

# Use Barn Fans for Healthy Air

*Barn fans add ventilation and circulation—important elements to keep your horse healthy and cool.*

BY LAUREN BACK

**W**HEN YOU FIRST ENTER THE barn to feed in the morning, the sights and smells are familiar—from the scent of fresh hay to the sunlight filtering through the window. However, if you're able to smell a dirty stall or see floating dust shimmering in a ray of sunlight, this is a sure sign that your barn lacks two crucial elements: proper ventilation and adequate circulation.

## Health Risks

"The average barn is not adequately ventilated," says David Heinze, DVM, of Fox Valley Equine Practice in Elburn, Illinois. According to Dr. Heinze, a barn with poor air quality has a significant effect on respiratory diseases, as well as varying health effects depending on your horse's age. There are a variety of harmful components floating through the air in your barn. Bacteria, fungal spores, viruses, and ammonia fumes are promoted by hay, bedding, feces, and urine.

These elements can translate to serious health risks for your horse. One condition that can result from poor barn ventilation and circulation is Chronic Obstructive Pulmonary Disease, also known as "heaves." Much like asthma in humans, COPD restricts the airways of a horse's lungs and can lead to excessive wheezing and coughing, weight loss, and a lower tolerance for exercise. A horse may develop this condition if he's chronically exposed to poor air quality.

## Air Movement

Ventilation and circulation are all about moving air around the barn, including pulling clean air in from outside and venting stale inside air back to the outside. Most barns aren't designed to provide horses with this type of natural ventilation. To improve the airflow in your barn, consider using barn fans.

If used properly, fans can contribute significantly to your horse's good health. But there are certain components of horse care that artificial ventilation and circulation can't take the



PHOTO BY MAUREEN GALLATIN

Oscillating fans on a pedestal circulate air at a height above shavings, up where your horses can enjoy the breeze.

place of. Maintaining your horse's stall and living environment with consistent cleaning can't be replaced with any mechanical add-on. Thus, if you're aiming to improve the air circulation in your barn, keep in mind that fans must be used as an enhancement, rather than a replacement.

Many small barns are designed to be aesthetically pleasing, but chances are they don't provide the best air movement.

"Many horse owners like to build boutique barns, but they're not necessarily going to provide airflow," says Nancy W. Ambrosiano, co-author of *Complete Plans for Building Horse Barns Big and Small*. The good news is that fans can bring stuffy barns up to speed in providing a healthy indoor environment for your horse.

## Fan Purposes

The most important reason for giving your horse optimal ventilation indoors is to prevent health complications. The air must be clear of harmful components like mold and ammonia. If your barn design doesn't allow for sufficient natural ventilation, fans can be utilized to pull fresh air in, circulate, and also push stale air out.

Fans can also play an important role in preventing moisture buildup. According to Pennsylvania State University's publication, "Horse Stable Ventilation," written by Eileen F. Wheeler, PhD, moisture control is vital in efforts to prevent increased odor, ammonia buildup, and an ideal environment for bacteria.

Another reason to add extra barn ventilation is for cooling purposes. If there's limited air coming through your horse's stall, it will be difficult for him to maintain a cool body temperature in hot weather. Through the process of convection (see related article on page 22), any breeze that blows across your horse's body will help to cool him. Keep in mind, if the fan is mounted onto the stall, it may not be feeding fresh air, so it's important that the interior of your barn is clean and receiving consistent air flow.

## Selecting the Right Fan

Before you add extra circulation to your barn with fans, it's important to have a clear idea of what types of fans to invest in and where you'll place them.

The type of fan you choose is also essential in providing adequate ventilation and circulation. There are three basic kinds of mechanical ventilation that you can invest in for your barn: circulation fans, exhaust fans, and ceiling fans. Each type has distinct purposes and advantages.

**Circulation fans.** A circulation fan can be mounted on a wall, hung from raf-

ters, or some models come with a pedestal attached. Unless it's placed in front of a window or other opening, a circulation fan reuses the air inside the barn, much like the ceiling fan. Circulation fans that are attached to pedestals are ideal if you need to move or reposition your fan frequently. Many also feature an oscillating base, which allows you to increase airflow throughout a greater area of your barn.

A fan that's added to the wall or corner of a horse's stall should be placed at a height where the air will circulate, but not pick up an excess of dust. If hay is dropped into your horse's stall daily, you don't want to pick up hay dust from above. Placing the fan too low should also be avoided, so that dusty particles from bedding aren't lifted off the ground more than necessary.

**Exhaust fans.** An exhaust fan must be installed on the wall or roof, so it may take some planning and the help of a contractor. However, exhaust fans have the most powerful motor of the three fan types, and their motors are capable of pulling the most air into or pushing it from a closed setting.

**Ceiling fans.** If it's within your budget, ceiling fans are ideal for cooling purposes. However, circumstances don't always allow for this method. Ambrosiano also points out that ceiling fans meant for agricultural and equine purposes can be costly, and often outside of a horse owner's budget. Your barn's ceiling or roof must also be high enough that the fan is far above the range of your horse's head.

Ceiling fans are ideal for cooling purposes and mosquito control, but only circulate air that's already in the barn. If your hay is stored in a loft, keep in mind that a ceiling fan will distribute dust particles when the hay is dropped into the stalls, so this fan type may not be the best option. According to Dr. Heinze, pesky flies can withstand a moderate breeze, so ceiling fans won't help to control them.



PHOTO BY MAUREEN GALLATIN

If your barn aisle has cool air circulating through it, box fans installed on stall doors can be set to pull or push air, depending on your ventilation needs.

For safety reasons, consider using a fan that's designed for agricultural or industrial purposes. Although picking up a fan from your home appliance store is most likely convenient and less expensive, it may not stand up to the demands of a barn environment. A barn fan's motor and wires need to be sealed to keep dust, dirt, and moisture from interfering and possibly starting a fire. You may have to do some research to find the right fan. Ambrosiano recommends starting online at farm and agricultural supply outlets.

#### Using Your New Fans

In today's world, keeping energy costs low is most likely on your mind. To save



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energy, you'll want to select a fan that meets your needs, rather than one that's too powerful. But how do you determine the amount of artificial ventilation that you need?

The answer is based on climate and how many horses are in your barn. According to Penn State's Dr. Wheeler, there's a simplified version of an equation that'll help you decide. A fan's power is determined by how many cubic feet of air it can exchange per minute (cfm). A fan's cfm capabilities should be listed in its product description. If you need to provide one 1,000-pound horse with adequate ventilation in cold temperatures, it'll require a fan with at least a 25 cfm capacity. To add the right amount of ventilation in hot temperatures, it'll require a fan with at least 200 cfm.

#### Design Ideas

As you're planning a fan strategy that'll provide healthier living conditions for your horse, make clean air distribution priority number one. If the air distributed by your fan isn't coming in from outside the barn, it's simply circulating the same unhealthy particles and fumes.

One effective design creates a simple wind tunnel through the barn. It utilizes two exhaust fans, one installed at each end of the building. The first fan faces the interior, feeding clean air into the barn. The second installed fan, at the other end, faces outside, pulling unclean air out of the barn. Through this design, a cycle of fresh air is distributed as stale air is discarded.

Combine this design with circulation fans to create breeze within the stalls, and your barn should provide adequate ventilation and circulation. If you've used fans in the past to provide relief in hot weather, you know that the sight of your horse basking in a fan's breeze on a hot summer day can be quite satisfying and amusing. **JLPH**