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Cyanide in Grass?

The phenomenon of prussic acid and its cautionary tale are well documented. Also known as hydrocyanic acid or hydrogen cyanide, certain weather conditions create this problem in some types of grasses; sorghum, sudangrass, sorghum-sudan hybrids, johnsongrass and other fast-growing forages. Thoughtful management of these forages can minimize poisoning risks and allow safe use of these high-yielding forages.

Prussic acid poisoning is related to the amount consumed, how quickly it was consumed, and the animal's physical condition. It happens rapidly; often causing fatalities within minutes. Symptoms are increased pulse and respiration, excessive salivation and foaming, blue coloring in the mouth lining, difficulty breathing, staggering, convulsions, and collapse. Death from respiratory paralysis follows shortly.

The clinical signs of prussic acid poisoning are similar to nitrate toxicity, but animals with cyanide poisoning have bright red blood that clots slowly, whereas animals poisoned with nitrates have dark, chocolate-colored blood. The smell of bitter almonds is often detected in animals poisoned with cyanide. Because it occurs quickly, the symptoms are usually observed too late for effective treatment.

Prussic acid poisoning can occur when livestock consume regrowth after a drought-ending rain or the first autumn frost. So, avoid grazing or green chopping young sorghum or sudangrass plants or regrowth. Losses occur when hungry or stressed animals graze the regrowth of plants prone to prussic acid production. Ruminants are particularly susceptible because cud chewing and rumen bacteria both contribute to releasing cyanide into the bloodstream.

Prussic acid concentrations are greater in fresh, standing forage than in silage or hay because hydrogen cyanide is volatile and dissipates as the forage dries or ensiles. However, if the forage had extremely high cyanide content before cutting, or if the hay was not properly cured, hazardous concentrations of prussic acid could remain. Hay or silage that likely contained high concentrations at harvest should be analyzed before feeding.

Testing for prussic acid can be tricky. Proper sample handling is extremely critical to ensure that the lab test will be representative of what is being fed to livestock and that the prussic acid did not volatilize during shipment. To test, obtain a fresh representative sample, one to two pounds from across the field. Do not allow the sample to dry. Place in an air-tight plastic bag, cool the

sample quickly, and ship to the lab the fastest way, usually overnight express, in a cooler with an ice pack. Remember, cyanide content dissipates with the drying of the sample. So, if the sample arrives at the lab drier than the fresh forage that is fed, a false negative result will likely occur.

Wildcat Extension District has a field test available for prussic acid. This test is only qualitative; the level of concentration will not be determined. This field test is helpful in determining the need to send samples to a lab. Samples must be tested as fresh as possible, call our offices to schedule testing.

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