

3-18-2013

Evaluate Forage Stands for Winter Injury

Stephen K. Barnhart

Iowa State University, sbarnhar@iastate.edu

Follow this and additional works at: <http://lib.dr.iastate.edu/cropnews>

 Part of the [Agricultural Science Commons](#), [Agriculture Commons](#), and the [Agronomy and Crop Sciences Commons](#)

Recommended Citation

Barnhart, Stephen K., "Evaluate Forage Stands for Winter Injury" (2013). *Integrated Crop Management News*. 118.
<http://lib.dr.iastate.edu/cropnews/118>

The Iowa State University Digital Repository provides access to Integrated Crop Management News for historical purposes only. Users are hereby notified that the content may be inaccurate, out of date, incomplete and/or may not meet the needs and requirements of the user. Users should make their own assessment of the information and whether it is suitable for their intended purpose. For current information on integrated crop management from Iowa State University Extension and Outreach, please visit <https://crops.extension.iastate.edu/>.

Evaluate Forage Stands for Winter Injury

Abstract

Winter-dormant perennial forage plants remain dormant as long as temperatures in the 'crown' area, or upper few inches of the soil, remain between about 0 and 35 degrees F. Snow cover and residual vegetative cover help to insulate the soil and stabilize soil and crown temperatures. Under ideal conditions, as spring temperatures warm through March, the plants 'break dormancy' and regrow normally into the spring. Winter injury and winter kill can occur under several conditions: if there is no snow cover and crown temperatures go much below 0 degrees F; when mid-winter 'warm spells' cause the plants to 'break dormancy' early and are then more susceptible to late-winter cold crown temperatures; and, when plants are submerged in frozen, ponded water in low-lying areas during the winter.

Keywords

Agronomy

Disciplines

Agricultural Science | Agriculture | Agronomy and Crop Sciences

search

Subscribe to Crop News

- Archives**
- [2014](#)
 - [2013](#)
 - [2012](#)
 - [2011](#)
 - [2010](#)
 - [2009](#)
 - [2008](#)
 - [Previous Years](#)

- ISU Crop Resources**
- [Extension Field Agronomists](#)
 - [Crop & Soils Info](#)
 - [Pesticide Applicator Training](#)
 - [Agronomy Extension](#)
 - [Entomology Extension](#)
 - [Plant Pathology Extension](#)
 - [Ag and Biosystems Engineering Extension](#)
 - [Agribusiness Education Program](#)
 - [Iowa Grain Quality Initiative](#)
 - [College of Agriculture and Life Sciences](#)
 - [ISU Extension](#)



- PRINT STORY
- EMAIL STORY
- ADD TO DELICIOUS
- ATOM FEED
- FOLLOW ON TWITTER

Evaluate Forage Stands for Winter Injury

By Stephen K. Barnhart, Department of Agronomy

Winter-dormant perennial forage plants remain dormant as long as temperatures in the 'crown' area, or upper few inches of the soil, remain between about 0 and 35 degrees F. Snow cover and residual vegetative cover help to insulate the soil and stabilize soil and crown temperatures. Under ideal conditions, as spring temperatures warm through March, the plants 'break dormancy' and regrow normally into the spring. Winter injury and winter kill can occur under several conditions: if there is no snow cover and crown temperatures go much below 0 degrees F; when mid-winter 'warm spells' cause the plants to 'break dormancy' early and are then more susceptible to late-winter cold crown temperatures; and, when plants are submerged in frozen, ponded water in low-lying areas during the winter.

This winter, the crown temperatures have likely not been cold enough for direct cold injury, even without snow cover. While day temperatures have been warmer than normal for short periods through February and early March, night temperatures have, hopefully, been cold enough to prevent the plants from breaking dormancy. A significant concern are the localized, frozen, ponded areas. How well did they handle this winter? It is time to go find out.

Stand evaluation

When evaluating alfalfa in late winter for winter injury, consider both the number of plants per square foot and, for alfalfa, the age of the stand. Crown and root diseases also have a major effect on stand reduction of legumes, so plants should be checked for dead, dying or diseased crown and root tissue. Winter-injured plants may survive satisfactorily, but are often slow to recover in spring, so a quick decision to destroy a winter injured stand is not recommended.

Wait until the spring regrowth is about 3 to 4 inches high. Select random stand count sites. Check at least one 1-square-foot site for every 5 to 10 acres. Dig up all of the plants in the 1-square-foot area. Inspect for new growth and the crown and buds to determine if the tissue is still alive. Then count the number of live plants per square foot. Use Table 1 to begin your rating of the stand. Next, split the taproots and evaluate their general health. The core of a healthy taproot is firm and creamy white. Damaged or dying taproots are yellowish brown to chocolate brown in color and watery or dry and fibrous in texture. Only healthy plants will contribute significantly to yield, so if the taproots are more than 50 percent diseased, reduce your initial stand count accordingly.

Table 1. Age of stand and rating of winter survival.

	Good	Marginal*	Consider Reseeding
	Plants per square foot		

evaluate forage stands for winter injury

Year after seeding	+12	8 to 12	Less than 8
2	+8	5 to 6	Less than 5
3**	+6	4 to 5	Less than 4
4 and older**	+4	3 to 4	Less than 3

* Healthy alfalfa plants in thin stands often produce more individual stems per plant and compensate some in yield potential.

** If 50 percent or more of the plants have crown or root rot, consider reseeding.

Plan your management this season, based on your stand evaluation.

- If stands are winter-injured, but will be harvested this season, allow plants to mature to 10 to 25 percent bloom or later, before cutting.
- Increase cutting height to 3 to 4 inches.
- Maintain good fertilizer and insect management.
- If stands are severely winter injured, and you have incurred a significant loss to planned stored forage, plan to reestablish a new hay field this spring and begin to plan for any needed supplemental harvested and stored forage needed until the new seeding becomes adequately productive.

Assess red clover stands similarly.

Overwintering perennial forage grasses often survive better than winterhardy legumes. However, orchardgrass and ryegrasses are more susceptible to winter injury. Visual evaluation of grass regrowth and vitality of crown tissue is suggested when evaluating winter survival of pastures.

Reseeding in hayfields or pastures might be needed. Reseeding more alfalfa into or immediately after a two year old or older stand is not recommended. Overseeding or drilling grasses or red clover into thin or winter damaged stands should be done from now through April. Delaying seeding increases the risk of weed and surviving forage plant competition and seedling loss to increasingly dry and hot soil surface conditions of early summer.

Iowa State University Extension Publications for further information:

Evaluation for winter injury [/Publications/PM1362.pdf](#)

Selecting forage species [/Publications/PM1792.pdf](#)

Establishing new forage stands
[/Publications/PM1008.pdf](#)

Interseeding and no-till renovation [/Publications/PM1097.pdf](#)

Stephen K. Barnhart is an extension forage specialist. You can e-mail him at sbarnhar@iastate.edu.

This article was published originally on 3/18/2013. The information contained within the article may or may not be up to date depending on when you are accessing the information.

Links to this material are strongly encouraged. This article may be republished without further permission if it is published as written and includes credit to the author, Integrated Crop Management News and Iowa State University Extension. Prior permission from the author is required if this article is republished in any other manner.

