

Cattle Producer's Handbook

Alfalfa Hay Management

Each year in the United States approximately 140 million tons of hay are produced and stored in various forms. The amount of harvest and storage losses in making hay is estimated to be more than from any other crop grown. These losses can be reduced dramatically by harvesting at the proper stage of maturity, avoiding weather damage and minimizing harvest and storage losses.

Plant material losses when making hay range from 20 to 40 percent, but can exceed 70 percent if harvested in less than ideal weather conditions. The number one loss is from leaf shattering during mechanical handling, such as raking and baling when hay is too dry. Nutrients leached by rain and plant respiration during storage are other contributing factors in hay making losses.

Baling hay at higher than the optimum moisture content of 15 to 18 percent will minimize mechanical leaf loss and reduce the risk of rain damage because of the shortened wilting and drying period. However, baling at moisture levels above 20 percent generally increases storage losses from excessive heating and molding of the hay.

The use of drying agents, at the time of cutting, hastens the drying process. Preservatives applied while baling do not shorten drying time, but prevent heating and mold growth in hay baled at higher than recommended moisture levels.

Cutting at the "Best" Stage of Maturity

Alfalfa growth is very rapid in the spring and after each harvest through the onset of flowering. At these vegetative growth stages the proportion of leaves, by dry weight, is usually greater than that of the stems. At flower initiation stems increase in fiber and lignin and the ratio begins to reverse with a greater proportion of stems being present. Higher yield from mature alfalfa is

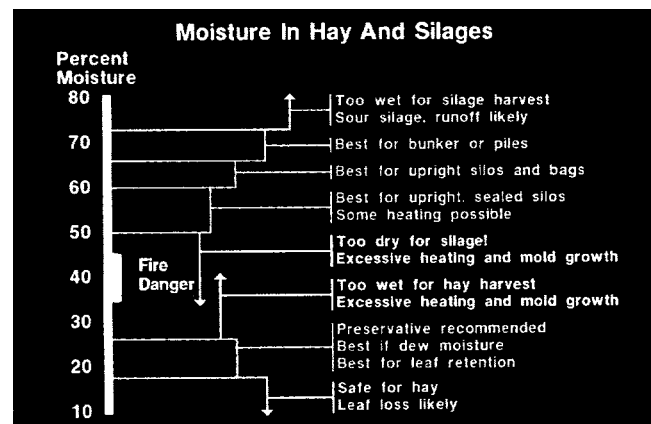


Fig. 1. Moisture management guide for preserving forages as silage or hay.

due to the heavier and thicker stems that have increased quantities of undigestible cellulose and lignin.

To harvest top quality alfalfa it should be cut at the growth stage where leaves are present in the greatest quantity and before stems develop heavy cell wall deposits. An example of how alfalfa matures is shown in Table 1.

Table 1. Percent change in cellulose and lignin content of alfalfa as it matures.

Harvest date	Leaf		Stem	
	Cellulose	Lignin	Cellulose	Lignin
(%)				
April 22	7.1	2.43	11.0	1.80
28	7.0	2.51	10.2	2.10
May 5	6.9	2.83	15.2	3.76
13	7.1	2.37	16.6	4.73
22	7.1	2.85	22.5	6.77
June 4	7.6	2.82	23.5	8.79

Source: Bittner 1988.

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