Texas Dairy Matters

Higher Education Supporting the Industry

Shredlage Or Kernel Processed Corn Silage?

Ellen Jordan, Ph.D.
Extension Dairy Specialist
Texas A&M AgriLife Extension Service
The Texas A&M University System

Recently a new technique to harvest corn silage called shredlage has been receiving attention from producers and consulting nutritionists. To produce shredlage, silage choppers are fitted with an after-market cross-grooved roller instead of a standard kernel processor. Although the roller gap setting of 2 mm may be the same for both types of processing, shredlage usually has a longer theoretical length of cut (TLOC).

What benefit does an increase in TLOC have? An increase in the physically effective neutral detergent fiber (peNDF) is expected when the TLOC is lengthened. Theoretically this should increase rumen activity, buffering from saliva and rumen mat formation. The net result should improve milk fat yield. On the flip side, as TLOC increases cows may increase sorting.

But enough with the theory, what do the cow's think? A recent study from the University of Wisconsin compared brown mid-rib (BMR) shredlage (SHRD) and BMR kernel processed (KP) corn silage. The forage was harvested on the same day with alternating swaths from the same field. Both forages were inoculated with a commercially available inoculant and were allowed to ferment approximately 4.5 months prior to the start of the feeding trial.

In addition, the researchers evaluated whether the longer chop length of the shredlage (1 inch versus ¾ inch) provided additional peNDF by substituting 10% of the KP ration dry matter with an additional 10% alfalfa haylage (KPH). The concentrate was varied so that the rations were isonitrogenous.

One hundred twenty cows were randomly assigned to fifteen pens with eight cows per pen. The cows were fed a common diet for two weeks and then were fed the assigned diet for fourteen weeks. Table 1 provides the actual forage composition and select outcomes from the trial. Rumination time did not differ between treatments. In addition dry matter intake and sorting behavior did not differ among the treatments.

Although actual milk yield was reduced for the cows fed the KPH forage, there was no difference in 3.5% fat-corrected milk due to the increased percent fat in the milk of cows fed KPH compared to those fed KP or SHRD. In addition, there were no differences in solids-corrected milk yield or energy-corrected milk yield (data not shown). Since cows fed SHRD had similar milk fat content to the cows fed KP, it appears that the increased TLOC did not result in an increase in peNDF.

From the results of this study it appears that when feeding BMR corn silage, there is no advantage to having the silage made as shredlage instead of kernel processed. Whether the same holds true for conventional corn silage cannot be determined form this study.

Table 1. Forage ration composition for the BMR kernel processed (KP), high alfalfa haylage with KP (KPH) and shredlage (SHRD) corn silage diets and the impact on select parameters (adapted from Vanderwerff et al., 2015).

Item	KP	KPH	SHRD	P-value
Ration Forage, % DM				
BMR corn silage	45	35	---	---
BMR corn shredlage	---	---	45	---
Alfalfa haylage	10	20	10	---
Ruumination time, min/d	503	499	504	0.88
Milk yield, lb/d	110.2[a]	104.3[b]	112.9[a]	0.001
3.5% Fat-corrected milk	106.7	107.1	109.1	0.49
Fat,%	3.31[b]	3.67[a]	3.29[b]	0.01
Fat, lb/d	3.65	3.83	3.70	0.24
Protein, %	3.13	3.14	3.09	0.22
Protein, lb/d	3.43[ab]	3.30[b]	3.50[a]	0.02