

IMPROVING AIR QUALITY IN OLDER BARNES

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Many horse owners are faced with housing their horses in older barns where poor air quality, dust and high humidity may pose serious health concerns. Are these horses destined to develop Small Airway Inflammatory Disease (SAID) as a result of their exposure to biological allergens found in their environment? Absolutely not! By recognizing problem areas and taking proactive preventive measures, horse owners can ensure their horses receive adequate ventilation and air quality in their housing.

The air quality within a barn is dependent on adequate ventilation or air movement. During winter months, the ventilation system must provide fresh air and remove respired moisture in order to maintain a dry environment and prevent moisture condensation within the barn. During the summer months, barn ventilation functions to remove the excess body heat generated from horses' bodies and to keep the humidity level down, thereby minimizing barn "sweating" and the growth of moulds. As a rule of thumb, any building that houses livestock of any sort should have a minimum of eight to ten air exchanges per hour. In other words, all of the air in a barn should be replaced every six to eight minutes. The proper amount of air movement is two (2) miles per hour; a small amount of airflow that feels like a very faint breeze. Older barns often do not have enough outer openings and their ceilings are too low, hence good air movement cannot occur. Another problem is that most horse barns do not house enough animals. When a herd of cattle lives in a barn, there are a large number of animals generating heat. This creates hot air, which rises. Cool air flows into the building to replace the rising warm air thereby establishing an airflow pattern. This is known as the "stack effect". When a barn contains one horse per 12 x 12 foot stall, there often is insufficient hot air to create this natural circulation of fresh air.

So what can be done to improve the air quality in older barns and/or in poorly constructed newer ones? The first problem is often ceiling height, or rather, a lack thereof. The typical 8 foot ceilings found in older barns are too low for horses. A 12 foot ceiling not only provides better clearance for horses' heads, it also allows for better natural ventilation by contributing to the "stack effect". A second problem is that many horse owners equate their own comfort level with that of their horses. and hence believe that a warm, airtight barn provides the best care for horses in the winter. The truth is that horses are far better off being kept in an air temperature similar to that outside provided that it is free from drafts and moisture. Opening up, and if necessary, widening or increasing the number of windows may be required to improve airflow. It may be necessary to extend the roof over the windows to prevent drafts and rain from coming inside. In order for the "stack effect" to occur, cool air must enter the barn through windows and inlet vents placed beneath the eaves. The hot rising air requires an escape route via vent outlet placed higher up in the building. One method is to place one or more cupolas along the roof line. Another option may be to install ventilation fans to draw out the warmer moist air thereby creating a vacuum effect to draw fresh cooler dry air in through inlet vents and windows. Such ventilation systems are routinely found in high density livestock

barns, such as dairy, hog and chicken barns, where the effects of poor air quality on animal health and productivity are well recognized. These systems can be readily adapted for horse barn requirements.

A little common sense in basic animal husbandry goes a long way towards reducing a horse's exposure to poor air quality. Nothing beats maximum turnout. Avoid mucking a re-bedding stalls, sweeping floors, throwing down hay and straw bales from upstairs lofts when horses are inside. Routine sweeping or air blowing of ceilings and walls will remove cobwebs but don't leave them lying on bedding. If mould develops, remove it by scrubbing the affected area thoroughly with bleach and then allowing surfaces to dry. Remember that environmental allergens can negatively affect humans as well – wearing a protective air mask will minimize your exposure as well. Keep feed covered and stored in an area separate from high traffic areas in the barn. If possible, be selective in your choice of hay – bargain priced feed rarely is a true bargain. Avoid feeding mouldy, dusty hay and, if necessary, wet the hay before feeding to minimize how much dust becomes airborne and inhaled as the horse eats. While it is preferable NOT to store hay and bedding in lofts above the stabling, this rarely is feasible, especially in older barns. Therefore, take special care to ensure that the flooring of the loft is solid with no cracks to allow accumulated chaff from hay and bedding to filter down to horse level. It is also wise to remove old hay and sweep out the chaff from the loft on an annual basis. A final thought. Horses survived the elements long before man invented stabling, so the more time your horse can spend outdoors, the healthier he likely will be.