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Adapting to Alfalfa Winterkill and Winter Injury

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Abstract
Significant areas of alfalfa winterkill are now evident in Iowa. The worst areas are along the Highway 20 corridor in eastern and northeast Iowa, with notable losses to the Minnesota border in Iowa and also in random fields in other parts of the state. Frozen alfalfa crown and upper taproot tissue is not able to recover. Evidence of the injury was delayed because some plants began to green-up and then died. Plants that still exhibit good taproot and crown tissue are likely unaffected.

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Significant areas of alfalfa winterkill are now evident in Iowa. The worst areas are along the Highway 20 corridor in eastern and northeast Iowa, with notable losses to the Minnesota border in Iowa and also in random fields in other parts of the state. Frozen alfalfa crown and upper taproot tissue is not able to recover. Evidence of the injury was delayed because some plants began to green-up and then died. Plants that still exhibit good taproot and crown tissue are likely unaffected.

The decision producers must make is whether to keep a less productive field, whether to try to boost the production of forage from that field by supplemental seeding, or to plan on planting a new alfalfa field as well as planting an "emergency" short-term forage crop for immediate future forage needs. Some of the most common questions arising include:

What fields are still worth keeping?

The answer to this varies greatly. Research would say that a 'keeper' field with no appreciable yield loss would be a first production year field with 12 or more healthy plants per square foot; second and third production year fields, six or more crowns per square foot; and older fields, four or more healthy plants per square foot. Or, stands of any age with 55 or more harvestable stems per square foot and healthy taproots. Any fields with less than that stand level will likely produce proportionally less yield per acre. Associated forage grasses may compensate some toward higher seasonal yields as alfalfa stands decline. Producers often choose to retain less productive fields out of necessity or convenience.

Can I interseed to thicken the stand – with more alfalfa?
Interseeding alfalfa to thicken a uniformly thin alfalfa stand will generally not work. If the stand is one year or less old, plants will generally come up and then be outcompeted by the survivors from last year. Large dead spots should be disked first and then seeded. If the stand is two or more years old, interseeded alfalfa will be adversely affected by autotoxicity.

For two or more year old alfalfa stands, autotoxic compounds will likely reduce the stand and/or future yield of the alfalfa and you should wait one year before reseeding.

You can interseed grasses (annual ryegrass for one year or orchardgrass or tall fescue for two or more years) or clovers to thicken a stand.

What are some options for an 'emergency forage crop'?
This decision depends on when you need the forage, and what kind of storage is to be used.

1) When tonnage is needed quickly to replace lost first cutting

> **a)** A small grain is the best option to replace the loss of first cutting alfalfa. The crop will be able to be harvested at the middle to end of June. Oats is likely the best choice, spring triticale a second choice and barley a third choice (due to lower yield). Harvest can be as silage or hay.
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> **b)** Planting small grain with peas (60 lbs/acre of 50/50 mix) will increase crude protein and palatability of the mix but not yield. Harvest is most often made as silage.
>
> **c)** Spring planting winter wheat, winter rye or winter triticale is not a good idea due to low yield.

2) When high season-long yield is needed

> **a) For silage**, corn is the best high-tonnage option.

b) For forage silage the best choices are seeding sorghum x sudangrass hybrids, sudangrass, Japanese millet, hybrid pearl millet; alfalfa seeded alone (12 to 15 lbs/acre) into a field where alfalfa autotoxicity is not a concern (see above), or plant Italian or annual ryegrass at 2 to 4 lbs/acre with alfalfa (12 lbs/acre)

c) For hay, best choices are small grains such as oats, spring triticale a second choice and barley a third choice (due to lower yield). Alfalfa seeded alone (12 to 15 lbs/acre) into a field where alfalfa autotoxicity is not a concern (see above), or plant Italian or annual ryegrass at 2 to 4 lbs/acre with alfalfa (12 lbs/acre). Sudangrass will produce the most tonnage for a multi-cut annual for those who want grass hay (two to three cuttings harvested at 36 to 40 inches in height). Japanese millet is also a multi-cut summer annual option. Some producers have difficulty drying sudangrass and Japanese millet thoroughly enough for safe dry hay storage. Foxtail millet is an annual one-cut emergency crop for dry hay. Teff, a relatively new annual grass to the U.S., is a new possible alternative. However, teff grass has not been widely tested in the Midwest and seed supplies are virtually non-existent.

Stephen K. Barnhart is a professor of agronomy with extension, teaching, and research responsibilities in forage production and management.

Category: Crop Production

Crop:
Forage

Tags: alfalfa winterkill winter injury emergency forage crop