

Texas Dairy Matters

Higher Education Supporting the Industry

HARVESTING CORN SILAGE – SCIENCE OR ART

Kevin Lager, Ralph Bruno, Ellen Jordan, and Todd Bilby
Extension Dairy Team
Department of Animal Science
Texas A&M AgriLife Extension Service
The Texas A&M University System

In times of high feed prices, getting the most out of the feeds available is imperative. Corn grain serves as an important energy source that is widely used on dairy farms. While corn grain is added to the ration, the starch provided by corn silage must not be overlooked. Some topics of discussion when preparing for corn silage harvest include:

- Is kernel processing necessary?
- What level of dry matter (DM) is sufficient?
- Does the length of cut play a role in cow performance?

Recommendations for each of the previous topics exist; however it pays to revisit the questions in light of the latest research findings and recommendations.

Recently a review of 27 scientific trials spanning the past decade was conducted to determine dairy cattle response to corn silage dry matter levels, kernel processing, and length of cut. Dry matter levels exceeding 40% resulted in a decrease in milk yield averaging 4.4



pounds when compared to 28-40% dry matter levels. Total tract starch digestibility decreased for DM levels exceeding 40% when compared to 28-32% and 36-40% DM levels. However, DM levels did not impact other digestibility parameters, DM intake, or milk components.

Kernel processing impacted total tract starch digestibility with the greatest digestibility (95%) occurring when rollers were set at 1-3 mm clearance compared to 4-8 mm clearance (89%) or unprocessed corn silage (92%). The closer set rollers also improved organic matter digestibility compared to unprocessed corn silage (69% vs 67.8%); however, milk fat percentages (3.44% vs 3.55%) and milk urea nitrogen levels (13.3 mg/dL vs 13.8 mg/dL) were lower for the 1-3 mm roller setting than the unprocessed corn silage. A roller setting of 4-8 mm was intermediary.

The length of cut for corn silage did not impact DM intake, selected digestibility parameters, milk yield, or milk components. However, starch digestibility was numerically greater for 0.19-0.25 inches and 0.5-0.63 inches compared to 0.37-0.44 inches and greater than 1.26 inches in length.

Thus for optimal starch digestibility, include rollers set at 1-3 mm to process corn silage at harvest and maintain DM levels between 32 and 40%. In addition, use a cut length of 0.37-1.13 inches. Communicate with your nutritionist as well as the forage harvester operator, whether it be a custom operator or dairy employee, to ensure the proper DM, roller settings, and chop length are agreed upon and rechecked during the course of harvest. The science shows the benefit of attention to detail at harvest to maximize the feed value of your silage. The art comes in communicating to the silage harvest team the goals set to ensure all goes well.