

## VISUAL APPRAISAL OF ALFALFA HAY

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Alfalfa hay, the queen of forages, makes up the basis of most ruminant and equine diets. Across the U.S., dairy cattle consume the largest percentage of alfalfa hay grown (75 to 85%), followed by horses and beef cattle (each 5 to 10%), and sheep and goats (1%). Approximately 1 to 1.5% is exported and about .5% is organically grown for a variety of uses (Putnam, 2007).

While laboratory analyses are the best way to determine the chemical composition of hay, visual appraisal is used as a first step in assessing hay quality and, in cases where quick decisions are needed regarding whether to purchase a given load of hay, may be the only quality assessment measure available.

During 2006, 2007 and early into 2008, high alfalfa prices will cause dairymen and beef producers to feed more by product forages. Peanut hay, corn stover, corn and cob meal, soybean vine hay and other forages products must be analyzed as the nutrient values are outside our normal daily knowledge.

When laboratory analyses are possible, make sure to follow correct sampling procedures to get a sample that accurately represents the entire lot of hay being considered. Use a reputable laboratory and stick with the same laboratory so that slight variations in results are consistent. Wet chemistry is still believed more than near-infrared spectro-photometry for hay.

Skills in visual appraisal of hay are acquired over a life time of experience and practice. University coursework and advice from nutritionists give the basis of understanding. People who make their living in the hay industry, though, often possess uncanny skills for appraisal. Hay truckers, hay buckers, hay growers in the San Joaquin Valley, Imperial Valley, Nevada and other hay producing areas are perhaps the most astute judges of their own hays. Dairy men often have the added insight of observing the palatability of their hay first hand when they feed their cows.

Visual appraisal of hay starts with the entire stack, then the bales and the flakes, and then the plant material itself.

Check stacks for general signs of rain, snow or sun damage. Note stack tightness and determine if hay is new or last year's hay (or older). If hay has been tarped or stored under roof, it is likely in better condition than if left on the road side. A light sun or fog burn on the outside of a stack may not mean the hay inside is significantly damaged.

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Hit a bale with your fist. It should feel and sound tightly packed and uniform across bales throughout the stack. When strings on the bale are cut, the strings should pop because they are tight. Individual flakes should separate easily and evenly, without falling apart, without dust or mold springing out of flakes, and without a moldy or dusty smell. Flakes that are very tightly packed and hard to pull apart are often the result of hay that was put up too wet. Weeds should not be obvious and all flakes should be consistent in color and texture.

Take a handful of hay and twist it between your hands. Hay put up at proper moisture will break apart when twisted enough. Hay that breaks apart easily is likely too dry. Hay that is too stringy and “twistable” was baled too wet. Coarse stemmed hay resists twisting breakage more than fine stemmed hay. Feeling bales and flakes also gives a general idea of hay moisture content. A moisture probe, however, is the most accurate and can be carried to the fields to inspect hay on location.

While most alfalfa hay is palatable, feeding a bale to the desired animal consumer is the best way to determine palatability.

The demand for alfalfa hay for dairy cattle drives the alfalfa market. Nothing makes ice cream like top quality alfalfa hay. On average, dairy cows consume 6 to 15 lbs. of alfalfa hay per day. Heifers are usually fed lesser amounts of alfalfa and more inexpensive forages. Dairy hay is usually priced based on laboratory analyses with emphasis on protein content as well as lignin and NDF content and even sometimes on magnesium and potassium content. To formulate diets correctly it is critical to have hay of appropriate quality. Hay that is sufficient for dry cows is unacceptable for milking cows. Hay with low potassium content could be fed to transition cows as part of the dietary cation-anion difference (DCAD) requirements. The calcium level in alfalfa (1.25%) is too high for a dry cow diet, upsetting the DCAD requirement. However at freshening, high calcium and highly digestible alfalfa is very desirable forage. New nutrient interests in alfalfa are carbohydrate (digestible and indigestible) content. New varieties and afternoon harvesting can produce hay with high sugar and soluble carbohydrate content (2.7 to 20% in either dry alfalfa or silage; NRC, 2001). At these levels, alfalfa hay can compete with protein sources like soybean and cottonseed meal in soluble carbohydrate content.

The horse market follows its own rules, driven less by economics than by perception of quality by horse owners. Fine stemmed, soft, leafy hay is usually preferred even though its energy, protein and calcium content usually greatly exceeds the horse's nutrient requirements. Foreign material, poison plants (leafy spurge, yellow star thistle), insects (blister beetle) and dead rodents (rabbits) all put the supplier in jeopardy if illness or death occurs from feeding. New interest in health issues related to insulin resistance and laminitis have driven some horse owners to seek hay with low soluble carbohydrate content. This, plus fear of the high protein content and high calcium: phosphorus ratio of alfalfa, has sometimes resulted in less nutritious alfalfa hay being more desirable to horse owners than better quality hay (Rodiek, 2007, personal communication).

The export market for alfalfa hay demands top quality, weed-free and bright color hay. While California is still a major producer of export hay, hay from the Pacific Northwest and western Canada also competes for the export market, especially for grass hays.

Networking with growers, brokers and truckers is still often the best way to find top quality hay. Visual appraisal is as much an art as a science. Laboratory analyses are best, when there is time to get it done. Understanding the animal consumer of the hay and buying habits of the owners help one determined the usefulness and value of a given lot of hay.

### **REFERENCES**

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Putnam, D. 2007. Round up ready, non-biotech alfalfa can coexist by being good neighbors. Western Farm Press, vol 29, no.24, pp.6-7 (Nov 3, 2007).