Stables with pitched roofs

The prevailing wind also plays a part of forcing fresh air into the stable and drawing stale air out. However, it is important to avoid draughts. Good ventilation in the stable will be undermined if the breathing zone of a horse is contaminated by poor quality bedding and forage. There are many low dust bedding materials available including shredded wood fibre, dust extracted wood shavings, paper, cardboard, hemp and rubber matting. Good quality straw that has been well stored may have a low dust content, however, it is hard to guarantee that this is consistent for every bale. Adjacent stables should also provide a minimum dust environment, otherwise the dust they contain can have an impact on your horse’s respiratory health.

Removal of muck
Correct drainage prevents urine and other liquids from collecting in the stable. Urine contains ammonia, a noxious gas that can be an irritant to the respiratory tract. Stables should ideally be fully mucked out on a daily basis and regularly skipped over throughout the year if the horse is stabled for prolonged periods. Deep litter systems expose the horse’s breathing zone to a far greater number of spores and endotoxins and are generally discouraged.

Ideally a horse should not be present in its stable during mucking out and bedding down, as this can often generate a lot of airborne particles. It is possible, allow dust to settle after putting down a new bed before returning your horse to its stable.

Maximise turn out
Turnout to pasture is the best method of minimising exposure to dust. For many yards permanent turnout is not practical, so a compromise between stabling and turnout will need to be established.

Muck heaps
Muck heaps should be kept a reasonable distance away from a horse’s stable as they are a source of dust and generate fungal spores.

Feeding
Fungal spores develop in hay because our climate often results in it being cured in damp, humid conditions. Soaking hay before it is fed does prevent the majority of fungal spores becoming airborne, as long as it does not dry out. Hay should be completely immersed for a minimum of 20 minutes. If left soaking for more than four hours significant nutrients will be lost from the hay. Steam-laying hay is also a viable option for reducing fungal spores.

Alternatives, such as haylage or one of the low dust hay replacer forages, can be considered. The baling and wrapping process involved in making haylage creates an environment that minimises exposure to dust. Where possible, forage should be fed from the floor, rather than hung up in a haynet. This encourages the horse’s natural position of eating while lowering its head. The environment in the horsebox/trailer should be treated similarly to the stable, aiming for as little dust as possible. As the horse will be tied up during travelling, forage cannot be fed from the floor and should be provided in a haynet. If hay is being fed during a journey, it is prudent to soak it beforehand to minimise its dust content.

Transporting horses
Ensure that your horse is given sufficient length of rope when tied up so they are able to lower their head. The environment in the horsebox/trailer should be treated similarly to the stable, aiming for as little dust as possible. As the horse will be tied up during travelling, forage cannot be fed from the floor and should be provided in a haynet. If hay is being fed during a journey, it is prudent to soak it beforehand to minimise its dust content.

Useful leaflets available from BHS Welfare
Bedding
Strangles
Basic Feeding

Email: welfare@bhs.org.uk
Fax: 02476 840501
Call: 02476 840517
Address: The British Horse Society
Welfare Department
The British Horse Society
Aldby Park
Swinton
Kanworth
Warwickshire CV3 2XZ
Call: 02476 840517
Fax: 02476 840501
www.bhs.org.uk
Email: welfare@bhs.org.uk
Respiratory Health

The horse's respiratory system has evolved to cope with its natural environment of open pasture with limitless fresh air. When horses are removed from open pasture into more confined environments their respiratory health may become compromised which, over time, can affect the health and performance of the horse.

The Structure of the Respiratory System

Horses use the muscles of the chest, diaphragm and abdomen to move air in and out of their lungs. When a horse breathes in (inhalation), air is drawn in through the nostrils, passes along the nasal passages through the larynx and into the trachea (the windpipe). Inspired air quickly warms up to body temperature before reaching the lower airways.

The trachea then branches into two bronchi, which continue into each of the lungs. Within each lung these bronchi repeatedly branch, forming smaller airways known as bronchioles.

Eventually the bronchioles and as alveolar sacs. Here the exchange of oxygen into the bloodstream from the alveoli takes place. Waste gasses are also collected and breathed out (exhaled) via the respiratory system.

Defence Mechanisms of the Respiratory System

The respiratory system has a defence mechanism for preventing infection and also removing most of the airborne particles that a horse inhales. The majority of large particles are filtered out by the nasal passages and prevented from entering the respiratory system. Smaller particles including dust, bacteria and viruses may pass further into the lungs, even as far as the alveolar sacs before they are removed from the respiratory system.

Breathing Zone

The quality of the air in the zone directly around a horse's nostrils is critical to its respiratory health — this is termed the breathing zone, as this is the air that a horse will draw into its lungs.

A stable is not a natural environment for the horse, potentially exposing its respiratory system to a multitude of airborne challenges including:

- Dust
- Mould
- Ammonia
- Fungi
- Toxins

When stabled, a horse's defence mechanism is constantly challenged and has to work overtime to remove harmful particles from the lungs. Even if a horse is in a well-ventilated stable the horse's breathing zone will still be exposed to thousands of airborne particles.

Respiratory Disease

Recurrent Airway Obstruction (RAO) is a disease affecting the horse's respiratory system. For many years, RAO was called Chronic Obstructive Pulmonary Disease (COPD) but was changed to avoid confusion with a similar, but different, condition in humans. The term ‘heaves’ has also been used to describe RAO, as the horse's flanks may be seen to heave due to the increased effort involved in respiration.

RAO is a disease associated with horses that are regularly stabled. Horses with RAO develop an allergy to one or more of the airborne particles (often termed allergens) associated with stabling. Most evidence refers to fungal spores, present in both hay and straw, as being the principle agents that cause RAO.

Research has shown that almost all horses kept stabled for either all or part of the day or night have a degree of airway inflammation. Even though apparently healthy horses may have obvious clinical signs, mild cases can progress into full-scale RAO as their airways continue to be exposed to allergens and their defences are weakened.

The respiratory disease SummerPasture-Associated Recurrent Airway Obstruction (SPRAO) has, over the last few years, been more frequently diagnosed in the UK, possibly due to climate change. Although its signs are the same as RAO, it differs in that it is caused by pollen and is a problem in the field particularly during humid weather rather than the stable. It is however, far less common than RAO caused by the stabled environment.

Clinical signs of Respiratory Disease

Both RAO and SPRAO affect the lower airways. When a susceptible horse breathes in an allergen, the immune system becomes sensitised. When the allergen is inhaled it stimulates the immune system to mount an immune response, causing the bronchioles to go into spasm, reducing their diameter. The airways also become inflamed and, as a result, accumulate increased quantities of mucus.

All of these changes lead to an obstruction of the airways, making it more difficult for the horse to breathe in and out of its lungs. One of the first signs that a horse has a respiratory problem is a regular cough when exposed to dusty conditions and mould spores, or when the horse is exercised. The horse coughs in an attempt to shift the excess mucus that has accumulated.

Preventative Management

Horses with RAO have become hypersensitive and hyper-reactive to allergens associated with stabling. Mediation is sometimes used to control the disease, however, in the long-term control of the environment is essential. There is no cure for RAO, therefore good management practices will help to reduce airway inflammation. Management regimes for horses with SPRAO should be discussed with your veterinary surgeon.

There are a number of actions that horse owners can implement to improve the environment and minimise the risk of infected airways.

Ventilation

Stables should be well ventilated, allowing a good circulation of air with no stagnant regions. Fresh air is of utmost importance, as this will help to keep the allergens to a minimum.

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