

Dairy Herd Management Report

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**DID YOU REALLY WANT
TO MAKE THAT HAY?**

Does anybody have dairy cows, good dairy cows, and not make hay? Not too many. In the west, the general rule is that if you don't use alfalfa hay, good alfalfa hay, and liberally, you won't have a high-producing dairy herd.

Of course there are hays other than alfalfa, but if corn is "king" in dairy cattle feeding, alfalfa is "queen" for its tremendous contributions to the high-producing dairy cow and the income of dairy farmers.

Yet, what is "good" alfalfa hay? There are many opinions. At a hay auction, more often than not in this highly scientific and biotechnological age, empirical criteria such as the green color, the odor, and the leafiness of the alfalfa hay determine the price, reflecting the so-called quality. On a more sophisticated level, protein content (20 percent is desirable) is the criterion, but a lab test is required to determine this. You also need to know the degree of solubility or degradability of that protein for your ration formulation.

An even more sophisticated criterion is the stage of flowering, which reflects the stage of immaturity. This factor, which correlates highly to the protein content, is even more indicative of the fiber content. And fiber content, in turn, relates to acid-detergent fiber (less than 30 percent is ideal) and neutral-detergent fiber (ideally less than 40 percent). This then, in popular usage, has led to the term of 20-30-40 alfalfa, the standard for good quality for high-milking cows.

However, many high-producing dairy cows are fed a large

amount of high-energy supplements to sustain them. These cows are often more in need of a source of just plain roughage (an effective or functional fiber, nicknamed the "tickle factor") which may be better supplied by lower-quality, more mature alfalfa, grass hay, or straw.

Some dairy farmers long ago observed that cows like to pick up oats, wheat, or barley straw from their bedding, if it is clean, not weather-damaged nor moldy. And some dairy farmers have said it is easier to supplement protein with commercial feeds than to buy fiber.

So what kind of hay do you really want to make? If you want fiber, immature hay is wrong. If you're after protein, then mature hay is not the answer. In either case, you can lose a lot of hay before it gets into the cows' stomachs if you're not aware of the four areas that rob you of your hard work in making hay: plant physiology, weather, harvesting methods, and storage.

Plant physiology means that the plant is alive and breathing. Like any other living organism, it synthesizes and metabolizes nutrients. If plants are cut for hay, they do not die immediately, but continue to breathe and metabolize their nutrient contents until they have wilted down to 35 percent moisture content. As a result of the continued metabolism of the plants, hay that does not dry fast can lose as much as 15 percent of its substance.

Weather is widely known for making a mess of even the nicest hay, especially on first cutting, and much of that so-called hay ends up in bedding or is sold for mushroom composting. This is probably the foremost reason that some farmers have sold their hay

balers and gone to all-silage feeding. Many have then struggled with various veterinary problems as a consequence, because cows by nature are "hay burners" and do not want to change. Rain damage, leaf shatter, and molding are the major problems for hays. Weather can cause at least 25 percent material losses, and refusal of cows to eat that stuff freely or only when they are hungry, results in a reduction in milk production and reduced income.

Harvesting methods include raking, bedding, and winnowing, which may have to be done more than once depending on conditions or how thick or wet the stuff is, and finally baling and transporting into storage. Every time leguminous hay such as alfalfa is touched after it's finished drying, it loses leaves. Plant geneticists have not yet come up with an alfalfa variety with tough leaves that do not shatter. And leaves are one important criterion of leguminous hay quality. Who wants to go through all the work of hay making to harvest just stems? Losses of alfalfa hay as the result of problems with harvesting methods can easily amount to 20 percent. There is a difference between alfalfa and grass hays, which do not have leaves to shatter.

You can avoid this loss when you make grass hay instead of alfalfa hay. And if you put enough fertilizer on your grass field, you can make grass hays containing the same amount of protein as alfalfa hay has. Here in our research at the University of Delaware, we have accomplished this high-protein hay, especially with orchard grass.

Storage losses can also be high, especially if the hay is not really dry when baled. This hay will then heat in storage (a fire hazard) or it

may lose nutrient content and substance and become moldy, making it unpalatable to cows. Sometimes you can treat hay that was baled too wet with kitchen salt or sodium propionate as a mold inhibitor.

You can always expect major storage losses of the hay's carotene content just because of air exposure. After a year of even the best storage, hay may have lost most of the carotene or the important vitamin A value.

The worst storage is outside, where the hay is uncovered to the weather, and unprotected from rotting from the ground up, such as large, round bales often are. The loss can easily exceed 25 percent of contents and substance.

If you are not an expert in hay making and don't have all the weather luck that goes with it, your potential loss could easily be more than half. Some people, therefore, have despaired and now buy all of their hay. But this can be expensive, except perhaps for Californians, who seem to have an edge over us easterners, with their great supplies of economical and high-quality alfalfa hay.

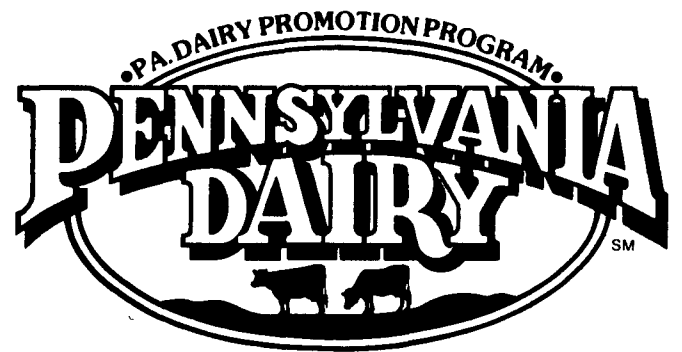
Some eastern dairy farmers have found a profitable alternative, *alfalfa haylage in large round bales wrapped in plastic*. This hay keeps all its leaves and

nutrients inside without shattering, avoids all storage losses, does not mold, doesn't carry a weather risk, and has a high palatability for high-producing dairy cows.

Though this method and equipment have been around now several years, amazingly only few dairy farmers have switched to it. It is less labor-intensive (a one-person operation) and involves much less investment and maintenance cost than a haylage silo.

There is very little failure or problems with this alternative method to making hay. Even after opening the plastic wrapper one year later, I have observed a lot of excellent round bale haylage that the cows relished in preference even to good corn silage.

Recent research from Wisconsin supports the contention that feeding alfalfa silage, especially as haylage in plastic-wrapped round bales, is superior to alfalfa hay in terms of milk produced per cow per day, irrespective of stage of maturity. It would seem that for the sake of watching the profitability of dairy operations, dairy farmers had better take a hard look at the way they make hay, and decide whether it makes money sense to switch to a now well-established alternative.



A Swine Seminar on Cost Efficient Swine Production

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Tuesday, December 22, 1992

9:00 am - 3:00 pm

Country Table Restaurant, Mt. Joy, PA

TOPICS & SPEAKERS

9:00 - 9:40

Registration and coffee

9:40 - 9:45

Welcome

Bruce King

SmithKline Beecham Animal Health

9:45 - 11:15

PQA (Pork Quality Assurance Program)

Dr. Tim Trayer

Hutchison, Trayer & Reed Veterinary Assoc.

11:15 - 12:00

Controlling Chronic Respiratory Problems

Dr. Jerry Appelgate

SmithKline Beecham Animal Health

12:00 - 1:00

Lunch

1:00 - 2:00

Nutritional Aspects of Lean Gain

Dr. Robert Goodband

PhD Nutritionist - Kansas State University

2:00 - 2:30

Economics of Using Growth Promotants in Grow/Finish Diets

Bruce King

SmithKline Beecham Animal Health

2:30 - 3:00

Hatfield Lean Premium Payment Program

Doug Clemens

Hatfield Packing Co.

Attention:

As part of the Pork Quality Assurance Program, testing of swine urine samples for antibiotic residue will be performed at no charge.

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