Change in yield and quality of alfalfa

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Abstract
Researchers in Idaho, Wisconsin, and Pennsylvania are jointly investigating the tradeoffs between the lower yields vs. higher feeding value in alfalfa being cut earlier for the higher quality. They are collecting data on both yield and quality change over cuttings. From the data thus far, Dan Undersander, forage specialist at the University of Wisconsin, has provided the following preliminary summary of their studies.

Keywords
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Disciplines
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An alfalfa field in Iowa. (USDA Natural Resources Conservation Service)

It appears that alfalfa quality changes at the fastest rate for the first cutting crop, with later cuttings changing at a slower rate. First cutting alfalfa decreases about 5 points of Relative Feed Value (RFV) per day, second cutting decreases 2 to 3 points per day, and third and fourth cutting during the growing season declines 1 to 2 points per day. The late fall growth may change little in forage quality during mid- to late September and early October. Relative Forage Quality (RFQ) will change about the same as RFV on the first cutting and then decline about 3 points per day on the second, third, and fourth cuttings during the growing season.
The yield of standing alfalfa around harvest time varies considerably and increases from 0 to 200 lbs per acre per day. From a number of studies, it seems reasonable to plan on the yield increase of alfalfa being about 100 lbs per acre per day near harvest if growing conditions are average. This yield change is consistent across cuttings, exclusive of late fall. Daily yield increase will be less in cool, cloudy weather, and if insects, disease, or drought occur. It may be greater than 100 lbs per acre per day in periods of good moisture, sunshine, and 75° to 85° F weather. When planning to cut earlier for higher quality, you should count on sacrificing about the same amount of yield per day.

Once a grower decides how the particular season is progressing relative to "normal," the following table can be used as a guideline to gauge relative tradeoffs between harvest yield and quality. Actual yields will vary.

Daily change in yield and quality of alfalfa during a "normal" growing season

<table>
<thead>
<tr>
<th>Cutting</th>
<th>Yield (lb)</th>
<th>RFV</th>
<th>RFQ</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Daily Change</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>100</td>
<td>-5</td>
<td>-5</td>
</tr>
<tr>
<td>2</td>
<td>100</td>
<td>-2 to -3</td>
<td>-4</td>
</tr>
<tr>
<td>3</td>
<td>100</td>
<td>-2</td>
<td>-3</td>
</tr>
<tr>
<td>4</td>
<td>100</td>
<td>-1</td>
<td>-3</td>
</tr>
</tbody>
</table>

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