

Fall Cutting Management for alfalfa

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The general recommendation in Saskatchewan is to avoid cutting alfalfa hay after August 15th. But with the higher-than-average rainfall this past summer, there are some alfalfa hay fields with enough regrowth to tempt any rancher or farmer who remembers the steep hay prices from 2001.

What is the “critical fall cutting period” for alfalfa? After haying, alfalfa plants mobilize carbohydrate reserves (recent research has also implicated proteins) from the roots and use them to grow new shoots and leaves from crown buds. High levels of root reserves are necessary to ensure sufficient hardiness for the over-winter period. It takes about 5 weeks of regrowth between haying and a killing fall frost to replenish the reserves. At Swift Current, the average date of a killing fall frost is September 23rd, therefore alfalfa plants cut after August 15th may lack sufficient time to replace root reserves. To minimize the risk of alfalfa winterkill, do not cut alfalfa hay between August 15th and a killing frost. However, since it is impossible to predict the exact date of a killing fall frost ahead of time, it is tempting to harvest alfalfa regrowth and gamble on sufficient regrowth during September to rebuild root reserves before winter. If you want to take that alfalfa hay crop, what steps can be taken to reduce the risk of winterkill? Here are a few to consider:

1. Seed only winterhardy varieties that are tough enough for Saskatchewan conditions. Research at Swift Current showed that survival of ‘Anchor’ alfalfa was negatively affected by fall cutting, while ‘Rambler’ alfalfa was not. For example, Anchor alfalfa had 10% stand in the spring of 1989 after it was cut on the previous September 15th, while Rambler had 71% stand under the same conditions. A recent research project at Swift Current showed that winterhardy varieties also exhibited better persistence under grazing. ‘Rangelander’ alfalfa had 77% stand in 1999 after 3 years of grazing, while Anchor had 53% stand. Winterhardiness ratings of recommended alfalfa varieties can be found in the 2004 Saskatchewan Forage Crop Production Guide. Paying a few cents more per pound of seed for a winterhardy alfalfa variety is likely the cheapest way to ensure alfalfa stand longevity.
2. Leave strips of standing hay with the mower-conditioner or swather to trap snow. Snow has excellent insulation value. A 30-cm-deep snow cover can prevent the soil temperatures from falling in tandem with air temperatures during the winter. If the soil temperature drops below -20 EC for a few weeks, then alfalfa will winterkill.
3. Avoid cutting older stands of alfalfa in September. Older stands are more susceptible to winterkill, usually due to poor vigour and root or crown pathogens.
4. Soil test and fertilize with phosphorus and potassium if required. Most soils in Saskatchewan are naturally high in potassium but some sandy soils are not. Good fertility levels can significantly reduce winterkill.
5. If the alfalfa plants are alive next spring but growth is slow, then the stand may have suffered

damage due to September harvesting. Delay haying next year by 1 to 2 weeks to give those plants a chance to recover from the winter injury.

Research results indicate that alfalfa winterkill is sporadic and almost unpredictable. If we have little or no snow, then the risk of winterkill is greatly increased but still not guaranteed. If we have an average amount of snow this winter, then damage from cutting hay in September from a winterhardy alfalfa variety should be minimal.

References:

Jefferson, P.G. and Gossen, B.D. 1992. Fall harvest management for irrigated alfalfa in southern Saskatchewan. *Can. J. Plant Sci.* 72:1183-1191.

2004 Saskatchewan Forage Crop Production Guide. Saskatchewan Agriculture, Food and Rural Revitalization. Regina, SK. 23 pp.

Singh, A. 2000. Alfalfa Response to Grazing: Cultivar evaluation and visual modelling. University of Manitoba, Ph.D. thesis. 266 pp.

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Captions for photos

1. Jefferson Dupuits vs Beaver.jpg – Non-hardy Dupuits alfalfa (left) vs. Beaver
2. Jefferson Snow removed on left 1989.jpg – Snow removed with a snowblower (on the left) during the previous winter