

CROPPING STRATEGIES

By Tom Overton

Alterations in that pile, bunk, bag or silo of silage can affect herd performance. Know what you're feeding.

Corn silage changes after ensiling

Fermentation of fresh forage to silage has long been regarded as an effective way to preserve forage for long-term feeding. Most of us were taught that as long as we harvest the crop at the correct moisture, chop it adequately and fill or pack the silo well, the crop would quickly go through the silage fermentation process and then be stable – essentially forever.

Well, for many characteristics of silage that's true. In the case of corn silage, dry matter will change very little over long periods of time. Starch, fiber content, protein and, of course, mineral content will be pretty much constant.

On the other hand, some factors can vary considerably and will change the longer the feed sets in the silo. These have consequences for both ration formulation and cow performance, according to Dr. Limin

Kung of the University of Delaware, speaking at the 2010 Cornell Nutrition Conference.

Let's look at two factors Kung pointed out that undergo change during corn silage storage:

1. Fermentability of starch in corn silage.

Several studies, including a summary of data from Cumberland Valley Analytical Services compiled by Mary Beth de Ondarza, an independent nutrition consultant from northern New York, and Ralph Ward, president of Cumberland Valley Analytical Services, clearly show that the *in vitro* digestibility of starch in corn silage increases over the first several months in the silo. Consequently, starch will be more available in the rumen in the late winter and spring compared to shortly after ensiling.

Pat Hoffman's group at the University of Wisconsin has shown that the same pattern for starch degradability is true for high-moisture corn. And it's more pronounced in wetter (> 30% moisture) than drier (< 24% moisture) high-moisture corn.

What implications does this have for cow performance and ration formulation? Dairy producers generally recognize that corn silage tends to feed better if they let it "cook" for a few months. These increases in starch degradability support the concept that more energy would be available in the rumen from corn silage if it's been ensiled for a period of time. This supports more milk production.

However, this increase in ruminal starch degradability might also help to explain, in part, why some dairies experience problems with low milk fat test in the spring. This isn't the only factor, as explained later, but it may contribute.

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Fermentability of starch in corn silage and microbiology of silage are two factors that undergo change during storage.

FYI

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■ For more information, you can download Dr. Limin Kung's paper from the 2010 Cornell Nutrition Conference at www.ansci.cornell.edu/cnconf/proceedings.html