

## RED MAPLE LEAVES: A TOXIC TREAT TO YOUR HORSE

**OVERVIEW:** Red maple (*Acer rubrum*) trees are common in the eastern United States. Intoxication of red maple leaves to horses is a seasonal problem that occurs most commonly in the summer and fall. Wilted and dried leaves are toxic to horses, as well as the bark. The toxin in the leaves is not known, but it causes oxidative damage to red blood cells resulting in an acute hemolytic anemia, meaning that the red blood cells (RBCs) are broken down and the total RBC count is low. The mortality rate of naturally and experimentally affected horses is approximately 60%.

**CLINICAL SIGNS:** The clinical signs of acute hemolytic anemia resulting from red maple toxicity are seen 1-2 days after ingestion. Horses show signs of lethargy, weakness, depression, and an increased respiratory rate. It is common for owners to notice that their horse's urine is red-brown in color. Your veterinarian will also note an increased heart rate, lack of fever, and brown or icteric (yellow) mucous membranes upon examination. The increased heart and respiratory rates are the body's attempt to supply organs with oxygen, as red blood cells carry oxygen. The red-brown urine is caused by a molecule called hemoglobin which is released when the RBCs are broken down. Hemoglobin is toxic to the kidneys which can result in acute renal failure, another complicating factor in red maple toxicity.

**DIAGNOSIS:** Since the exact toxin is not known a specific test cannot be run. So red maple toxicity is diagnosed based on a combination of clinical signs and a history of ingestion of red maple leaves. In addition to the clinical signs stated above, evidence of exposure on blood work includes methemoglobinemia, which gives the blood a brown color if exposure is recent, Heinz body formation on RBCs, which can be seen on a blood smear, and an elevation of liver and kidney values.

**TREATMENT:** If exposure is within a few hours, activated charcoal can be administered through a nasogastric tube by your veterinarian. Activated charcoal will absorb organic toxins. Mineral oil may also be administered to decrease the absorption of the toxin when activated charcoal is not available. Other treatments include IV fluid therapy to flush and maintain the function of the kidneys, steroids, and possibly blood transfusions and oxygen therapy if needed.

**PREVENTION** Being able to recognize a red maple leaf is the first step to prevention (see picture). Next, is



keeping your horse from ingesting them. If red maple trees are in a horse's pasture, it is best to remove the tree completely or to move the horses to another pasture. Otherwise, diligent removal of any fallen branches and leaves must be practiced. Be particularly cautious after storms knock down trees, branches, or leaves or when yard work removes them leaving the horses at risk. If exposure is suspected, contact your veterinarian immediately because the sooner the horse is

treated the better.

Please contact your local cooperative extension agent if you are not sure if trees on your property are red maple and contact your veterinarian or any of the veterinarians at New England Equine Medical & Surgical Center with any questions regarding red maple toxicity in horses.

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