

DEALING WITH DROUGHT

Potential High for Nitrate and Prussic Acid Poisoning

There is concern for the potential of high nitrates and prussic acid levels in drought areas of North and South Dakota, according to Duane Berglund, North Dakota State University (NDSU) Extension agronomist. Drought increases the potential of nitrate accumulation in forage plants or certain crops harvested for hay. Also, those plants that tend to contain prussic acid will have higher, more dangerous levels during drought conditions.

Crop plants known to accumulate nitrates include oats as hay, straw or stubble; corn as silage or stalks that are grazed; immature barley; wheat as pasture or hay; pearl or proso millets; flax; and the Sudan-sorghum complex of forages.

Forage crops known to cause prussic acid poisoning include Sudan grass, forage sorghum-Sudans, and sorghum varieties or hybrids and crosses. Piper Sudan grass (an old variety) possesses the least amount of poisoning potential when compared with

the Sudan grass hybrids and sorghum-Sudan grass crosses. Forage sorghum hybrids have the greatest potential for prussic acid content and poisoning potential.

"In corn, nitrates accumulate in the lower portion of the plant when stresses reduce the crop yield to less than the supplied nitrogen fertility level," Berglund explains, "Nitrates are responsible for lethal silo gas and interfere with the blood's ability to carry oxygen when fed to animals. When chopping stressed corn plants, a 12-inch stubble should be left. If it rains, allow three days before resuming chopping. Plants that recover from stress situations eventually will convert nitrates to a nontoxic form," Berglund says.

Prussic acid accumulates in sorghum and Sudan grass that grows rapidly following stress. Poisoning occurs when animals graze young sorghum plants, drought-stunted plants or frost-damaged plants. Sorghum plants are poisonous after

a frost that kills the tops (but not the crown) or when new growth begins following a rain. When new shoots develop after a light frost, cattle should not be allowed to graze.

"Weeds consumed as forages under drought conditions also can be another source for nitrate poisoning," Berglund says. "The species that can accumulate dangerous levels of nitrates are: Canada thistle, curly dock, jimsonweed, kochia, lamb's-quarter, various nightshades, redroot pigweed, smartweed, Russian thistle and wild sunflowers. Producers need to closely monitor livestock that may be feeding on these weeds during drought conditions."

Other drought-related resources can be found at www.ag.ndsu.edu/drought/.

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A basic principle of grazing management calls for 30 pounds (lb.) of dry matter (DM) per day for a 1,200-lb. cow-calf pair. A similar amount is destined to end up in a haystack somewhere for every day the 1,200-lb. cow needs to be fed when confined.

Granted, these are basic numbers that have a significant cushion for waste and some carryover. Larger cows need more and smaller cows need less, but if a producer can find six months of grazing, then six 1,000-lb. bales should get baled up and hauled home to provide a feed base for the nongrazing months, and adequate acres need to be available during the grazing period.

How many acres does it take? Producers can find the answer to that question by visiting a range specialist familiar with their local landscape. For producers stocking 1,200-lb. cows in southwestern North Dakota on lowlands, 1.43 acres per animal a month is needed under good range conditions. That figure goes all the way up to 6.88 acres per animal per month in pastures that are in fair, but dry, range condition, according to Lee Manske, Dickinson Research Extension Center range specialist.

Upland landscapes in good range condition could be stocked at 2.29 acres per animal a month with 1,200-lb. cows. These generic

stocking rates equate to just less than 14 grazing acres per cow. In addition, six acres are needed for hay, provided 1,000 lb. of hay is harvested from each acre.

In a normal year, 2,000 productive acres would support 100 mother cows and their calves until weaning and allow producers to get a good night's sleep. If you travel east, by the time you get out of North Dakota, you could very easily be closer to 1,300 acres, and if you travel farther west or to drier climates in general, the acre requirement is going to go up.

None of us have a direct line to Mother Nature. Even Mother Nature simply averages the good with the bad and goes on from year to year. But in these years, where it appears to be drying out, take a quick count of your acres and your cattle. Figure out what type of land you are grazing, and what your typical hay yields are going to be, and get a good estimate of the weight of your cows.

If the numbers start to add up to more than what the books are telling you, a survival plan needs to be put in place, which means the producer sells cows or buys hay. Don't panic. Assess your operation first, seek out good advice, develop a plan and stick to it.

— by Kris Ringwall, NDSU beef specialist

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