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## Fall Management of Alfalfa

Stephen K. Barnhart

Iowa State University, sbarnhar@iastate.edu

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**Abstract**

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# Integrated Crop Management NEWS

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## Fall Management of Alfalfa

**Steve Barnhart, Department of Agronomy**

Rain in May and early June this year put most alfalfa producers behind two to three weeks for their first, and correspondingly their second and third cuttings. Now in mid-September, producers are taking advantage of a favorable week of drying weather to make what is their last summer cutting.

This is crowding into the normal four to six week fall rest period for the alfalfa stands. Producers should consider if these mid-September harvests will put the stands at risk.

Our locally adapted alfalfa varieties, and most other perennials, are genetically programmed to respond to external factors. Their response to shortening days and cooling average daily temperatures of fall begins the gradual "cold hardening" process. Cold hardening will continue six to ten weeks.

The genetics of the variety determines how cold tolerant the plant crown and taproot can be during the winter months. Most winterhardened alfalfa plants can withstand soil temperatures in the crown area to about 0 to 4 degrees F without crown tissue damage. At lower soil and crown temperatures, varieties and individual plants will vary in the degree of cold damage they may experience.

### Fall Management strategies and considerations.

Producers may be considering these questions about alfalfa fields this fall.

**Will this field be saved for hay next year?** If the answer is no, harvest anytime. There will be only slight reduction in N credits to next crop if last top growth is removed. If the field will be hay next year, take last summer cut by late August or very early September, and leave fall re-growth stand in the field - no late cut or grazing. If field was not fertilized in the summer, topdress any needed K in late August or early September.

**The alfalfa is knee high in mid-September, should it be cut then?** Again, if the field will not be hay next year, cut anytime. If the field will be hay next year, ask yourself if you need the hay. If not, leave the last growth in the field and don't graze in fall or winter. If there is a need for the hay, it is best to wait until at or after the killing freeze to cut; killing freeze that stops seasonal alfalfa growth is not the first frost of fall, but 23-24 degree F or colder period for several hours. Leave a 4 - 5 inch stubble.

**Hay doesn't dry in October - at least not very rapidly, what is the risk of cutting in mid-September?** The best scenario is that the alfalfa plants have accumulated "root reserves", and, if left uncut, can do very well in the coming winter.

The next best scenario, if you cut in mid-September, is the plant will begin to regrow and begin to use the stored reserves. During fall regrowth, root reserves will decrease for a week to ten days while new growth is starting, and will gradually rebuild root reserves until a killing freeze stops seasonal growth. If the 'fall rest' or fall regrowth period is long enough (four to five

weeks), the plants will likely recovery sufficient root reserves for good plant vigor and winter survival.

The worst scenario would be that during fall regrowth following a mid-September cut, root reserves will decrease for a week to ten days while new growth is starting, and will gradually rebuild root reserves until a killing freeze stops seasonal growth. If the fall rest or fall regrowth period is not long enough - less than about four weeks - the alfalfa plants will be left with a relatively low level of available root reserves and will have minimal levels of reserves to both get through the winter and to regrow from in the spring. From a low level of stored carbohydrates, even a minor premature spring recovery and freeze-back will put the plants in a very poor physiological state.

#### **Factors which improve alfalfa winter survival**

1. Management of insects (potato leafhoppers) during the growing season
2. Good levels of available potassium in the soil
3. A variety with winter/cold tolerance
4. A variety with a good disease resistance traits
5. Three summer cut harvest systems with good regrowth between cuttings
6. Five to six weeks of uninterrupted growth during September and October
7. All of the last growth of the season left in the field (no cutting or grazing)
8. Soils with average soil moisture or slightly drier during fall and winter
9. Four inches or more of winter-long snow cover
10. Young stands (first or second production year); we see more consistent winter injury in older stands (third production year and older)

*Steve Barnhart is a professor of agronomy with extension, teaching, and research responsibilities in forage production and management.*

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