Application

While Culbac® Hay Treatment can be applied at the baler, the typical application method is at the swather or cutter. When applied at the baler, either Culbac® Hay Dry or Culbac® Hay Liquid can be used. When applied at the cutter, a sprayer is used to apply Culbac® Hay Liquid ahead or behind the conditioner. Other methods of application are also used.

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

- Stops Mold Growth Earlier
- Decreases Hassle at Baling
- Improved Forage Quality After Rain

Moisture levels at baling will depend on type of bale harvested. Moisture level can be either stem moisture or dew moisture.

Apply Culbac® Hay Liquid at the rate of 2.5 ounces per ton of hay harvested. Mix with water and apply at the rate of one quart per ton of hay.

Apply Culbac® Hay Dry at the rate of one pound per 2.5 tons of hay (0.4 pounds per ton of hay)

Recommended Alfalfa Baling Moisture for Both Culbac® Hay Liquid and Dry

Small Square Bales	22% Moisture
Large Round Bales	20% Moisture
Large Square Bales	18% Moisture

Adjustments for presence of weeds and humid climates must also be made. For weedy or mixed alfalfa grass hay, decrease moisture levels by 2%. In humid southern climates, baling at these higher recommended moisture levels may not be attainable, but the use of Culbac® Hay Treatment will decrease spoilage and heat damage.

In southern climates, if spoilage is typical, producers can begin baling at their normal moisture levels and slowly increase moisture levels to determine the optimum level for baling with Culbac® Hay Treatment.

The key to successfully using Culbac® Hay Treatment is to bale wetter and capture more leaf thereby increasing both yield and quality.

Culbac® Hay

Benefits of Baling with Culbac® Hay Treatment

- Decreased Mold
- Decreased Spoilage
- Decreased Heat Damage
- Decreased Weather Risk
- Increased Harvest Yield
- Increased Nutritive Value
- Improved Palatability
- Fewer Days to Baling
- Noncorrosive
- Economical
- Product Stability
- Safe to Handle and Use

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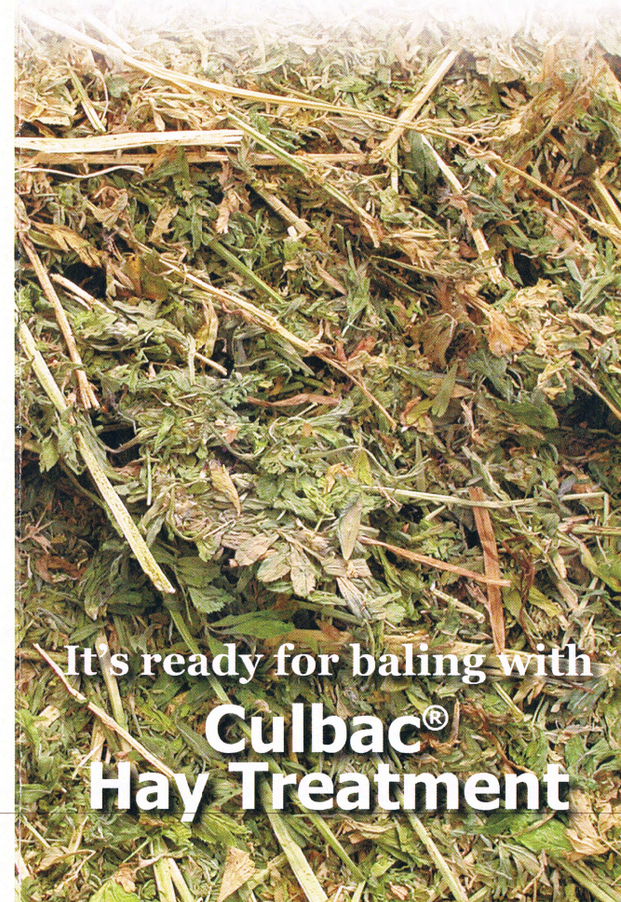
Culbac®

CULBAC® Hay Treatment for Alfalfa



Alfalfa Hay Quality

A Vital Component of Profitability

High quality alfalfa hay is required for maximum performance and efficiency. Low quality alfalfa hay lowers the nutritive value of the total ration, which decreases performance and increases costs. High quality alfalfa hay is essential for efficient, economical performance.

Factors affecting forage quality at harvesting include **cutting, stage of maturity, leaf capture, and weather conditions.** At feed out, the presence of mold, heat damage and spoilage impacts performance. Many times high quality alfalfa hay is present at baling, but at feed out, the quality has deteriorated.

Controlling Quality Variables

Two harvesting factors, maturity and harvest losses, have a large impact on hay quality. **Stage of maturity and leaf capture at baling (one component of harvest losses) can be controlled.** Stage of maturity is a management factor that depends on timing of cutting.

Leaf capture at baling is increased with the use of Culbac® Hay Treatment. Leaf capture has been shown to have a large impact on hay quality (Table 1). Two-thirds of the nutritive value of alfalfa hay is in the leaf material. Culbac® Hay Treatment allows hay to be baled at higher moisture, which increases leaf retention. When baled at the recommended moisture levels, Culbac® Hay Treatment decreases mold and heat damage problems.

Table 1

Baling Moisture and Leaf Loss

	Moisture	Leaf:Stem	CP, %
At Cutting	81.0	60:40	21.0
At Baling	15.0	42:58	13.0
	23.0	58:42	19.0

Research

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

New Mexico State University research demonstrated that approximately 30% of the lead 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.

Round Bales

Culbac® Hay Liquid was used to treat high moisture 1400 pound round bales. The untreated high moisture round bales had considerable quality deterioration.

Culbac® Hay for Large Round Bales

	Culbac®	Untreated
Number of Bales	5	5
At Baling		
Moisture, %	23.6	21.3
Bale Wt., lbs.	1400	1400
After Storage		
Moisture %	15.3	14.9
CP, %	17.8	17.4
ADIP, %	7.4	11.8
Quality Evaluation		
Spoiled Bales	0	3

One-Ton Bales

Field trials with one-ton square bales demonstrated that Culbac®–treated **high moisture** alfalfa hay, contained 12% more crude protein and 11% more digestible protein than **low moisture** alfalfa. There was no spoilage in the **high moisture** alfalfa hay.

Culbac® Hay and One-Ton Alfalfa Bales

Summary of two trials

	Culbac®	Untreated
Moisture at Baling %	18.9	13.6
After Storage		
CP, %	19.3	17.2
Digestible Protein, %	17.9	16.1
Quality, %		
Good Bales	100	100

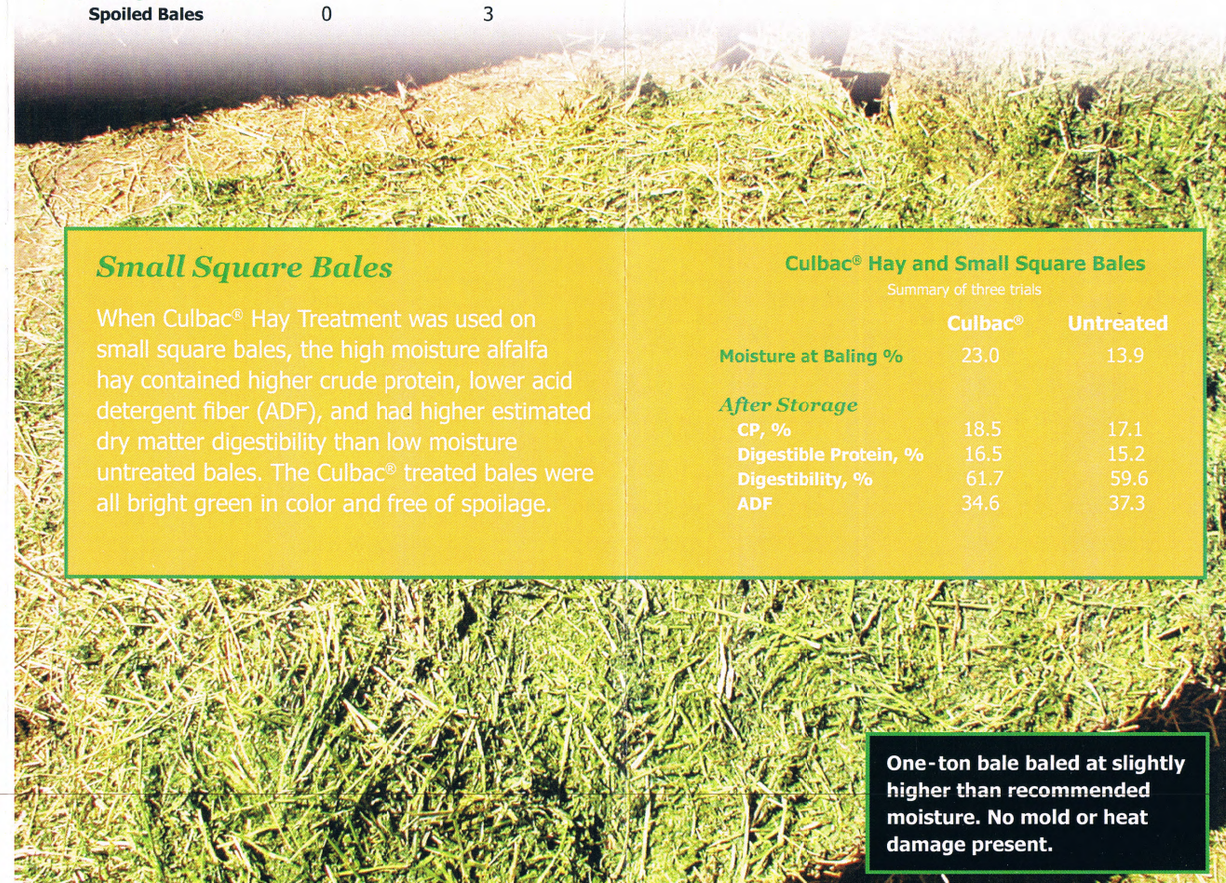
Small Square Bales

When Culbac® Hay Treatment was used on small square bales, the high moisture alfalfa hay contained higher crude protein, lower acid detergent fiber (ADF), and had higher estimated dry matter digestibility than low moisture untreated bales. The Culbac® treated bales were all bright green in color and free of spoilage.

Culbac® Hay and Small Square Bales

Summary of three trials

	Culbac®	Untreated
Moisture at Baling %	23.0	13.9
After Storage		
CP, %	18.5	17.1
Digestible Protein, %	16.5	15.2
Digestibility, %	61.7	59.6
ADF	34.6	37.3



One-ton bale baled at slightly higher than recommended moisture. No mold or heat damage present.