



AAEP 2008: Strategies to Prevent and Respond to Barn Fires

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At the 2008 American Association of Equine Practitioners convention, held Dec. 6-10 in San Diego, Calif., Rebecca Gimenez, PhD, noted that barn fires are the No. 1 local emergency that affects everyone from horse owners to veterinarians, and property owners to the horses themselves. Barn fires kill more horses annually than any other type of nonmedical emergency. Of 11,500 agricultural storage facility fires per year, 88% are barns or stables with animals, resulting in about \$250 million in property losses annually. In 87 horse-barn fire incidents reported in 2006 and 2007, 461 horses died and an unknown number were injured.

Gimenez explained that for a fire to start there needs to be an ignition source, oxygen, and fuel. She emphasized that a fire doubles in size every minute, so in 10 minutes it might be 1,024-4,680 times the original size!

As heat rises into the barn rafters, the ceiling will superheat if the structure lacks ventilation for escape of heat. Hay and other combustibles (such as the rafters) often located high in the barn are likely to ignite.

Common barn construction materials of wood increase the hazard of unstoppable fires. Ideally, a barn is constructed of masonry or cinder blocks, with metal or tile roofing, all electrical lines are sheathed in conduit, flooring is sand or another noncombustible material, and all wood surfaces are painted with flame-retardant paint. Areas of the barn should be compartmentalized to prevent or delay spread of the fire. Post "No Smoking" signs around the barn and enforce the rule.

Mitigation should include a careful look at the "anatomy" of a horse facility, asking the following questions:

- What is the evacuation plan for every horse and person from the facility?
- Is the evacuation plan practiced?
- What combustibles (forage, shavings, stall planks, wood roofs, and walls) are present?
- Are alcohol, cleaning products, oils (clipper grease, etc.) in steel boxes?
- Do stall doors face to the outside wall for a fast exit, or is the only egress along the inside barn aisle from an interior-facing stall door?
- Are doors locked at the ends of the barn? Are stalls locked?
- Do obstacles block egress out of the barn?
- Is there a sprinkler system?
- Are there sufficient stations of materials for fighting or suppressing fires?
- Is there a chainsaw and/or an axe to open escape routes on outside walls?

Gimenez notes that it takes 30-60 seconds to halter and lead a horse to an exit. It isn't appropriate to open the stall door for the horse to escape because often they return to the barn or they might run into someone or impede emergency vehicles. Most horse fatalities are due to smoke inhalation; as a horse panics, rises in heart and respiratory rates increase inhalation of toxic fumes.

Know the turnover rate of clients at a facility so all newcomers are versed in fire evacuation procedures. Firefighters recommend monthly evacuation practices. This improves muscle memory and automatic responses, while uncovering potential, but correctable, problems before encountering a real crisis.

Flame and heat detectors with electronic eyes can signal the presence of heat or flame as it is rising, and carbon monoxide detectors are valuable, too. Cheap smoke detectors aren't as useful because they are triggered by air particulates and dust to give false alerts. Tags on fire extinguishers should be checked and contents updated at the local fire department as necessary. An extinguisher should be 10-20 pounds, minimal. Personnel should be trained in extinguisher use, as there is no time for a learning curve when a fire is doubling in size every minute. Fire hoses should have more than 100 psi of pressure, and it is helpful to have an installed sprinkler system for immediate suppression. Water suppression is considered a last resort--especially in rural areas--since it takes three to five minutes for firefighters to arrive, and by then there might be no saving the barn. Regardless, it is good to have an established relationship with the local fire department. When you implement mitigation strategies, insurance costs go down and safety improves substantially, along with the potential to save lives.



**Readers are cautioned to seek the advice of a qualified veterinarian
before proceeding with any diagnosis, treatment, or therapy.**

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