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Cooperative Extension

Frost Damage to Alfalfa

Dan Undersander and Paul Peterson
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The cold temperatures during the last week of April have caused some frost damage to alfalfa. Following are recommendations for evaluating damage and taking action.

New seedings: Damage to new seedings has been minimal due to their excellent frost tolerance. To determine if damage has occurred examine plants. They will first appear to wilt and then die over the next three to five days. If plants die back to the ground, the plant is dead. At least one set of leaves must have escaped damage for recovery to be expected. Determine the number of living plants per square foot. If more than 20 plants per square foot remain, stand will survive in good shape. As stands are thinner than 15 plants per square foot consider top seeding alfalfa.

Established stands: Evaluate the stands to determine 1) if less than 30 percent of stem tops are damaged, 2) if most or all stem tops are damaged, and 3) if the stems are frozen back to the ground. Damaged means wilting (usually visible in about 24 hours after frost) or yellow to brown discoloration (usually visible 3 to 5 days after the frost).

- 1) *If less than 30 percent of stem tops show wilting/browning from frost, do nothing.* Enough stems remain to provide good growth and yield of first cutting. Stand will have some yield reduction of first cutting but will recover completely on second cutting.
- 2) *If most or all stem tops are damaged and stand is less than 10 inches tall, do nothing.* The growing points have been killed but the alfalfa will form new buds at lower leaf junctures (ancillary buds) and continue growing. The first cutting might be delayed. Alfalfa may demonstrate some horizontal growth. Mowing existing top growth will not enhance recovery. If stand is over 12 inches tall, harvest and allow it to re-grow. None of the alfalfa that was frozen in the Midwest was over 12 inches when frosted to our knowledge.
- 3) *If all stems on a plant are frozen back to the ground, the plant is dead.* This extent of frost damage has not occurred in the Midwest to our knowledge. However, if observed and fewer than 5 plants per square foot remain, consider rotating to another crop and replanting alfalfa in another field to avoid autotoxicity.