Fall Forage Management for Hay and Pasture

The following recommended forage management practices for fall can ensure survival and spring regrowth. The practices outlined in this article address soil fertility, liming, and alfalfa and pasture management. Following these important practices can help plants store carbohydrate and protein reserves in the crowns and roots and spur regeneration and the formation of the shoots and growing points.

Doo-Hong Min
Richard Leep
Dept. of Crop and Soil Sciences

Among the four seasons, fall is one of the most important for forage plants in terms of preparing for winter survival and spring regrowth by storing carbohydrate and protein reserves in the crowns and roots. Fall is also the season for regeneration and the formation of the shoots or growing points. Because plants become dormant in the fall as ambient temperature is getting lower and the day length is shorter, nutrient uptake accordingly becomes slower. Following are the things to consider for fall forage management for hay and pasture to maximize plant survival and spring growth.

1 Soil Fertility and Liming. Because the price of fertilizer is so high these days, it’s important to use phosphorus (P) and potassium (K) efficiently. One of the best ways to save fertilizer costs is to test soil for P and K on hay fields and pasture. In particular, K is related directly to winter survival rate and plants are more susceptible to winter kill when soil K level is lower than the optimum level.

Fall is also a good time for liming. Having optimum soil pH is a requirement for healthy forage stands. Grasses generally perform well at a pH of 6.0 or above while most legumes require a pH of 6.5 or more. With low soil pH, poor nutrient uptake can cause poor plant growth which results in poorer winter survival and more weed problems. This can also result in poor animal performance from low forage yield and nutritive value. Because increasing soil pH is a long-term process, it’s important to apply lime materials at least 6–12 months before the results can be shown, depending on the fineness of lime materials (the higher mesh numbers, the quicker response). It’s good to have fine lime materials (particles that pass a 100-mesh sieve react 100% with the soil in 6 months or less) to increase the soil pH in a short time period. In summary, it’s very critical to soil test before applying any P, K, or liming materials to forage fields.
Fall Harvest Management of Alfalfa. In the late summer and early fall, alfalfa must either be cut early enough so that it can regrow and then replenish root carbohydrates and proteins or so late that the alfalfa does not regrow more than 8 inches and use root carbohydrates. This is the reason for Michigan’s ‘no-cut’ window beginning in September and lasting until the killing frost. However, recent research in Quebec, Canada has helped to redefine this window. This research assumes that if 500 growing degree days (GDD) accumulate after the last cutting, there will still be enough regrowth of alfalfa for good carbohydrate accumulation before a killing frost. Consequently, there will be good winter survival and yield the following year. So a producer can cut in September without hurting the stand as long as there is enough warm weather remaining in the growing season (accumulation of 500 GDD) before the killing frost. These GDD are calculated as the average of the daily minimum and maximum above 41°F until a killing frost (25°F). The Quebec research also showed that cutting later in the fall was acceptable as long as less than 200 GDD accumulated after cutting. When less than 200 GDD accumulated, there would be little regrowth to use up valuable stored carbohydrates and proteins in the alfalfa roots. This would result in good winter survival of the alfalfa plants. For additional information including probability graphs of late summer growing degree days for your area in Michigan refer to the following web site <http://web1.msue.msu.edu/fis/extension_documents/Alfalfafallcut.htm>.

Fall Pasture Management. Most farmers want to extend the grazing season as long as possible before entering winter because the weather condition in the fall is suitable to some degree for forage growth. This can sometimes result in overgrazing the pasture, which is not desirable for stand longevity. Therefore, it’s important to leave 6 inches of stubble before entering winter, which will be helpful to catch snow for moisture replenishment and for regrowth in early spring. Like fall harvest management of alfalfa, testing for soil P, K, and pH will be important to maintain good quality pasture and to follow fertilization recommendations. In particular, if you have a new late summer seeding, leaving the new seeding without grazing is important. Grazing can damage newly planted pasture due to trampling and close grazing. Fall is also a good time to check the status of your pasture to see if it needs to be frost-seeded next spring using red clover. To do this, pastures should be closely grazed or mechanically mowed in the late fall or winter to open stands and expose soil. A chain drag or light disking also can be an option to help open the stand to increase the opportunity for better seed-to-soil contact.