



Evaluating and Managing Forage Stands for Winter Injury

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Many conditions occurring in the fall, winter or spring can have an impact on the winter survival or injury of perennial forage stands, particularly alfalfa. Therefore it is important to assess stands early in the spring and explore your options for dealing with winter injury.

How to diagnose winter injury:

First and foremost it is most important to determine if your field(s) was impacted by the winter weather. The most obvious sign of winter injury are stands that are slow to green up. If other fields in your area are starting to grow and yours are still brown those stands should be checked for injury or death. In addition to slow green up, fields with uneven growth patterns may also indicate damage. The best way to diagnose damage is by examining the plant roots in a suspect field. To do this walk diagonally across a field and at regular intervals (every 4 to 5 paces) dig up a shovel full of plants (4 to 6 inches deep) and examine their roots. The roots of each plant should be firm and the interior color should be white or cream colored. If the roots are soft and the interior yellow to brownish in color it most likely was wintered killed. For alfalfa, the majority of crown buds should be white or pink and firm throughout the bud. It is important to try and inspect as many plants as possible to determine the percentage of your stand and/or areas of your field that are injured.



Options for fields moderately affected by winter injury:

Winter injured stands will require different management than healthy stands if they are to stay in production. If winter injury is evident consider the following:

- ☒ Allow alfalfa plants to mature longer before cutting. This will help the plants rebuild needed energy for future production. For severely impacted stands, allow plants to go to full bloom before taking a first cut and to early flower for following harvests. Increasing the cutting height may also help stands recover. New shoots will be developing at the base of the injured plants and it is important to not remove these shoots as it will result in further detriment. Lastly do not cut winter injured stands late in the fall this will allow them to build up more reserves

before winter.

- ☒ If a significant loss of alfalfa was seen in a predominantly grass stand, then you could manage it for grass. This will work best if the grass species are predominated by tall growing species such as reed canarygrass, orchardgrass or timothy. If the grass is less than 10 inches tall, it may still be economical to apply 50 pounds of N per acre to boost yield and protein. If the grass stand is predominately lower yielding forage such as “June” grass (bluegrass) you may want to consider replanting.
- ☒ If the alfalfa stand was only partially injured (25 to 50 %) interseeding with a quick germinating forage could provide additional production. Interseeding can be done with a no-till or grain drill. Species that could be considered for interseeding include orchardgrass (4-6 lbs/acre) or perennial ryegrass (5-6 lbs/acre). Remember that perennial ryegrass should be considered a short term option since it does not overwinter well in our climate. When dealing with winter injured stands, it is particularly important to adequately fertilize and to control for weed competition.

Options for fields severely affected by winter injury:

If your stand was over 50 % killed, you may want to consider replanting. Depending on your needs, there are several forage choices.

- ☒ A small grain/field pea mixture will be the best choice if the forage is needed in early/mid summer. Early planted small grains (60 lb/acre) such as oats, barley, or triticale with the addition of field peas (50 lb/acre) will be ready for harvest between late June and mid July. Research from the University of Wisconsin has reported yields between 2.5 and 3.0 t/acre and RFV between 120 and 135. Small grain/pea mixes should be harvested when the small grain is at late boot stage.
- ☒ Corn silage will be the best choice for optimizing full season forage production. If corn silage is planted by the end of June it will normally out yield most other forages however you risk lower quality forage. At these later dates (mid-June to early July) you may want to consider planting a summer annual. A few options include sorghum-sudangrass hybrids, sorghum sudangrass hybrids enhanced with the Brown Mid Rib gene, forage sorghum or sudangrass. The sorghum-sudangrass hybrids and sudangrass should be seeded at 20 to 30 lb/acre, while forage sorghums are normally seeded at 12 to 15 lb/acre. These forages should be harvested when they reach approximately 30 inches. It is important to note that these crops need high temperatures to yield well and may not be the best choice if we are experiencing average to cool temperatures. Studies conducted at the University of Wisconsin have reported yields between 2 and 6 t/acre and RFV between 90 and 100.
- ☒ There has been a lot of interest in growing sorghum-sudangrass enhanced with the Brown Mid Rib (BMR) gene. The BMR gene has a characteristic of reduced lignin content, and hence tends to be highly digestible. The seed should be

drilled $\frac{1}{4}$ to $\frac{1}{2}$ inch deep at a rate of 50 lb/acre and fertilized the same as corn. Harvesting should take place after the grass is 30 inches tall or just before heading. If planting is done by the first half of May, a second harvest will probably be made at the end of September. Reports from Cornell University show that the forage quality of Bmr sorghum sudangrass can be comparable to corn silage having dNDF of 70 %, in-vitro Nel of 65 %, and a CP of 15 %.

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