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## Factors Affecting Winter Survival of Alfalfa

Following is some information released by the University of Minnesota and other sources. Six factors (combined with weather) influence alfalfa stand winter survival. These factors can be used to help educate growers assess and lower their risk of winter injury.

1. **Stand age:** Because of cumulative stress of plant diseases and physical injury, older stands are more susceptible to winter injury than younger stands.
2. **Variety:** Varieties with greater winter-hardiness and disease resistance are less susceptible to winter injury than varieties with less winter-hardiness and disease resistance.
3. **Soil K level:** Soil potassium (potash) is very important in enhancing alfalfa tolerance to winter injury. However, plants stressed by low pH (<6.5) or other deficiencies such as P, B, and S will also be more susceptible to winter stress.
4. **Soil drainage:** Poorly drained soils are more likely to lead to plant diseases and ice sheeting.
5. **Harvest management:**  
Harvest number: Although growing seasons vary throughout the state, normally, more frequent cutting will cause more plant stress. That's why two cuts are less risky than four cuts in southern Minnesota.  
Last harvest date: For least risk, make the final cut by 1 September. This allows time for alfalfa to regroup, accumulate carbohydrate reserves, and undergo the normal changes associated with fall dormancy. Fall cutting on 15 September, causes alfalfa to regrow but the regrowth period is inadequate to replenish carbohydrate reserves and for the plant to obtain a high level of dormancy. Cutting on 15 October about the time of the first killing frost lessens the risk of winter injury because there is normally a minimal chance for regrowth.
6. **Stubble:** Stubble from unharvested plant residue insulates the soil, catches snow for insulation, and by shading the soil surface from the sunlight can minimize freezing and thawing cycles. Therefore, harvesting in the fall may greatly enhance the risk of winter injury especially during winters with minimal snow cover.

This information is a general guideline. Other factors such as soil conservation, production potential and fertility levels may play a part in the decision of whether or not a stand is adequate.