



Dairy One

Forage Laboratory

September 2015 Newsletter

In This Issue

[Blog](#)

[Weather and Forage Quality](#)

[Soil Health Seminar at Empire Farm Days](#)

[Corn Stalk Nitrate Test](#)



[Click here to check out the Dairy One blog!](#)

Read the latest posting:

[Monitoring Dry Matter for Corn Silage Harvest](#)

Corn Silage Processing Score

Sally Flis, Ph.D. - Feed and Crop Support Specialist - Dairy One

The Corn Silage Processing Score (CSPS) was developed by Dave Mertens at the US Dairy Forage Lab to assess the adequacy of kernel processing. Dr. Randy Shaver from the University of Wisconsin estimates about a two-pound milk loss when corn silage is inadequately processed compared to adequately processed. Corn Silage Processing Score is determined by shaking a dry sample of corn silage for 10 minutes on a series of sieves.

The percentage of starch that passes through the coarse sieves (particles < 4.75 mm) are the adequately processed kernels. The percentage of starch passing through the 4.75 mm sieve is determined by subtracting the amount of starch that did not pass through the 4.75 mm sieve from the total starch in the sample. The percentage of starch that passed through the 4.75 mm sieve is the CSPS. The guidelines for interpreting the results are:

- Greater than 70% - Optimum
- 50 - 70% - Adequate
- Less than 50% - Inadequately Processed

The concept is similar to that of the Penn State Shaker Box in an attempt to quantify particle size distribution. Properly processed silage should achieve a balance between coarse particles to stimulate chewing and rumination and fine particles to enhance digestibility. The CSPS specifically targets starch. Starch in the coarse fraction will be less digested than that in the fine. In contrast, fine particles passing through a 1.18 mm sieve are more readily digestible, but rapid fermentation may cause problems when rations low in effective fiber are fed.

How variable is CSPS through a pile of silage?

While harvest is the only time you can impact the extent of corn silage processing, measuring corn silage processing during feed out is useful for monitoring performance of the animals. In a recent project, we measured CSPS weekly for 15 weeks on corn silage samples from two piles: one processed as shredlage and one conventionally processed (Figure 1). The difference between the highest and lowest CSPS for shredlage was 6.8 points across the 15 weeks and 9.1 points for the conventionally processed corn silage across the 15

weeks. Variation is likely due to differences during harvest, such as changes in harvest location, hybrid, chopper settings, and equipment wear. The question is: How much does this matter to the cow?

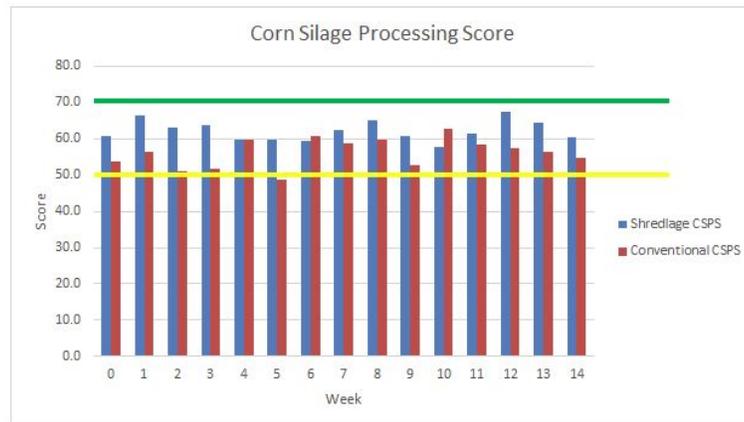


Table 1. CSPS over 15 weeks on samples from the same storage processed as shredlage or with a conventional processing unit.

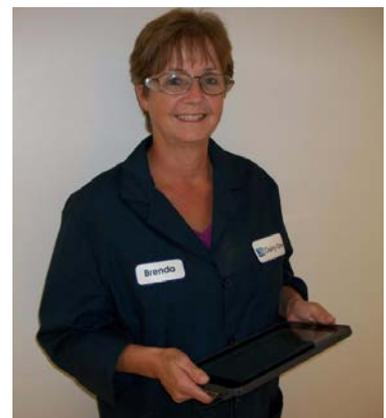
The CSPS averaged 62.2 ± 2.8 and 56.2 ± 4.0 for the shredlage and conventionally processed corn silage, respectively. On average, both processors resulted in adequately processed corn silage. The CSPS for both types of corn silage varied from week to week. Measuring CSPS during feed out is a useful tool for comparing milk production or animal health to processing, as in cases of low milk fat or feet problems. It can also be helpful for examining your corn silage processing practices.

The Dairy One Forage Lab is now offering Corn Silage Processing Score for \$19/sample. This is in addition to the cost of a regular forage package. If you forget to select a package with your CSPS sample, it will automatically be assigned the (325) Forage NIR for \$18/sample. This will bring the total cost to \$37.

The analysis can be done on the same sample as you submit for chemical analysis. Be sure to submit a fully packed quart or gallon (preferred) zip-lock bag.

Employee Profile

Greetings from Special Services! My name is Brenda Poole and I am the Senior Technician in charge of the Special Services area of the Forage Lab. Special Services is responsible for the following analyses: Starch, WSC, ESC, fat, acid hydrolysis fat, ash, acid insoluble ash, pH, VFAs, and urea. I like to keep busy, so being responsible for all of these analyses keeps me moving! Between myself and my coworkers - Carmen and Erin - we divide up and rotate responsibilities to maximize sample throughput on any given day. Sharing and cross-training



keeps everybody engaged in their work and enables us to cover for each other when someone is out on vacation.

Most analytical areas in our lab are computerized, i.e., the instruments are driven by or linked to computers. My area was the least computerized, but that has recently changed. I was part of a project to begin using tablet computers for capturing and recording data. Special Services now gathers the majority of its data on tablets. This has streamlined the data collection process and helped in our drive to continue to find ways to improve efficiencies throughout the lab.

On a personal note, I believe fitness is important. I walk 2 miles every evening and hit the gym twice per week. My husband and I enjoy camping, traveling, spending time with our family and spoiling our granddaughter - after all, isn't that what grandparents are for!

World Dairy Expo 2015!

Join us again this year at World Dairy Expo in Madison, WI! We are in **booth AL209** and have lots of new services to show you for 2015 and 2016.



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