



Killing frost and management of alfalfa and sudangrass

Alfalfa

Alfalfa usually requires 24° F to completely kill its topgrowth; some areas experienced these temperatures while others did not. Temperatures above 24° F will cause visible damage, but the plant will continue to grow using the remaining leaf area. The main reason not to harvest alfalfa after a light frost is that the harvest would remove all of the leaf area, and the plant's continued development would be entirely at the expense of root reserves. If your locale did not experience a completely killing frost for alfalfa, to optimize plant development and its over-wintering ability, allow the plant to grow until a killing frost or mid-October; whichever ever comes first. If no killing frost occurs by mid-October and a harvest is desired, harvest the forage. The short day lengths and cool autumn temperatures will minimize the use of root reserves prior to the soon-to-come, killing frost. However, it is often difficult to make hay in mid-late October because of the cooler temperatures.

There is an old, persistent false-hood around that alfalfa becomes toxic following a frost. Alfalfa does not contain any toxic compounds that arise from exposure to frost. This misinformation may have started from the fact that alfalfa can cause bloat, and immediately after a frost alfalfa's bloat potential is higher than normal. Once the frosted parts of the plant dry, alfalfa's bloat potential is back to normal.

Sudangrass

Sudangrass and sorghum-sudan hybrids require 28° for a killing frost, however even a "light" frost requires special management. Prussic acid accumulates in the frosted tissue within a few hours after thawing and wilting. A light frost may damage just the tops of plants. If this occurs, delay grazing or harvest a few days after frost to allow the prussic acid to dissipate from the plant tops. Livestock can be returned to frost injured sudangrass (18 inches or taller) and sorghum-sudan (28 inches or taller) after 5 to 7 days.

Sometimes a light frost enhances development of young shoots from the base of the plants. If this occurs, delay sending livestock to graze this forage since these new shoots would be high in prussic acid. Ideally, wait for the new shoots to get to a proper grazing height, but more than likely a complete killing frost will occur before that would happen. Once a complete killing frost occurs, wait at least 10 days (wait until the frosted tissue is drying out) before grazing or harvest.

If haying the forage, the curing process decreases the prussic acid content as much as 75 percent, which removes the feeding concern. Although haying these forages this late in the season is nearly impossible because of poor dry-down conditions. If green-chopping the forage, chop only as much forage as the cattle will consume in 4 to 5 hours. Never green-chop the forage and let it sit on the wagon overnight. If ensiling, harvest at a proper moisture for your storage structure to ensure proper fermentation. This takes a minimum of 4 weeks. The fermentation process will reduce the prussic acid content. Since immature plants can contain higher prussic acid levels, leave this forage ferment for at least 8 weeks before feeding. Never allow horses to graze sorghums or sudangrass at any time!

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