



**WISCONSIN DAIRY FEEDING TRIALS FOCUS ON CORN SILAGE ISSUES**

Greg Roth  
Penn State Agronomy Associate Professor

A recent report from the University of Wisconsin has summarized a number of interesting feeding trials that have focused on some timely corn silage feeding issues. Wisconsin researchers have focused on corn silage because they see an increasing trend for feeding more corn silage to dairy cattle in the upper Midwest. Their trials have focused on evaluating the effects of stage of maturity, crop processing and chop length, and hybrid quality on lactation performance.

In a maturity trial they conducted, corn was harvested at early dent, 1/4 milkline, 2/3 milkline and black layer for silage. These silages ranged from 69.9 to 58.0 per-

cent moisture. As maturity was delayed, the NDF of the silages decreased from 52 to 41.3 percent. In this trial, milk production was maximized at the 2/3 milk line stage when the silage was 64.9 percent moisture. In a second trial, they evaluated silages at early dent (71 percent moisture), half milk line (64 percent moisture), and black layer (48 percent moisture). In this trial, milk production was highest at the early dent stage. The researchers found in both trials that both ruminal starch digestibility and fiber digestibility were decreased at the BL stage.

Based on the results of this trial and agronomic trials that have shown no yield increase beyond the half milk line stage, the authors concluded that a target of 65 percent moisture seemed best but that producers should begin harvesting at 70 per-

cent moisture to avoid silage drying down excessively by the end of harvest. In a summary of forage analyses conducted at a Wisconsin forage testing lab, they have found that on average corn silage moisture contents have increased 4-5 percentage units during the last decade from 58 to 63 percent, so producers are moving away from drier silages.

Another study focused on processing of corn silage. Previous studies have shown milk responses of 0 to 2 pounds of milk per cow per day. In this study, the control corn silage (half milk line and 67 percent moisture) was chopped at 3/8 inch TLC without rolling using a pull-type chopper. Treatment corn silages were harvested at 3/8 inch, 9/16 inch, and 3/4 inch TLC and rolled using the same pull-type chopper fitted with a crop processor. The processor was set at a one-millimeter roll spacing. Silages were evaluated using a particle size separator. The researchers noted whole and half cobs in the coarse fractions of the separator for the unrolled silage. These are prone to separation in the feedbunk. Cows fed the rolled silages on average ate 1.5 pounds more diet DM each day than cows fed unrolled silage. Cows fed the rolled silages on average produced 2.5 pounds more milk

and 3.5 more FCM each day than cows fed unrolled silage. Milk fat test was .10 percent units higher on average for cows fed the rolled silages, possibly due to less sorting of the cobs in the bunk.

There were no differences among the rolled silages in dry matter intake, milk yield, or milk composition. Based on this research the authors recommend a 3/4 inch TLC with a 1 mm roller clearance, except on wetter silages where the roller clearance may be expanded to 2 to 3 mm clearance. The authors were hesitant to recommend longer chop lengths due to the potential for equipment wear and less packing in the silo.


The authors also have evaluated the variation in mean particle length (MPL) and percent coarse particles of processed silages produced on commercial dairies in Wisconsin. There were large variations in both indicators, suggesting that commercial operators could improve on their chopping and rolling practices. Also, wide ranges in bunker silo densities were also reported.

In another study, the researchers evaluated the in situ digestibility of processed

and unprocessed corn silage harvested at different stage. They conducted this trial to evaluate whether it would be feasible to delay harvesting by using a crop processor. They found that processing corn silage harvested at black layer could improve the starch degradability but could not restore it to levels in earlier harvested silage. Also, processing did not improve the digestibility of the fiber in the corn silage, which was reduced at the black layer stage compared to earlier harvests. Thus, it does not appear that harvesting should be delayed when using a processor.

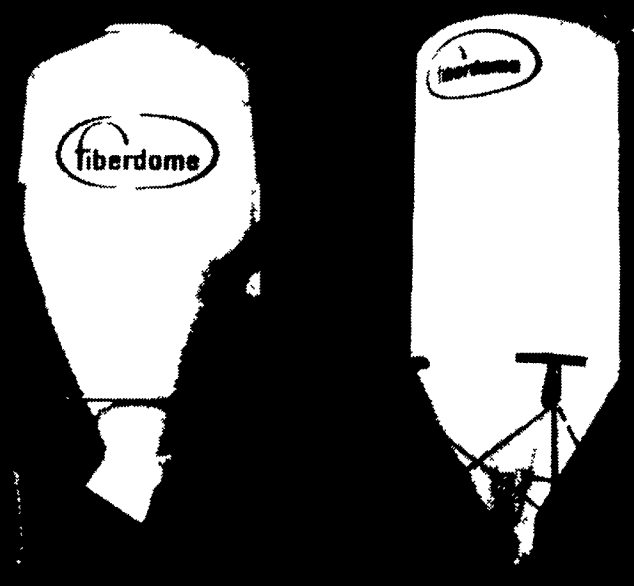
The researchers also conducted two trials evaluating hybrid differences. In the first trial they compared a conventional hybrid (Pioneer 3563) to a leafy hybrid (Mycogen TMF 106). Hybrids were evaluated at two plant populations—24,000 plants per acre or 32,000 plants per acre. These were chopped at 3/4 inch TLC without a processor and fed in a ration that consisted of 2/3 of the forage from corn silage and 1/3 from alfalfa. They observed lower ADF digestibility and higher starch digestibility with the

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