Equine Toxicity Series: Other Toxins to Horses

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The United States is home to numerous poisonous plants to horses. Some are rare, but most are common weeds and trees. The toxicity of the plant generally depends on soil, climate and life stage of the plant as well as the horse's age, weight and tolerance. Normally, a horse must ingest a large amount of the plant before toxicity occurs, while others require only a slight nibble or repeated grazing to be deadly. Most poisonous plants have low palatability, and horses tend to avoid them. However, when they are hungry, horses will eat anything they can access. The most common cause of ingestion is hunger when a horse is on an overgrazed pasture or its nutrition is not balanced. In addition to pasture plants, toxins also can be found in hay, contaminated grain, ornamentals and clippings.

Black Walnut (*Juglans nigra*)

Black Walnut trees are common in the eastern United States. Black walnut trees are not poisonous to horses, but shavings made from them and used for bedding have resulted in cases of laminitis. Clinical signs have appeared in horses standing in bedding with black walnut making up as little as 5 percent of the shavings, with signs usually appear 10-12 hours after the horse has been exposed to the bedding. The toxin in the shavings causes laminitis. Early signs include stocking up, digital pulse and warm hoof walls. If left in black walnut shavings for a long period, severe laminitis can develop as well as excessive sweating, colic and fever.

Figure 1: Black Walnut *(Juglans nigra)*

Prevention

Remove horses from black walnut shavings as soon as possible. If caught at an early stage, the laminitis can be reversible. Provide supportive care and contact a veterinarian and farrier. Purchase shavings from a reputable source that has knowledge of the content of the shavings.

Monensin Toxicity

Monensin is an additive in cattle and poultry feeds used to control parasites and promote feed efficiency. In horses, monensin causes oxidative damage to the mitochondria. Monensin has the largest impact on cardiac muscle, but it also can affect skeletal muscle. Signs of monensin toxicity include loss of appetite, colic, weakness and incoordination eventually leading to recumbency. Heart failure due to monensin toxicity can occur weeks or months after exposure.

Prevention

Horses can die from monensin toxicity or fully recover depending on the level of exposure and promptness of treatment. Contact your veterinarian immediately for treatment options. Purchase feed from a reputable source to ensure feed is not contaminated with monensin.

Moldy Corn

Corn is not toxic to horses, but when corn becomes moldy, fumonisin toxins are produced leading to equine leucoencephalomalacia, which destroys cerebral white matter. Infected corn will have a pink to reddish-brown discoloration. Clinical signs of fumonisin toxicity include incoordination, weakness, depression and anorexia, blindness, head pressing, and eventually recumbency, seizures, and death. Signs can present anywhere between one and 21 weeks after ingesting moldy corn depending on the level of fumonisin toxin present.
Liver damage also can occur in older animals after three to four weeks of daily consumption. Affected horses will be jaundice as onset of liver damage is abrupt, with death occurring within two to three days.

Figure 2: Moldy Corn (Image Credit: Horse Habitat)

Prevention

Contact your veterinarian as soon as a horse presents with signs of fumonisin toxin. Depending on the levels of toxin ingested, horses can potentially recover. To prevent fumonisin toxicity, monitor feed sources for moldy corn and remove if present.

Cantharadin Toxicity

Blister beetles nest in alfalfa fields and are baled into the hay where they nest in clusters. The beetles are most common in the second cutting of alfalfa in the summer months. Blister beetles secrete cantharadin toxin. This toxin irritates and creates blisters within the mouth and gastrointestinal tract of horses. Cantharadin severely irritates the kidneys, causing kidney damage and frequent urination. Other signs include colic, low calcium in the blood, and dunking the mouth into water. Signs vary based on the number of beetles consumed.

Figure 3: Blister Beetle (Image Credit UT Crops)

Prevention

Contact your veterinarian as soon as you suspect a horse has consumed blister beetles or shows signs of cantharadin toxicity. Remove horses from the hay source immediately and keep horses well hydrated. Death can occur if a large amount of toxin is ingested or treatment is not managed properly. Observe each flake of alfalfa hay before feeding if you suspect blister beetles. Blister beetle certified-free hay is available for purchase. Typically, buying the first cut of alfalfa hay is safer and reduces the chance of blister beetles.

What to Do?

If you suspect any toxicity, remove the horse from the source and immediately call your veterinarian. Attempt to determine how much was ingested as this will help the veterinarian create a treatment plan. Some toxins have antidotes specific to the plant while others are treated symptomatically. Do not attempt to treat your horse without consulting your veterinarian. Some general signs of poisoning include difficulty swallowing or breathing, colic, laminitis, incoordination and weakness, stocking up, photosensitivity, and sudden death. To help prevent accidental poisoning, ensure your horse has access to an adequate amount of forage to discourage grazing weeds. Make sure pastures are not overgrazed so that weeds do not invade and begin to look appetizing to the horse. Only buy hay and grain from reputable sources and inspect them before feeding. It is important as a horse owner to have a general idea of poisonous plants. Resources to help identify toxic plants include your veterinarian, local extension agent, local universities, and florists and botanists.

References

Smith, Bradford E. Large Animal Internal Medicine, 3rd edition. 2002.

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