

Alfalfa Growers: Watch Your Last Hay Cutting Dater (or, Proper Harvest Management of Alfalfa in 2009)

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Alfalfa hay is a major crop for Montana livestock producers. In 2009, wet growing conditions delayed alfalfa harvesting widely across Montana. Many growers experienced significant rain damage to first-cut hay, and second and third cuttings of irrigated alfalfa are severely delayed. Alfalfa under irrigation always faces a survival issue in the late summer in Montana. The timing of late summer harvests is very critical for optimum alfalfa winter survival in northern areas. Alfalfa and all perennial plants require a proper “hardening” period in late summer and fall to assure that they are healthy next year. Hay values are anticipated to maintain at fairly high levels during the winter of 2009-2010, so there is the important decision for growers to make between taking a valuable crop of alfalfa hay or preserving alfalfa stand life.

Retired MSU Professor, Dr. Ray Ditterline recommends the following three-step program for optimal alfalfa stand life:

1. Determine your average, long-term date of **first** frost (mid-September),
2. avoid cutting or grazing **30 to 45 days prior to** average first frost, **until**
3. several consecutive mornings of mid-twenty degrees (mid-October).

In most of Montana, this means not harvesting alfalfa between mid-August and mid-October.

So what are the consequences of a poorly-timed harvest in late summer? Dr. Ditterline and other MSU researchers completed numerous trials to lead them to the recommendations above. We have evaluated the effects of harvesting irrigated alfalfa on September 1 at Bozeman, MT. Paired plots of all 63 varieties in the MAES yield trials seeded in 2000, 2001, 2002 and 2004 at Bozeman were evaluated. The paired plots were managed identically in our normal three-cut system (2 cuts by August 1), but half received their third cut on September 1 (“intensive”), and the other half received their third harvest in October after a “killing frost” as per our recommendation (“normal”). Forage yield in the final year is used to measure the effects of poorly-timed summer harvests. To date, the results have been very striking:

Planted:	Hay Yield in 4 th Year as an Indicator of Stress		
	Normal 3-cut (3 rd in October): Tons dry matter/acre	“Intensive” (3 rd cut September 1) Tons dry matter/acre	% Loss
4/21/2000	Yield in 2003, 3 cuts: 4.37	<u>Sept. 1 harvest in 2000, 2001 and 2002</u> Yield in 2003, 3 cuts: 2.68	39
4/25/2001	Yield in 2004, 3 cuts: 6.14	<u>Sept. 1 harvest in 2002 and 2003</u> Yield in 2004, 3 cuts: 5.21	15
4/30/2002	Yield in 2005, 3 cuts: 6.78	<u>Sept. 1 harvest in 2003 and 2004</u> Yield in 2005, 3 cuts: 5.35	21
5/7/2004	Yield in 2007, 3 cuts: 5.32	<u>Sept. 1 harvest in 2005 and 2006</u> Yield in 2007, 3 cuts: 4.03	24

These results confirm that poor harvest scheduling in late summer reduces subsequent alfalfa yields. Obviously the impact is more severe when improper harvest occurs repeatedly. Aside from yield, the harvest on September 1 resulted in increased weed invasion (Fig. 1), more root and crown rot, and lower stand densities – all factors that reduce stand life. Under “normal” or ideal harvest scheduling, the range between the highest and lowest-yielding varieties was about 18%, so crop management can be more important than differences among varieties.

The calendar date (September 1) of these trials is not as important as the alfalfa growth stage during frost – the alfalfa should either be dormant or have a minimum of 12 inches of growth when 20-degree weather occurs (unpredictable in August). The 30 to 45 day period prior to first frost assures that significant regrowth should occur prior to freezing weather. If hay or pasture is desperately needed, then late summer cutting should **only** occur on older fields destined to be replaced earlier – avoid this practice on newer productive stands that are needed long-term.

Note that dryland alfalfa would behave similarly, however early dormancy is induced by our typically dry conditions in late summer which restricts forage regrowth.

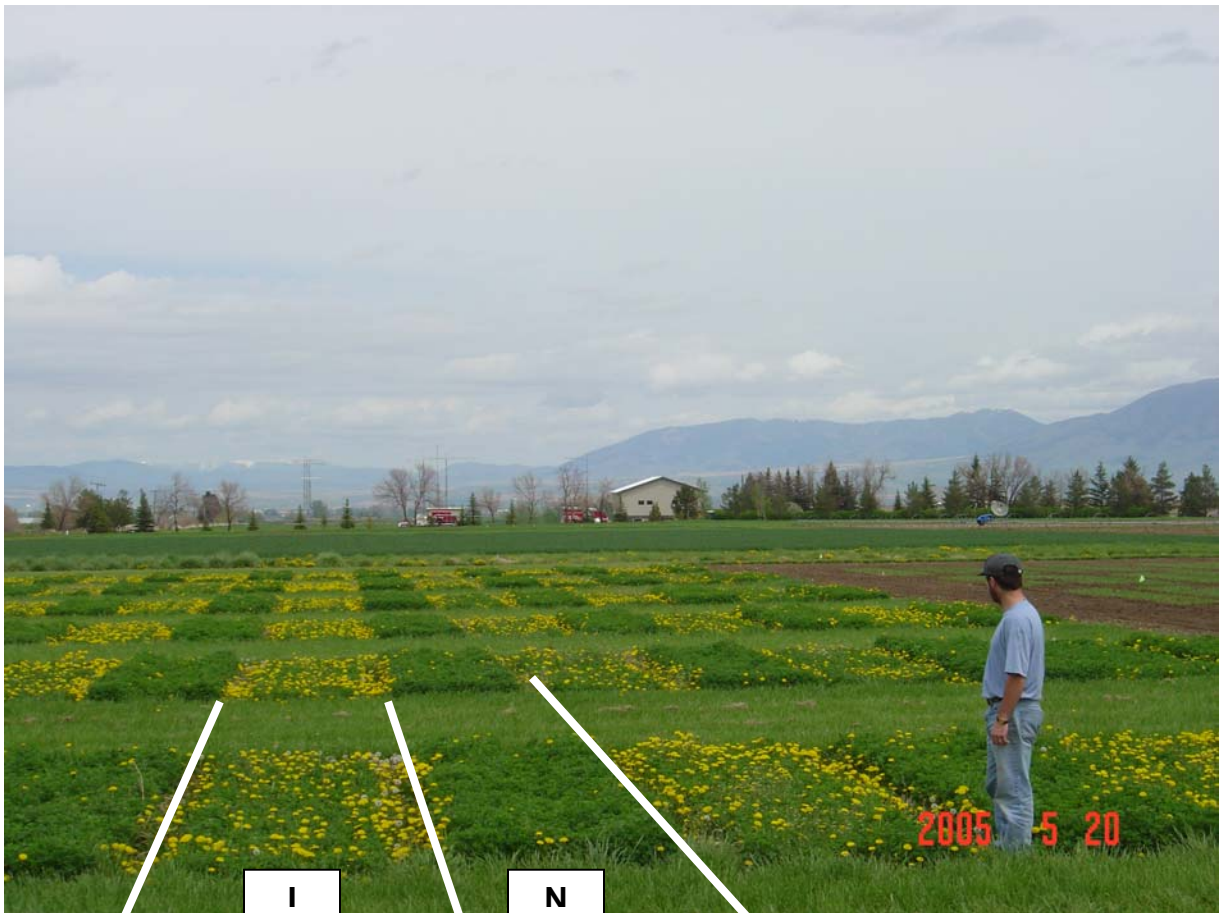


Fig. 1. Field demonstration of the effects of September 1 harvest on alfalfa stands. Photo taken May 20, 2005 in the 2002 trial (see Table 1). 'Shaw' alfalfa is shown in the foreground in plots where the third harvest occurred on September 1 ("I") or in October ("N") as per our normal recommendation.