

Prussic Acid Concerns with Forages

Prussic acid (hydrocyanic acid) is produced in certain forage species that contain cyanogenic glucoside compounds. These species include the sorghum family of grasses: Johnson grass, shattercane, milo, sorghum-sudan, and sudan grass. When plant cell walls are ruptured by mowing, chewing, or frost these compounds are released and quickly convert to prussic acid. The compounds are at their highest concentration in new growth less than 18 inches tall. This is why livestock should not be turned in to graze sorghum fields after sufficient growth of greater than 18 inches has occurred (any time of year). Cyanide is a gas which dissipates during the hay drying or silage ensiling processes.

Prussic acid interferes with oxygen transfer in the blood stream which causes death by asphyxiation. Ruminants are more susceptible to prussic acid poisoning than horses or swine because cud chewing and rumen bacteria help release cyanide from plant tissue.

Frost/freezing rapidly ruptures plant cell walls releasing cyanide gas and increasing the risk of prussic acid poisoning in plants of any age or size. High levels of prussic acid can accumulate hours after a 'burning' frost or 'killing' frost, therefore, remove livestock from sorghum fields if there is a risk of either type of frost.

In the event of a 'killing' frost, the cyanide gas will remain in the plant for 5 to 7 days as it dries down. Do not graze until plants dry down. In the event of a 'burning' frost, the concentration in combination with green tissue increases the risk, therefore, avoid grazing for 14 days. If new growth occurs at the base of the plant during this time, wait for a killing frost plus 7 to 10 days for dry down. In the event we do not receive a killing frost then new growth must reach sufficient height as mentioned above before grazing. Supplement with feed in order to avoid turning hungry livestock into a field to graze young growth of species with prussic acid potential.

Wait 5 to 7 days

Delay feeding silage for 8 weeks after ensiling sorghum species. If forage contained high levels at chopping, consider analyzing silage before feeding.

Other species of plants known to produce prussic acid include black cherry, elderberry and Indian grass.

One to two days after a hard frost, legumes have an increased risk of causing bloat, especially when grazing pure legume stands. Wait until the legume begins to dry from frost damage.

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