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Setting a Price For Alfalfa Feeds

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Alfalfa supplies a major share of feed nutrients for the dairy and livestock industry in Idaho. It is harvested, stored and fed in a wide variety of forms including dry hay, haylage, silage and green chop. These feeds are key ingredients in nearly all ruminant rations. Since the concentration of nutrients is quite variable in most feeds, value is also variable. Differences in nutrient content mean dollars and cents to the livestock or dairy producer. The alfalfa grower also desires to maximize his dollar return on the crop produced to sell.

Buying and Selling Alfalfa Hay

Crude protein (C.P.) is a good measure of alfalfa hay quality. It provides a simple means of determining the nutrient value. Moisture is also a key factor in determining price. Using a combination of crude protein and dry matter (D.M.), average selling price can be adjusted to reflect the nutrient and feeding value of the hay. Table 1 presents relative value indexes for alfalfa hay at various moisture and crude protein levels. To determine the fair value of a particular lot of alfalfa hay, multiply the current selling price for alfalfa hay by the index value for the moisture and crude protein level of the hay in question.

Example:

Alfalfa Hay A — 87% D.M. and 16% C.P.

Alfalfa Hay B — 86% D.M. and 20% C.P.

Current selling price is \$50/ton

Alfalfa Hay A — $\$50 \times .88 = \44

Alfalfa Hay B — $\$50 \times 1.08 = \54

Therefore, Hay B is actually worth
\$10 per ton more than Hay A.

Buying and Selling Haylage, Silage and Green Chop

Moisture content is an important factor to consider when you buy or sell alfalfa for haylage, silage or green chop. Adjustments must be made to compensate for the variation in dry matter. The dry portion of the alfalfa plant contains the nutrients needed for dairy and livestock production. Dry alfalfa hay (88% D.M.) is used as a base value in comparing other methods of harvest.

In Table 2, various alfalfa feeds are compared to dry hay and expressed as a relative D.M. value. This relative D.M. value can be used to determine an approximate price per ton of feed or to adjust the weight to a hay basis. The actual cost per pound dry matter is the same for both methods. Quality factors may also be considered in buying or selling these high-moisture alfalfa feeds. The protein adjustment factors for alfalfa hay discussed earlier could be used to establish the hay basis price. The following example illustrates these methods:

Alfalfa silage 30% D.M. with a relative D.M. content of .341 and with alfalfa hay (88% D.M.) selling for \$50/ton.

Adjusting weight to hay basis

2000 pounds silage

.341 D.M. relative value

682 lb. hay equivalent

682 lb. \times \$50/ton = \$17.05 per ton silage

Adjusting price to silage basis

\$50/ton alfalfa hay

.341 D.M. relative value

\$17.05 per ton silage

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Table 1. Relative value indexes for alfalfa hay at various moisture and crude protein levels.

% Dry matter	% Crude Protein										
	12	13	14	15	16	17	18*	19	20	21	22
70	.53	.57	.62	.66	.71	.75	.80	.84	.88	.93	.97
71	.54	.58	.63	.67	.72	.76	.81	.85	.90	.94	.99
72	.55	.59	.64	.68	.73	.77	.82	.86	.91	.95	1.00
73	.55	.60	.65	.69	.74	.78	.83	.88	.92	.97	1.01
74	.56	.61	.65	.70	.75	.79	.84	.89	.93	.98	1.03
75	.57	.62	.66	.71	.76	.80	.85	.90	.95	.99	1.04
76	.58	.62	.67	.72	.77	.82	.86	.91	.96	1.01	1.06
77	.59	.63	.68	.73	.78	.83	.88	.93	.97	1.02	1.07
78	.59	.64	.69	.74	.79	.84	.89	.94	.98	1.03	1.08
79	.60	.65	.70	.75	.80	.85	.90	.95	1.00	1.05	1.10
80	.61	.66	.71	.76	.81	.86	.91	.96	1.01	1.06	1.11
81	.61	.66	.72	.77	.82	.87	.92	.97	1.02	1.07	1.13
82	.62	.67	.72	.78	.83	.88	.93	.98	1.04	1.09	1.14
83	.63	.68	.73	.79	.84	.89	.94	1.00	1.05	1.10	1.15
84	.64	.69	.74	.80	.85	.90	.95	1.01	1.06	1.11	1.17
85	.64	.70	.75	.80	.86	.91	.97	1.02	1.07	1.13	1.18
86	.65	.70	.76	.81	.87	.92	.98	1.03	1.08	1.14	1.19
87	.66	.71	.77	.82	.88	.93	.99	1.04	1.10	1.15	1.21
88*	.67	.72	.78	.83	.89	.94	1.00	1.06	1.11	1.17	1.22
89	.67	.73	.79	.84	.90	.96	1.01	1.07	1.12	1.18	1.24
90	.68	.74	.80	.85	.91	.96	1.02	1.08	1.14	1.19	1.25
91	.69	.75	.80	.86	.92	.98	1.03	1.09	1.15	1.21	1.26
92	.70	.76	.81	.87	.93	.99	1.05	1.10	1.16	1.22	1.28
93	.70	.76	.82	.88	.94	1.00	1.06	1.12	1.17	1.23	1.29
94	.71	.77	.83	.89	.95	1.01	1.07	1.13	1.19	1.25	1.30

*88% dry matter and 18% crude protein assumed standard.

Special Consideration in Buying and Selling Alfalfa Feeds

The primary difference in all types of alfalfa feeds is the forage dry matter. The dry matter at harvest directly affects nutrient loss, feeding and harvest management.

Nutrient Loss

Dry matter content at harvest directly affects dry matter losses in harvest and storage (Fig. 1). Field losses increase as the forage dry matter increases at harvest. Field-cured hay would be expected to have the greatest field loss of dry matter. Storage losses decrease as the forage dry matter increases at harvest.

Losses that occur during harvesting and storage should be considered in buying or selling alfalfa. If the crop is sold as dry hay, the grower absorbs the losses in the field and only a small loss occurs during storage. If the crop is sold for green chop, silage or haylage, field losses are small with the dry matter yield per acre higher than with dry hay methods. If the buyer stores the alfalfa as silage, the major dry matter loss

Table 2. Relative dry matter values for various alfalfa forages.

Forage	% D.M.	Relative ¹ D.M. value	Used for:
Hay	88%	1.000	Stored hay
Hay	84%	.955	Just baled
Green forage for silage, haylage or green chop	60%	.682	Most haylages
	55%	.625	
	50%	.568	
	45%	.511	
	40%	.455	
	35%	.398	Wilted silage
	30%	.341	
	25%	.284	
20%	.227		
	15%	.170	Lush green chop

¹Relative D.M. value = % D.M. of feed divided by 88% D.M. for alfalfa hay

Example: Wilted silage at 30% D.M.:

Relative D.M. value = 30% divided by 88%

Relative D.M. value = .341

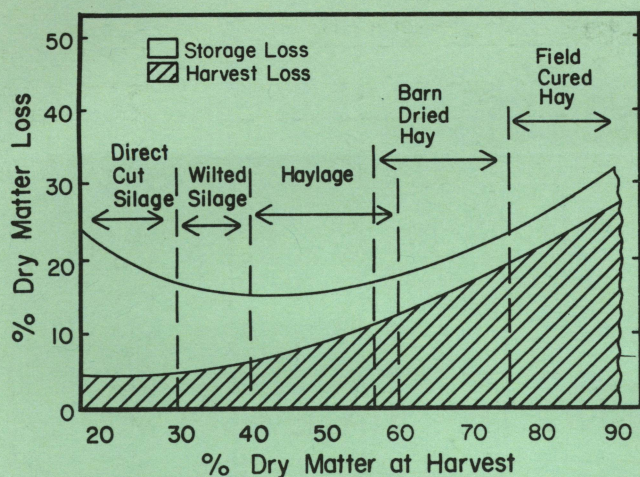


Fig. 1 Dry matter losses occurring in forages by haying system (from Michigan State University Extension Bull. E-1013).

occurs during storage. Storage loss would be minimal in airtight storage structures. Adjustments to the relative D.M. values discussed earlier may be necessary to determine a fair price to both the buyer and seller due to shift in total crop loss.

Feed Selection

Alfalfa feeds should be selected to meet the ration requirement. For beef cows, non-lactating dairy cows or livestock with low nutrient requirements, a lower protein alfalfa hay may be the best feed buy.* The actual cost of crude protein in alfalfa can also be compared to other protein feeds. This is an important comparison when crude protein is the main diet concern.

*Livestock producers should match feed quality to livestock nutrient requirements when possible. This practice may result in cheaper feed costs and greater dollar returns to the producer.

Feeding

The high moisture content of alfalfa green chop, silage and haylage may be a limiting factor in some livestock and dairy rations. Dairy cows usually perform best with some dry hay in the ration. Alfalfa silage is well suited for use in complete rations and readily blends with other feeds. Labor costs are usually reduced with the mechanized handling of silages. Alfalfa harvested as green chop, silage or haylage will be higher in protein because leaf shatter is reduced with high-moisture harvesting.

Harvest Management

Rapid harvest of high moisture alfalfa as green chop or silage is a plus for growers. The yield of dry matter per acre is higher than field-cured hay. Harvest is not usually delayed due to adverse weather since drying is not required. This is an important consideration for the grower for first and last alfalfa cuttings when drying conditions are poor. Harvesting costs, especially those related to hauling from the field to the livestock, are another important consideration.

Summary

The price for alfalfa harvested as green chop, silage, haylage or dry hay must be determined by the buyer and seller. The most important factor is dry matter. The price or adjusted harvest weight, as determined by the relative D.M. value, should be the starting point for discussion. Protein, fiber, energy or other nutrients should also be considered. Don't forget the advantages and disadvantages to the buyer or seller in nutrient loss, feeding and harvest management.

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