

Dairy Pipeline

By
Glenn A. Shirk
Extension
Dairy
Agent



It's hard to make milk with poor quality forages. If in doubt, look how well cows milked in the 1990-91 feeding season, compared to the 1989-90 season. The big difference was the superior quality of forage produced in 1990; it improved production by as much as 10 lbs. of milk per cow per day.

Good quality forage is essential for efficient milk production and good herd health. Because it is higher in digestible fiber, it improves dry matter intake and milk production. The rumen functions properly and fat tests are more normal. Cows stay in better flesh and breed back sooner. The digestibility of the entire ration is improved, enabling cows to make better use of the feeds they consume, and helping to reduce feed costs per cwt. of milk produced.

What you do at harvest time has a tremendous impact on forage quality and herd profits for the next year. Once the forage is in storage you are stuck with whatever quality you put up for a long period of time, unless you remove the forage

and replace it with something else.

Our challenge is to grow, harvest, preserve and feed the kind and quality of forage cows need. Select the kind of crops you need for your feeding program, and then select the crop varieties and hybrids that have good fiber digestibility.

As you harvest forage crops, keep in mind, the nutrients that are most digestible and the most soluble are the nutrients that are of greatest value to cows. They are also the nutrients most apt to be lost at harvest time as a result of plant cell respiration, leaching that is caused by exposure to the weather, leaf shatter, and the heat of fermentation. Once these nutrients are lost at harvest time and in storage, they are no longer available to cows.

The First Cutting Challenge
One of the most important factors affecting forage quality is stage of maturity at time of cutting. For alfalfa, aim for the bud to early bloom stage. However, the best guideline for harvesting first cuttings might be to harvest them as

soon as you get the first good break in weather. Many years, that might be the only good break in weather you'll get in May. Study long range weather forecasts carefully and be ready to cut as soon as the weather breaks -- not a day or two after. This might dictate a temporary delay in corn planting, but once the first cutting is made you can resume corn planting with the satisfaction of knowing that your second cutting is growing as you plant and that you've probably set the stage for harvesting an extra cutting for the season.

Respiration Losses

Plant cell respiration continues from the time the plant is cut until it dries down to about 40% moisture. The longer it takes for the crop to dry down to this level, the greater the loss of feed nutrients.

For quickest dry down, cut early in the morning in order to take full advantage of daylight drying hours soon after cutting. Condition the hay, either mechanically or chemically, and let it dry in the swath or in a light, fluffy windrow.

Leaching Losses

Soluble nutrients are leached out when hay is exposed to the weather. Quick dry down, as discussed earlier, plus harvesting at higher levels of moisture gets the crop off the field sooner. This can be accomplished by harvesting the crop at about 45-60% moisture as haylage, or by using a hay preservative to permit baling hay at 22-30% moisture.

Leaf Shatter

Most of the digestible nutrients of plants are found in the leaves. Leaf shatter increases when hay is raked and baled at moisture levels less than about 22%. To reduce these losses, let hay wilt down in the swath to about 30-50% mois-

ture. Then rake the hay into light, fluffy windrows and let it finish drying in the windrow. Bale at about 22% moisture. With the proper use of preservatives, hay can be baled up to about 30% moisture. If the hay gets too dry, delay baling until the evening hours when it picks up some additional moisture.

Heating

Valuable energy and dry matter are consumed when hay heats in the mow, or when haylage undergoes fermentation. When temperatures become excessive, some of the protein gets bound to the fiber and becomes unavailable to the cow. There is also risk of spontaneous combustion and the formation of toxic molds and mycotoxins. These losses can be reduced by baling at lower moisture levels, which increases leaf shatter, or by the proper use of hay preservatives and silage additives.

Fermentation Problems

Having to feed out a silo full of badly fermented, poor quality forage can be a very costly experience from the standpoint of poor milk production, DA's, poor conception, foot problems and high cow turnover, etc. It's a nightmare that no dairyman wants to experience. One solution is to haul the bad silage to the field and replace it with better quality feed, which is also expensive. Another better alternative is to prevent the problem from happening by using proper ensiling techniques, and then supporting these efforts with the proper use of a good silage additive.

Proper ensiling techniques for haylage include: ensiling the crop at the right moisture level (about 45-60%), chopping at the proper length (about 3/8- 1/2 in.), storing

it in an air-tight structure, filling the structure rapidly, distributing it well for even packing, and then protecting it from oxygen infiltration.

Legumes are not the easiest crop to ensile. Compared to corn, which is an easy crop to ensile, legumes are higher in protein and lower in energy and contain less lactobacillus bacteria. For silage and haylage to be preserved well, lactobacillus bacteria need to be present and they need energy (soluble carbohydrates) to feed upon in order to produce the lactic acid that is needed to drop the pH to about 4.5 to "pickle" the silage.

The higher protein content of legumes acts as a buffer, making it more difficult for the pH to drop to the desired levels. Legumes are also somewhat lower in energy to begin with. The loss of soluble carbohydrates in the field, due to respiration and leaching, means there is even less soluble carbohydrates available to support the fermentation process. This can lead to inadequate fermentation, poor preservation, and poor quality haylage.

The proper use of a silage additive, one that contains a lactobacillus culture plus enzymes, can help ensure a good fermentation. Follow instructions closely. In addition to supplying sufficient numbers of the right kind of bacteria, the enzymes in the additive can help break down the less digestible fiber in the plant, thereby releasing additional energy for the fermentation process. As the enzymes break down the fiber, they also tend to improve the digestibility of the forage.

Storing Feeds for Greater Accessibility

Being able to access whatever feeds you want, when you want them, is of great benefit when you are trying to do a good job of feeding cows. Thus, it is beneficial to store feeds of similar kind and quality together, in the same silo if possible. Feeds of questionable quality should be stored separately, perhaps in a bag or stack, so they can be used to best advantage, with minimal adverse affect on the herd. When building new feed storage facilities, it might be more advantageous to build two smaller units rather than one larger unit in order to have more flexibility in managing feed inventories.

Feeding cows properly can be a challenge. Good quality forages make the job much easier. Within our grasp are many opportunities for doing a good job of putting up good quality forages that can be used in our dairy rations. Our challenge is to recognize these opportunities and to take full advantage of them when they arrive, and harvest time is a good time to start.

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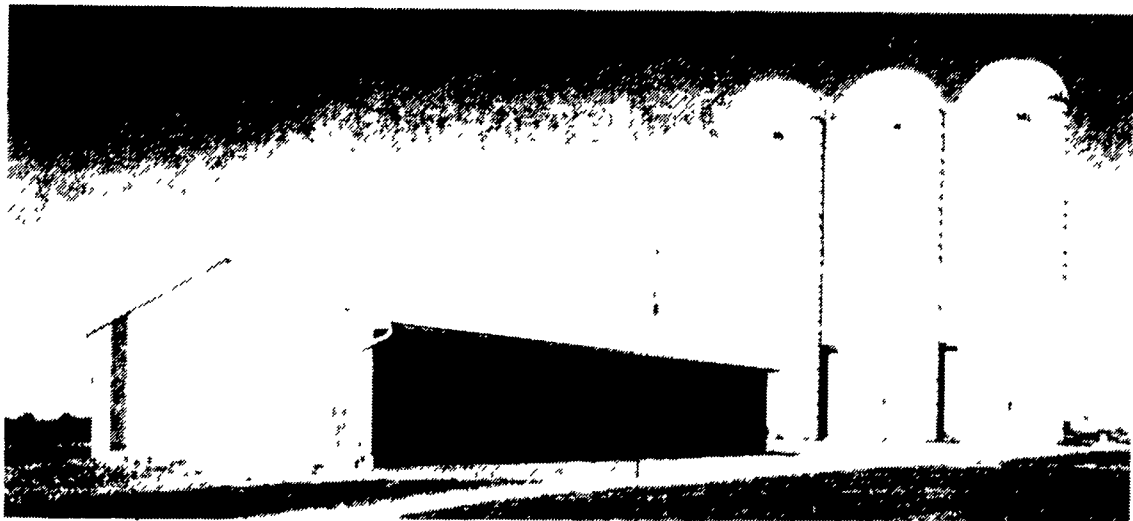
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