

## Harvesting Alfalfa in 2012

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Alfalfa growth started early this spring. We will likely harvest 2 to 3 weeks early to get dairy quality hay across most of the Midwest.

There are a growth couple factors have not been adequately recognized. The first is that we were dry generally across the Midwest during late March and early April. Alfalfa needs good soil moisture for early root development during this time. The drought reduced root growth and means that first cutting yields will be less than they might be otherwise. The second factor is the cool weather that has occurred during the last two weeks of April. While frosts have generally not killed stems, overall growth has been reduced. The cool and wet weather has also increased some leaf diseases.

Another factor is that some fields had significant numbers of crown buds develop this spring and stems 6 to 8 inches shorter than the tallest are present. In some fields this second growth may be 20 to 30% of yield and will contribute to higher forage quality than indicated by the tallest stems.

When the terminal bud forms on a stem, no more leaves will be formed and stem will continue to grow only through elongation of internodes between existing leaves. Buds are forming about 2 to 3 weeks earlier this year than ever before.

Alfalfa leaves change little in forage quality with maturity until they turn yellow and die. The major cause of forage quality decline is stem increase as a percentage of total dry matter (from less than 10% to over 50%) and then the stem declines in digestibility as it matures.

On cool and cloudy days, there is also less photosynthesis, so less starch is produced and less nonfibrous carbohydrate accumulates in the leaves.

**When to cut** - High forage quality will be crucial, especially with the high grain prices and falling milk prices. On the other hand, harvesting too

early will reduce total yield for the season and, possibly, increase winterkill this coming winter.

So, to harvest at 170 RFV, the best estimate is to clip a sample (at the same cutting height the mower is set for) and have it analyzed at a forage testing laboratory. The second best estimate is stem height as shown in the chart on the following page. Think of cutting when alfalfa is 24 to 26 inches in height; in some areas plants will remain short due to the early drought and leaf loss now may reduce forage quality below shown levels. Alfalfa bud and flower stages will be no indication of forage quality this year. Grasses are generally running about normal in maturity so grass heading will often be after the alfalfa should be cut, but if grasses begin to put out head, cut immediately.

**Use Inoculant** - We always recommend use of a Lactobacillus inoculant on first cutting because bacteria levels are naturally low on alfalfa grown under cool weather conditions. I believe that the recent cool weather will increase the value of added inoculant to chopped forage. Use of inoculant has been shown to be most beneficial if the forage can be ensiled rapidly; forage left laying in the field for more than two days will likely not benefit from added inoculant. Also, benefit of inoculant use for baleage is doubtful due to inability to get good coverage as forage is being baled.

### Management of Remainder of Season

We may be adding a cutting this year due to the early timing of first cutting. A crucial step will be to let second cutting go to first flower to rebuild plant health (and possibly 4<sup>th</sup> cutting also if 5 cuttings are taken before September 1).

The second consideration is to ensure that adequate fertility is present for regrowth. Alfalfa requires 50 to 55 lbs potassium and 5 lbs sulfur per ton dry matter of forage and some boron. Stands should be fertilized after first cutting. Further trace elements are not needed unless deficiency is indicated by an alfalfa tissue test.

# Estimating preharvest alfalfa quality

Choose five representative 2-square-foot areas in the field. (Sample more times for fields larger than 30 acres.) In each area, determine the stage of the most mature stem (see below). Then measure the height of the tallest stem, NOT the highest leaf. Note that the tallest stem may not be the most mature stem. Use the chart to determine relative feed value of the standing alfalfa forage. This procedure does not account for changes in quality due to wilting, harvesting, and storage. These factors may lower relative feed value by 10 to 20 points.

<b>late vegetative</b>	stem is more than 12 inches tall, no visible buds or flowers
<b>early bud</b>	1 to 2 nodes have visible buds; no flowers or seed pods present
<b>late bud</b>	more than 2 nodes have visible buds; no open flowers or seed pods
<b>early flower</b>	1 node with at least 1 open flower
<b>late flower</b>	2 or more nodes have open flowers

height of tallest stem (inches)	stage of most mature stem				
	late vegetative	early bud	late bud	early flower	late flower
	relative feed value				
16	234	220	208	196	186
17	229	215	203	192	182
18	223	211	199	188	178
19	218	206	195	184	175
20	213	201	191	181	171
21	209	197	187	177	168
22	204	193	183	173	165
23	200	189	179	170	161
24	196	185	175	167	158
25	191	181	172	163	155
26	187	178	169	160	152
27	184	174	165	157	150
28	180	171	162	154	147
29	176	167	159	151	144
30	173	164	156	148	141
31	169	161	153	146	139
32	166	158	150	143	136
33	163	155	147	140	134
34	160	152	145	138	132
35	156	149	142	135	129
36	154	146	139	133	127
37	151	144	137	131	125
38	148	141	134	128	123
39	145	138	132	126	121
40	142	136	130	124	118

Dairy quality forage

Source: Derived from equations developed by R.W. Hintz, V.N. Owens, and K.A. Albrecht at the University of Wisconsin-Madison, Department of Agronomy.