SUMMER ANNUAL FORAGES

EFFECTS OF A FREEZE ON FORAGES

From Hay and Forage Minute, Dr. Bruce Anderson, UNL Extension Forage Specialist

When plants freeze, all sorts of changes occur in their metabolism and composition. Some of these changes can be poisonous to livestock. But you can prevent problems.

Sorghum-related plants, like sudangrass, shattercane, sudax, and cane, can be highly toxic for a few days after frost. Freezing breaks their plant cell membranes. This breakage allows the chemicals that form prussic acid to mix together and release this poisonous compound rapidly. Livestock eating frozen sorghum can get a sudden, high dose of prussic acid and potentially die. Fortunately, prussic acid turns into a gas and disappears into the air. So wait three to five days after a freeze before using sorghums and chances of poisoning become much lower.

Freezing also slows down metabolism in all plants. This stress sometimes permits a build-up of nitrates in some plants, especially grasses. This build-up usually isn't hazardous to animals, but green chop or hay cut right after a freeze can be more dangerous.

Alfalfa reacts two ways to a hard freeze. Nitrate levels can increase, but rarely do they increase to hazardous levels. So when someone tells you that frosted alfalfa killed some animals or caused abortions, it's more likely that something else actually caused the problem. One thing freezing does do, though, is make alfalfa less likely to cause bloat. So waiting to graze until after frost is a good, safe management practice.

Please manage all forages carefully after frost for safe feed.

Addendum: Jim Girardin Sr – Arrow Seed Forage Specialist

When sorghum related plants have been partially killed by a lighter frost, they should not be harvested or grazed until the plant has been completely killed by a subsequent freeze. Prussic acid and nitrates are concentrated in the green tissue of a partially killed plant and as animals feed on that portion of the plant they are at greater risk.