

MAKING MILK

By Larry Chase

Shredlage – What's new

Dairy producers are growing more corn silage and using higher levels of corn silage in dairy rations. A number of changes have improved the nutritive value of corn silage. These include better hybrid genetics, selection of hybrids for fiber and/or starch digestibility, kernel processing and more attention to harvesting dry matter and silo management. A new processing technique called shredlage was introduced about three years ago. This process rips or tears the corn stalk into longer pieces. The process also calls for setting the processing rolls tighter to smash the corn kernels. The TLC (theoretical length of cut) is recommended to be set at 26 to 30 mm for corn silage with a moisture content of 65 to 70%. The suggested guideline for the processing rolls is 1.75 to 2.25 mm. As the corn silage gets drier, the TLC is reduced to 21 to 23 mm and the processing rolls are set at 1.5 to 1.75 mm.

At the 2014 Empire Farm Days shredlage seminar, Michelle Woodman from Landmark Services Cooperative in Wisconsin, showed the change in particle size distribution using the Penn State shaker box (Table 1). The more coarsely harvested shredlage has a higher proportion of longer particles on the top screen compared to a shorter TLC or conventional KP processing. However, the total on the top two screens is similar for the three shredlage results and slightly higher than the KP harvested corn silage. This could indicate a higher peNDF (physically effective NDF) value for shredlage assuming no sorting against long particles when fed to cows.

The information to date indicates that harvesting corn silage as shredlage is a slightly slower process, requires more power and takes more fuel than harvesting using a KP unit. Reports indicate that custom harvesters may be charging \$1 to 2/ton more when harvesting shredlage to account for these differences.

Table 1. Corn Silage Particle Size Distribution^a

Shredlage	% on Top Screen	% on Screen2	% on Screen3	% in the Pan
30 mm TLC	35	45	19	1
22 mm TLC	18	58	22	2
17 mm TLC	9	71	18	2
Conventional KP	8	60	30	2

^a Source: Michelle Woodman, 2014

Bunk silo packing density when using shredlage is also a concern. At the EFD seminar, Corwin Holtz from Holtz-Nelson Consultants, indicated he is seeing slightly higher packing densities (1 to 2 lbs DM/cubic foot) on farms using shredlage. At Cornell our silo densities were similar for shredlage and KP corn silages. Other reports indicate that corn silage harvested as shredlage is at least equal in packing density compared with silage harvested using KP.

**Shredlage
may increase
the nutritive
value of corn
silage.**

Dr. Randy Shaver at the University of Wisconsin-Madison has conducted two research trials using shredlage. In the first trial rations contained 50% corn silage, 10% alfalfa silage and 40% concentrate on a dry matter basis. The only difference between the rations was the source of corn silage. Rations were fed for eight weeks. Cows fed the shredlage ration tended to consume more dry matter and higher 3.5% fat corrected milk. The difference in milk was 2.2 lbs higher for cows fed shredlage. The difference in milk production between the rations increased the longer the shredlage ration was fed. Total tract starch digestibility and NDF digestibility were also higher in cows fed the shredlage ration. A second trial was conducted

using BMR corn silage harvested as shredlage or KP. Milk production was 2.5 lbs higher for the shredlage ration compared with the KP ration. Milk fat percent was higher for the KP ration; 3.7% versus 3.3% for the shredlage ration.

We have recently completed a trial at Cornell that indicates no differences in feed intake, milk production or milk composition. The rations contained 50% corn silage, 14% alfalfa silage and 36% concentrate on a dry matter basis. The processing method for corn silage was the only difference. The shredlage and KP silages were harvested at the same time in the same fields using two forage harvesters. One had a shredlage head while the other was KP.

Dairy producers using shredlage indicate they are able to lower or eliminate the amount of dry hay, whole cottonseed or straw in dairy rations. In some cases, they also reduced some of the corn grain fed due to the higher starch digestibility in the shredlage. Holtz at the EFD seminar presented information based on a herd in Wisconsin using shredlage. The assumptions used were feeding 1 lb less corn grain, replacing 1 lb of dry matter from haylage with 1 lb of dry matter from shredlage, and increasing milk production by 1 lb per cow. In this example income increased 28.5 cents/cow/day.

Shredlage looks promising to increase the nutritive value of corn silage. However, the corn silage processing score (CSPS) and starch digestibility of shredlage has been higher than the KP samples. Results may have been different if the KP silages had a higher corn silage processing score. Shredlage offers an opportunity to adjust rations by removing some (or all) of the dry hay and straw used in some rations. It also provides an opportunity to provide more rumen and total tract starch digestibility which could result in feeding less corn grain. Additional data is still needed on potential differences in peNDF, NDF and starch digestibility. Initial reports are encouraging. If you don't have an option to harvest your corn silage as shredlage, make sure to do the best job possible with kernel processing. Too many KP samples have low CSPS scores. Adjusting the rolls to better process the kernels in your current harvester may be a quick way to improve starch digestibility. ■