

**THE MANAGER**

**FORAGE MANAGEMENT**

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A sufficient rest interval between the last two cuts allows for the last cut to be taken during the critical rest period

# Alfalfa fall harvest guidelines

Fall harvest management is one of the factors that affects the ability of alfalfa to overwinter successfully. Other factors include age of the stand, winter hardiness and disease ratings of cultivars, length of cutting intervals throughout the season, soil pH, soil K level, soil drainage, and whether growth is left to catch snow. Once a stand of alfalfa or alfalfa-grass is planted, the primary two persistence factors we can control are soil K level and fall cutting management. Prior to 1990, the policy for alfalfa fall harvest was to insist on a no-cut fall rest period of four to six weeks before the first killing frost (28°F). This strategy changed in the Northeast a little over 20 years ago, based on Canadian research.

**Focus on the interval between the last two cuts**

Research in Quebec showed that it may be acceptable to cut during the critical fall rest period in September, as long as there is an interval between the last two cuts of approximately 900 growing degree days (GDD, base 41 F). This research caused NY fall alfalfa harvest recommendations to change about 20 years ago to “allow a rest period of six to seven weeks between the last two cuts.” A similar recommendation in PA of “at least 45 days between the last two cuts” was also adopted. Since this interval is based on GDD, however, the date of cutting impacts the actual length of time needed to accumulate 900 GDD. For rest periods based on GDD, the later it is in the season, the longer it will take to accumulate 900 GDD.

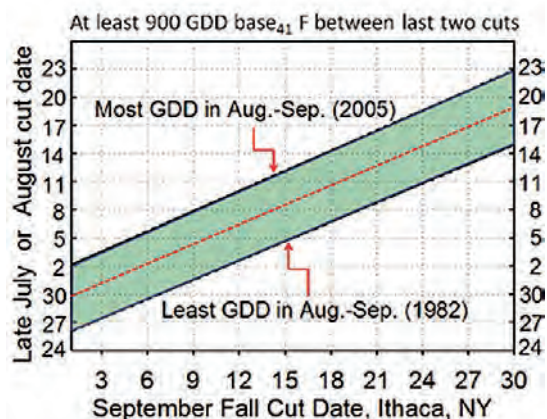
in days for the rest period can be calculated, based on a 900 GDD interval between the last two cuts. All X- and Y-axis harvest date combinations below the shaded area in Fig. 1 identify the rest period interval that will result in 900 GDD before the September cut with high confidence. These date combinations resulted in 900 GDD for all 30 years of weather data. All X- and Y-axis date combinations above the shaded area in Fig. 1 will be very unlikely to accumulate 900 GDD, as this never happened in 30 years. For example, if alfalfa is cut on Aug. 2, it is Sept. 12 before the rest period shaded zone is over. Using the 900 GDD concept, our current six to seven week rest period is appropriate for cutting at the end of September, but could be reduced to slightly more than a five week rest period if cutting early in Sept.

**900 GDD during the Critical Fall Rest Period before 1st Frost (Fig. 2)**

It has been suggested to apply the Quebec research to the period preceding first frost, to help define a “no-cut” time interval prior to first frost. The

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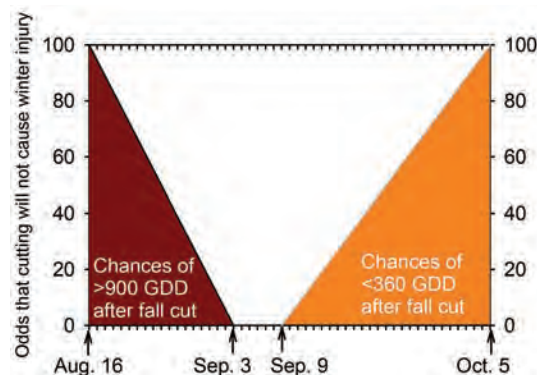
**Figure 1.** Range in rest period between September cut and previous cut to accumulate 900 GDD base41 F for Ithaca, NY.



**900 GDD interval between the last two cuts (Fig. 1)**

A comparison of the Quebec 900 GDD rest period can be made with the currently recommended “six to seven week rest period.” By selecting the years with the least and most GDD accumulated during August and September over 30 years, a range

**Figure 2.** Approximate chances that fall cutting will not cause winter injury to alfalfa in Ithaca, NY. Based on GDD base41 F.



**FYI**

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assumption is that 900 GDD (base41 F) are needed for alfalfa to build up root reserves. A second assumption is that it is safe to cut alfalfa if less than 360 GDD remain before the first killing frost, as there would be insufficient regrowth to use up enough storage carbohydrates to negatively affect alfalfa persistence. Using the 900/360 GDD criteria, we can approximate the odds that fall mowing will not cause winter injury. Approximate probabilities of either accumulating over 900 GDD or accumulating less than 360 GDD, with long-term weather data (30 consecutive years) can be calculated for alfalfa cut on a particular date in the fall. Cutting between Sept. 3 and Sept. 9, the odds of accumulating either >900 GDD or <360 GDD before first frost are approximately zero, so cutting during this period will maximize the chances of winter injury due to fall cutting in Ithaca.

### Comparing the Systems

Compare Fig. 2 (interval to first frost) to Fig. 1 (interval between last two cuts). If alfalfa was mowed on July 28, and then mowed again on Sep. 6, the chances of winter injury due to cutting are near zero for Fig. 1 (with 900 GDD accumulated between those dates all 30 years). So under one system (Fig. 2), Sep. 6 would be the worst

date to cut alfalfa, while under the other system (Fig. 1), Sept. 6 can be a very safe date to cut alfalfa. It is possible that both systems are reasonable. Allowing a 900 GDD interval before a Sept. 6 cut would make a Sept. 6 cut relatively safe. On the other hand, not allowing 900 GDD before a Sept. 6 cut might make this the worst possible time to cut an alfalfa stand.

### Conclusions

Our historical understanding of alfalfa root reserves provides evidence for maintaining some type of fall rest period for alfalfa. Applying the 900 GDD criteria to the critical fall rest period, however, results in an average rest period before first killing frost exceeding 7 weeks. Past research data provide evidence that a sufficient rest interval between the last two cuts allows us to take the last cut during the critical rest period. There does not appear to be evidence to change our basic logic for fall harvest of alfalfa. Some fine tuning of the rest interval between the last two cuts can be made using Fig. 1. These recommendations are for healthy stands. If a stand is not healthy, a more conservative harvest management may increase the chances of stand survival.

### Corn emergence and yield when planting.....

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subsequent corn growth and yield. Of our three corn silage hybrid testing sites, Aurora had the highest average yield. Silage yield (65% moisture) of the 59 hybrids from the seven listed seed companies averaged 23.4 tons/acre (Table 2). Residual effects of cold temperature after planting had zero affect on corn growth and yield.

What happens if soil conditions are once again ideal for planting in mid-April of next year? I recommend planting any time after April 15 to 20, provided your location does not experience late spring killing frosts (< 28°F after May 15-20th) and your selected fields are well-drained and do not readily flood. I wouldn't plant much deeper than 1.5 inches in April unless the top 2 inches are dry. Keep in mind, however, that silage yields were probably higher for early-June planted corn compared with late April or May-planted corn in 2011 and 2012 because dry July conditions reduced stature and kernel set in the earlier planted corn. On the other hand, silage harvest of June-planted corn was a month later. So the ideal planting date depends upon weather conditions during the growing season. But do not be afraid to plant on well-drained soils after mid-April if it is cold!

### Cover crops on northern New York farms

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harvested triticale planted as late as early October. Labor is allocated as available, and planting is complete within two weeks. McKnight selects fields that are in second, third or fourth year of corn for maximum agronomy benefits. He chooses fields that have fewer stones for efficient harvest, and selects well-drained or tiled fields.

Fisher crops 4,000 acres for 1,900 milking and dry cows. "We experimented close to the farm. This year we're 10 miles away."

Seed bed preparation is critical. Fisher uses a no-till drill on fertile, well-drained soil. McKnight observes that growth is spotty with a no-till drill or disc. He spreads 4,500 gallons of manure after corn is chopped, uses a vertical tillage tool to work the soil and create a fine-till seed bed two inches deep, rolls the seed bed, and then plants with a grain drill, roller combo. McKnight also applies 150 lbs of urea in spring for green up, which he said helps yield and is "for sure justifiable." Rye does not receive urea.