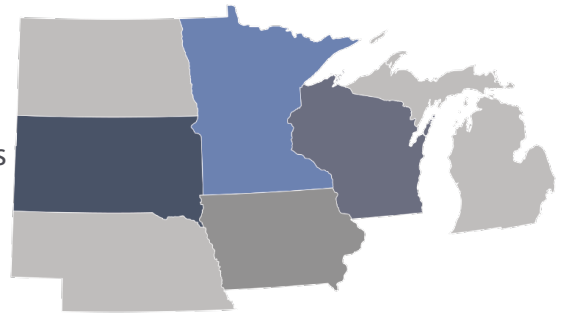


2018 Alfalfa Winterkill Factors

As spring arrives each year, it is important to pay attention to your alfalfa fields as they begin to green up and grow. It is time to look for signs of “winterkill.” Winterkill is the generic term used to describe death of an alfalfa stand from fall through spring. However, the name is misleading because most stand death happens during the spring. There are many reasons why alfalfa dies out over the winter and in the early spring. Each of our agronomists sounded the same message around the importance of checking stands for winterkill each spring. In addition, here is recap of the conditions alfalfa stands have faced in the North Central US and the effects you may experience as a result:

- **Michigan update** from Terry Schulz, Account Manager: We didn't have brutal cold snaps during the 2017-18 winter, but we did have a couple major freeze and thaw cycles with ice sheeting to accompany them. If you are seeing too much alfalfa winterkill this spring, remember the two biggest factors you can control going into next fall. First, honor the alfalfa stand's “winter preparation” window by avoiding cutting it in September and early October if possible. After a harsh winter, this can mean the difference between a stand surviving and being removed. Secondly, apply potash after the first cutting and again after the final summer cutting. There is a correlation between the potassium levels of alfalfa plant matter and winter injury that is sustained. Remember, just as bears eat more in the fall before they hibernate so they can survive winter ... alfalfa can benefit from a healthy pre-winter “diet” as well!
- **Minnesota update** from Jeffrey Sorenson, Sales Agronomist: Last fall was a roller coaster ride for alfalfa stands. We were wet in early fall, but by the time we froze out in mid-December most soils were normal moisture and the alfalfa was in pretty good condition for winter survival. Most of the winter we had pretty good snow pack to insulate and protect the alfalfa during our January and February cold snaps; however, in between those cold snaps we also had some very warm temperatures which melted a lot of snow and, in some cases, the top inch or two of soil also melted. This may have caused some frost heaving of the crown. In this situation, we might think there is a good, healthy stand when it breaks dormancy. However, as the summer progresses the stand quality will continue to diminish. So, even if we think there is a good stand I would encourage everyone to dig a few plants up and examine the crown for any damage based on the winter and spring conditions we experienced.





- **Nebraska update** from Dave Olson, Sales Agronomist: Last summer's extended period of dry weather left many alfalfa stands stressed and mildly nutrient deficient. When the rain did come, it persisted until the soil profile was nearly saturated. Then what happened? Well, Scott Frost was great news for the Cornhusker's football team, but "Jack Frost" started a long cycle of freezing and thawing that certainly was not what the already stressed stands needed. Most of southern Nebraska areas entered the fall without the abundant moisture that northern Nebraska had. Plus, the southern half of the state had far less snow cover to protect from the extreme cold of winter. Each region of the state has different reasons to raise concerns about winter survival; however, it's going to be important for everyone to assess each field by digging roots and making careful observations throughout the entire field.
- **North Dakota update** from Mike Tofsrud, Sales Agronomist: For most of North Dakota we went in to the fall drier than normal which put stress on our alfalfa stands from a drought standpoint but also lessened the amount of stand loss that we saw in fall of 2016, from being too wet in areas going into winter. My main concern for winterkill as of now is the lack of snow cover in areas when we experienced our coldest temps of the winter, especially hill tops or areas where snow usually blows off. Coming into spring, we need to keep an eye on how it plays out as we could see some damage if we get a good thaw for awhile and freeze again. In general, I feel most areas should be sitting in good conditions.
- **South Dakota update** from Sean McGraw, Sales Agronomist: Across the state of South Dakota, we experienced many erratic weather conditions throughout the 2017 growing season. Areas of the state had sufficient moisture, but the majority of the state experienced varying levels of drought stress throughout the summer. Although we did receive the needed moisture in late summer and fall, many of our alfalfa stands were already weakened from drought and nutrient deficiency. My biggest concerns from the winter we just experienced are the sustained cold temperatures with little snow cover. This can cause winterkill especially when paired with the large temperature swings we experienced. This pattern caused a fair amount of ponding in the low-lying areas of the fields that also iced over for prolonged periods.
- **Wisconsin update** from Jacob Andrle, Sales Agronomist: Last fall, most of the state was wetter than normal and many stands were stressed all season long. With the cold weather we have had this winter, frost heaving could be an issue, especially on heavier textured soils that were saturated at freeze-up time at the start of winter. Fields with frost heaved plants or root damage can look normal after coming out of dormancy. However, plants will die off through the spring and summer. This loss of sufficient stand count will continue to occur as the haying season progresses. In this case, digging roots and checking for root damage can give you an idea of what to expect from that stand in the coming months, but I do suggest keeping an eye on it all summer long this year. There are areas of the state with no snow cover that could also see some winterkill issues with the abnormally cold temperatures we have been having.





ROTATE OR LEAVE IT?

The decision to rotate a field can be hard to make with the irregular patterns of dead areas. The rule of thumb is rotate if the field falls below the average of 40 stems/square foot. We recommend using a larger size hoop than the simple 1-foot squares that are often available and used. A larger circle will give you a better representation. Be sure to sample several areas of the field until you feel comfortable with the numbers you are collecting.

Be sure to keep an eye on the stand quality throughout the summer as well. Additional mechanical damage from haying equipment to damaged crowns and taproots can cause additional loss throughout the summer, so keep that in mind.

If you have questions or would like help in this decision-making process, please contact your local Legend Seeds representative for guidance.

EXAMPLES OF WINTERKILL SITUATIONS

Example of winterkill with crowns & taproot

Concerns: A few of the agronomists mentioned the crowns heaving or pushing out of the ground. See an example of this condition at right. When there is more than a half-inch of exposed root below the crown, then there is a very high probability that the taproot has been severed and the alfalfa plant will die shortly after greening up in the spring. Sometimes, the taproot gets severed deep enough that the plants will yield close to normal initially, but when cut for the first time the stand will never green up again.



Examples of winterkill from ponded water:



Example of winterkill from cold soil temperatures:

