Sweet corn waste makes good feed

By PAUL DYK

SWEET corn production creates by-products that can be fed to livestock. One byproduct is sweet corn waste, or SCW. When sweet corn is harvested, the entire cob with the husk is harvested. At the processing facility, the corn (grain) is removed. What remains is the sweet corn waste. It contains tops of plants, husks, cobs, culled ears and some grain. The amount of each in the SCW depends on the processing, equipment, corn variety and maturity, growing conditions, and equipment operators.

In Wisconsin, a lot of SCW is fed to cattle. Some processors store SCW and resell it later. Other processors send SCW directly to farms (often through an intermediary contractor).

The high water content (20% to 25% dry matter) and physical characteristics make it more challenging to store than traditional corn silage. The high water content can lead to a high volume of leachate; SCW storage sites for more than 150 tons must meet specific design requirements, including the collection of leachate (Wisconsin Department of Natural Resources Administrative Code NR 213.13).

Another challenge of SCW is the physical form. It is not run through a forage harvester like corn silage and therefore contains leaves and husks that are about a foot long. These long pieces make SCW stringy, fluffy and difficult to pack well in a bunker.

Feed value
A project by University of Wisconsin Extension seeks to better understand the feed value of SCW and to develop management recommendations for using it as a livestock feed ingredient. The UW Soil and Forage Analysis Laboratory in Marshfield collected 10 samples from nine farms (one farm gave two samples) and analyzed them using wet chemistry.

The lab analyses of the samples vary. The fermentation analysis shows a high level (above 3%) of acetic acid in all the SCW samples. Typical acetic acid levels in corn silage range from 1% to 1.5%. According to Michael Muck, U.S. Dairy Forage Research Center, the presence of propionic acid in half of the samples together with elevated acetic and no butyric acid definitely suggests naturally occurring good bacteria.

The fermentation analysis also shows elevated levels of ethanol in all but two of the samples. Normal ethanol levels in corn silage are about 1%. Fermentative yeasts may use sugar left after fermentation.

Implications for feeding dairy cattle include:

- The variability in the lab analyses points to the need to test and monitor SCW just as nutritionists have monitored other fermented forage sources.

- Fermentation byproducts should be monitored in addition to standard chemical analyses.

- High levels of acetic and ethanol may be a concern in SCW if feeding rates are significant or the feeding group is sensitive to these compounds.

- Farmers buying SCW from outside sources should be sensitive to variation.

- Prices paid for SCW should be adjusted for quality if possible.

Managing SCW storage
A primary question after the collection of these samples was the reason for varying fermentation. Phone calls were made to farms involved in the survey to ascertain potential differences in the fermentation analysis between samples. All farms indicated they did not use any bacterial inoculants or chemical preservatives.

Anecdotal information on packing practices seemed to be the most intriguing. Three out of the four producers with SCW that had the highest levels of acetic acid indicated the SCW was not packed at all or not packed well. Four out of the five producers with SCW that had lower acetic acid levels insisted they packed well and often.

All producers pointed out that SCW is difficult to pack. The farmer comments point to the idea that packing likely plays an important role in how the SCW ferments. Producers will need to evaluate the economics of packing SCW and the potential benefits.

Dyk is the Fond du Lac County Extension dairy and livestock agent.

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