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EXPERT REVIEWED

Laminitis Caused by Black Walnut Wood Residues

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Introduction

In the last few years the demand for black walnut lumber has increased. A good portion of the demand is coming from China, but domestic manufacturers are also increasing their use of black walnut *(Juglans nigra L)*. As more lumber is processed, the chance for manufacturing residues to be mixed with other species and used for home bedding increases. Very small quantities of walnut residue in horse bedding can result in laminitis. Some manufacturers who have not used walnut in the recent past may not be aware of the potential problem.

The development of a portable sawmill industry is a possible contributing factor to the increased use of black walnut. In addition, the use of relatively inexpensive dry kilns and other secondary wood processing equipment can increase the problem. With a relatively small investment, new individuals are entering the field with the capabilities of converting trees into a dried and finished wood product. These individuals may not be familiar with the laminitis problems created by walnut.

To further complicate the problem, very low grade walnut or just a few small logs have little value, and this material is sometimes diverted to pallet manufacturers. Therefore, residues from pallet plants may contain walnut shavings or sawdust. If the used pallets or residues from manufacturing are subsequently processed into mulch or other products, contamination can occur.

American black walnut is a very common hardwood species which ranges from the Great Plains to the East Coast and from the Central Lake States to the Gulf Coastal Plain. The species has been widely planted outside of its natural range particularly in the Pacific northwest.

Problems Associated with Bedding

There have been numerous reported cases of Black walnut *(Juglans nigra L)* poisoning resulting in laminitis in horses. Laminitis occurs through exposure of horses to black walnut shavings used as bedding in stalls. As little as 10 percent of the total shavings, by weight, may result in clinical signs of toxicity in horses. These signs generally occur within 24 to 48 hours of exposure to the contaminated shavings. Since the lowest amount that can cause toxicity has not been established, the safest course is to make certain that there are no black walnut shavings used as bedding for horses. Clinical signs in affected horses can range from minimal to extremely severe within the same group. The symptoms frequently begin with mild laminitis and swelling of the legs and can progress to extremely severe laminitis, swelling, and edema of all four limbs; and pitting edema of the ventral abdomen; and colic. In extremely severe cases, the laminitis can be severe enough to allow rotation of the coffin bone leading to loss of the animal. When multiple horses are present in a single stable, there can be significant variation in the degree of laminitis and edema among individuals.

Call a Veterinarian

When black walnut toxicity occurs, it is extremely important to remove the shavings containing black walnut, call a veterinarian, and begin treatment as soon as possible. Depending on the severity of the clinical signs, this will commonly involve removal of the shavings, bathing the

Figure 1. *Chips and strands of chocolate brown colored wood are walnut.*

horses' hooves and legs, and treating any laminitis and/or colic. Corrective shoeing may be required if the laminitis is severe and rotation of the coffin bone has occurred. Because of the possible severe consequences of poisoning, stall bedding for horses should never contain black walnut wood.

Check Bedding for Color

Fortunately, walnut heartwood has a very characteristic and near unique chocolate brown color. The color is due to an abundance of water soluble extractives in the wood. Figure 1 shows a sample of shavings of which only a small portion is walnut but still enough to have caused laminitis in this case. The dark pieces are easily identified. A hand lens may be useful for closer study. But if the bedding is composed of all fine dust such as saw dust, it is almost impossible using visual techniques to determine if walnut residues are present. In many cases, wood shavings and sawdust are considered residues by the wood industry and the manufacturer simply wants to dispose of it by giving it away to an end user or to an intermediate party that processes and markets it.

Avoiding the Problem

Bedding should be purchased only from reputable suppliers who are aware of the relationship between walnut and laminitis. Ask the supplier for confirmation of his knowledge. Material intended for mulch should not be used for bedding. Horse owners should rely on trusted sources of bedding.