.
3. **Prepare a bleach foot bath and hand sanitizer.** Have a 10% bleach foot bath at the barn door for everyone going into and out of the infected area.

V. BARN DESIGN

If horse owners have an opportunity to build or refurbish a barn, or if buying a barn, look for these elements:

- Multiple exits
- Reduced potential for rapid spread of fire through the use of curtains or firewalls
- Fire resistant materials
- Good ventilation
- Hay storage separate from animal housing
- Easy access to water
- Quarantine areas
- Facilities located out of flood plain and other wet areas
- Facility and ground cleanliness

VI. MORE RESOURCES

- Local veterinarian
- Local fire and police departments
- Horse Facilities Handbook by Midwest Plan Services (www.mwpsdq.org)
- American Red Cross (www.redcross.org)

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www.extension.umn.edu/horse

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