Alfalfa hay quality: A vital component of feeding value and profitability

Production of high quality alfalfa hay is a vital component for maximum performance and efficiency of high performing animals. Alfalfa hay baled with more retained leaves will have higher feeding value and contain greater nutritional quality, which can reduce ration costs, improve performance and higher profitability.

**Controlling quality variables**

Maturity and leaf loss are two management issues which have a large impact on forage quality. Culbac® Forage Treatment can help hay producers produce higher quality hay with more leaves as well as protect hay from spoilage in times of high humidity and slow drying weather.

**Leaf retention at baling can be controlled**

Leaf retention has been shown to have a significant impact on forage quality (Table 1). Two-thirds of the nutritive value of alfalfa hay is in the leaf material and reduces significantly as leaves are lost during drying.

*Culbac® Forage Treatment allows hay to be baled at higher moisture*, which increases leaf retention. When baled at the recommended moisture level, Culbac® Forage Treatment will allow the production of higher quality hay without spoilage and heat damage.

**Table 1. Baling Moisture and Leaf Loss**

<table>
<thead>
<tr>
<th>Moisture</th>
<th>Leaf:Stem</th>
<th>CP, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>At cutting</td>
<td>81.0</td>
<td>60:40</td>
</tr>
<tr>
<td>Baled at</td>
<td>15.0</td>
<td>42:58</td>
</tr>
<tr>
<td>Baled at</td>
<td>23.0</td>
<td>58:42</td>
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</tbody>
</table>

**Research**

Both University and TransAgra International’s own trial work demonstrates that baling alfalfa at higher moisture (18% – 22% moisture) maximizes leaf capture, decreases mold and heat damage, while maximizing alfalfa quality.

New Mexico State University research demonstrated that approximately 30% of the leaf material was lost when baled at 15.0% moisture. Another New Mexico State study found that the most significant protein loss occurred when alfalfa hay dries down from 23% to 13% moisture.
Application

Culbac® Forage Treatment can be applied at the baler or at the swather or cutter. When applied at the baler, either Culbac® Forage Dry or Culbac® Forage Liquid can be used. When applied at the cutter, a low volume sprayer is used to apply Culbac® Forage Liquid ahead or behind the conditioner.

Additional Benefits of Using Culbac® at the Swather/Cutter vs. Baler

• Stops mold growth earlier
• Improved forage quality after a rain

Recommended alfalfa baling moisture

As shown in the graph below, the rate of spoilage in hay accelerates at 20%. When the moisture level reaches 30%, spoilage can be very significant and hard to control.

Figure 1. Dry Matter Loss From Spoilage

![Dry Matter Loss From Spoilage](image)

The ideal baling moisture level for alfalfa hay should be between 18% and 22%. This range provides adequate moisture for high leaf retention and but not too high for prevention of spoilage from mold.

Since weather is unpredictable, and hay making conditions are not always ideal, Culbac® Forage provides an additional margin of safety when rain is imminent or high humidity slows hay drying. Even in worst case conditions, Culbac® Forage can help make the difference to improve the quality of the baled hay.

Application Rates for Culbac® Forage

Culbac® Forage liquid:

• When hay moisture is below 22%, apply at 2.5 ounces of Culbac® Forage Liquid per ton of hay.
• When hay moisture is above 22% use a double rate of 5.0 ounces. Mix Culbac® Forage liquid with water and apply one quart to one gallon of mix per ton of hay through a low pressure applicator at the cutter, conditioner or baler.

Culbac® Forage Dry:

• When hay moisture is below 22%, apply Culbac® Forage Dry at the rate of 0.4 pounds per ton of hay
• When hay moisture is above 22%, use a double rate of 0.4 pounds per ton of hay.

Apply Culbac® Forage Dry through a dry granular applicator at the baler.

Benefits of baling with Culbac® Forage Treatment

• Decreased mold
• Decreased spoilage
• Decreased heat damage
• Decreased weather risk
• Increased harvest yield
• Increased nutritive value
• Improved palatability
• Fewer days to baling
• Noncorrosive – safe to handle
• Economical