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Mark Keaton's Extension News: Visual assessment of hay

Can the nutritive value of hay be estimated by simply looking at it? The short answer is "no." Generally, crude protein (CP) or total digestible nutrient (TDN) content of forages can't be estimated by visual appraisal alone. The only way to accurately determine the feeding value of a specific lot of hay is by a laboratory analysis. Even if the hay looks the same as another hay crop, it may have drastically different nutrient levels. Variation in nutritive value occurs from year to year, field to field and cutting to cutting due to weather, management and several other factors.

Unfortunately, laboratory results are often not available when you are buying hay. Fertilization or forage variety do influence hay quality, but other factors have a greater effect. In the absence of a hay test, certain visual characteristics of baled hay can help assess relative quality. With experience, these factors can be judged to help sort different lots of hay into groups of poor, average or good quality. Characteristics that should be considered when visually evaluating hay are maturity, condition, purity, color and smell. Once hay is purchased, it should be sampled and analyzed so that a feeding program can be developed.

- Maturity — Forage maturity at harvest has greater influence on hay quality than any other single factor. Forages that become too mature before cutting have high concentrations of fiber that result in poor digestibility. Mature, high-fiber forages have lower CP and TDN levels than forages cut at less mature stages of growth. Some indicators of desirable forage maturity include the absence of seedheads and seed stems, mature blooms for legume hay, small or fine stems, a high percentage of leaf that is green compared to dead and high leaf-to-stem ratio.
- Condition — Hay condition refers to the leafiness and texture of the forage. Condition often reflects the harvest methods and conditions, as well as forage maturity.
- Legumes that are baled too dry will often have a large percentage of shattered leaves. Hay that is baled too wet is often very dusty or moldy; after storage, individual bale flakes also may be difficult to pull apart.
- Purity — Hay purity is simply an observation of the relative proportion of weeds or foreign material in the hay. Certain weeds can decrease the nutritive value of the hay or be poisonous to livestock.
- Color — probably has the biggest influence on sale price at hay markets and in private sales, and it easily biases visual appraisals. Although it can give an indication of harvest and storage conditions, color is not a strong indicator of hay quality.
- Smell — the smell or odor of hay is affected by the concentration of moisture in the hay at baling. A typical fresh hay odor is desirable. Hay that smells musty or moldy was baled at higher than desirable moisture levels or became wet during storage. Some hays that are baled before they are adequately dried have a tobacco-like odor and are brown in color.

For information on hay quality, call University of Arkansas Division of Agriculture at 425-2334.

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