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Sent: Thursday, November 17, 2011 3:58 PM
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Subject: Emailing: The Horse Toxin Topic Johnsongrass Poisoning in Horses (print)

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Toxin Topic: Johnsongrass Poisoning in Horses

by: University of Kentucky's College of Agriculture • November 22 2010 • Article # 17284

The drought that has affected many regions of Kentucky and the surrounding area this year has some horse owners worried about Johnsongrass poisoning. Johnsongrass (*Sorghum halepense*) is a drought-tolerant noxious weed that can infiltrate pastures and hayfields. In pastures that are not mowed and maintained, drought conditions can cause a dying off of many grasses while Johnsongrass survives and flourishes. Horses grazing these fields can potentially ingest large amounts of Johnsongrass if supplemental hay is not provided.



Johnsongrass is a dangerous weed for horses to digest.

All sorghums, including Johnsongrass, can be associated with four major disease syndromes:

1. Neuropathy (nerve damage) and teratogenesis (damaging effects to the fetus);
2. Photosensitization;
3. Nitrate intoxication; and
4. Acute cyanide poisoning.

For cattle, nitrate and cyanide poisoning are the major risks associated with Johnsongrass. However, for horses, neuropathy and teratogenesis are the most important risks, and rarely, if

ever, do photosensitization, nitrate intoxication, or acute cyanide poisoning occur with Johnsongrass ingestion in horses.

In horses, symptoms of poisoning can occur after a few weeks to months of continuously grazing Johnsongrass or other sorghums, at any growth stage of the plant. **Hay containing sorghums also has been incriminated.** Affected horses gradually develop ataxia, incoordination, difficulty backing, and dribbling urine, progressing to flaccid paralysis of the tail and hind legs. Mares repeatedly open and close the vulva as if in heat and have continuous urine dribbling and scalding of the hind legs. Abortions and fetal malformations such as arthrogryposis (fused joints) can occur during any stage of pregnancy. Males exhibit an extended and relaxed penis and urinary incontinence in addition to ataxia and incoordination.

The mechanism by which sorghums cause these problems is not well understood, but involves spinal cord damage and problems with innervations to the bladder and hind end. Inflammation of the bladder, and sometimes the kidneys, occurs. The condition is sporadic, and not all horses eating sorghums are affected. **The amount of sorghum that needs to be ingested for clinical signs to occur has not been established, but poisoning generally requires continuous exposure to large amounts of sorghum for several weeks or longer.**

There is no specific treatment for the condition, but if sorghum is removed from the diet and treatment for bladder and kidney problems is initiated soon after the start of signs, some horses can improve. However, **the nerve damage is permanent**, and once ataxia and incoordination occur, the prognosis is poor. Prevention is important and includes minimizing exposure to **Johnsongrass and other sorghums by controlling these plants in hayfields and pastures and by not feeding hay containing sorghums.** Johnsongrass can be controlled in pastures by mowing and close grazing; control in hayfields is more problematic. Consult a weed extension specialist or your local **Cooperative Extension Service** personnel for more information on controlling Johnsongrass.

Cynthia Gaskill, DVM, PhD, clinical veterinary toxicologist at the University of Kentucky Veterinary Diagnostic Laboratory, provided this information.

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