



Dairy One

Forage Laboratory

January 2016 Newsletter

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2015 On-Farm Shredlage® Project Results

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

From March to June 2015, the Dairy One Forage Lab collaborated with Allenwaite Farm in Schaghticoke, NY to run a 12 week study feeding shredlage. The Shredlage® processor rips the forage longitudinally, opens up the rind of the plant, and smashes the corn kernels, resulting in higher corn silage processing scores (CSPS) than conventionally processed corn silage. In recent years, studies have found varying responses to feeding shredlage (Ferraretto and Shaver, 2012; Shaver, 2014; Chase, 2015).

In order to help the farm make a decision on how to proceed in the future with corn silage processing, we worked with the farm to design a project to compare the corn silage harvested on the farm as shredlage versus a conventional corn silage processing unit. Working with Russ Saville and Sue Greth from Cargill Animal Nutrition, diets were formulated to have 22.4 lbs (38 % of diet DM) of dry matter from either conventionally processed corn silage (CCS) or shredlage (SCS). All other ingredients were the same. Diets were fed to two pens of 2+ lactation cows with 152 cows per pen. The cows in the conventional (C) pen averaged 120 DIM, and the cows in the shredlage (S) pen averaged 115 DIM at the start of the project.

Milk production was recorded daily for all cows. Feed delivered and refused by each pen was recorded daily using FeedWatch. Milk quality measures (Fat %, Protein %, SCC, and MUN) were measured at week 6 and week 12. During week 6 and week 12, TMR and ORTS (refusal) samples were taken for analysis with the Penn State Shaker and nutrient composition. The CCS and SCS were sampled and tested weekly.

Results

In the C pen, 136 of the cows were in the pen for all 12 weeks of the study, and in the S pen, 143 cows were in the pen for all 12 weeks of the study.

Forage analysis was very similar between weeks three and nine (Table 1), therefore dry matter intake and milk production in the two pens is focused on these weeks. Dry matter intake was similar between weeks three and nine, averaging 56.0 ± 1.2 lbs/cow/day on the SCS diet and 55.8 ± 1.2 lbs/cow/day on the CCS diet (Table 2). The similarity of

chemical analysis for SCS and CCS with different milk production responses leads to the second objective of the project: to examine other methods for evaluating corn silage.

Week	Dry Matter, %		Starch, % DM		Starch Digestibility		aNDF, % DM		NDFD 30h, % NDF		CP, % DM	
	CCS	SCS	CCS	SCS	CCS	SCS	CCS	SCS	CCS	SCS	CCS	SCS
3	32.3	32.5	33.4	34.3	83	81	43.4	42.2	55	57	6.8	7.6
4	32.9	32.0	34.8	34.7	85	82	42.5	41.5	56	57	6.8	7.8
5	32.0	32.4	32.1	33.4	85	81	44.5	43.4	60	57	7.5	7.7
6	31.6	32.2	35.4	34.1	88	83	41.4	41.9	57	59	7.1	7.7
7	31.9	33.5	32.4	33.7	83	77	43.2	42.1	58	57	7.1	7.8
8	32.8	33.0	32.0	33.9	86	81	44.1	41.5	57	57	7.2	7.3
9	32.3	32.8	33.5	33.3	85	84	42.6	44.8	57	53	7.0	7.6

Table 1. Forage analysis results for Conventionally Processed Corn Silage (CCS) and Shredlage (SCS).

While DMI bounced back and forth between the two groups (Table 2), cows in the S Pen produced between 2.2 and 3.2 lbs/day more milk (Figure 1). The milk production response to shredlage was greater in this project than has been reported in earlier studies. In the UW 1 trial, a 1.76 lbs/day increase in milk production was reported when shredlage was fed versus conventional corn silage (Ferraretto and Shaver, 2012). Milk production response to shredlage varied by week in the UW 2 study (Shaver, 2014). A recent Cornell study found no difference in milk production when shredlage replaced conventionally processed corn silage (Chase, 2015). Additionally, during week 6 and week 12, TMR and ORTS samples were analyzed with the Penn State Shaker Box and no evidence of sorting was seen.

Diet	3	4	5	6	7	8	9
S Pen, lbs/cow/day	55.79	55.90	55.75	55.46	55.33	54.84	58.64
Standard Error	0.71	0.82	0.19	0.73	0.18	0.38	0.37
C Pen, lbs/cow/day	53.63	56.56	55.26	56.25	57.07	55.02	56.38
Standard Error	0.57	0.29	0.58	0.63	0.31	0.51	0.52
Difference (S-C)	2.16	-0.66	0.49	-0.80	-1.75	-0.18	2.27

Table 2. Average dry matter intake per cow by week, lbs/cow/day

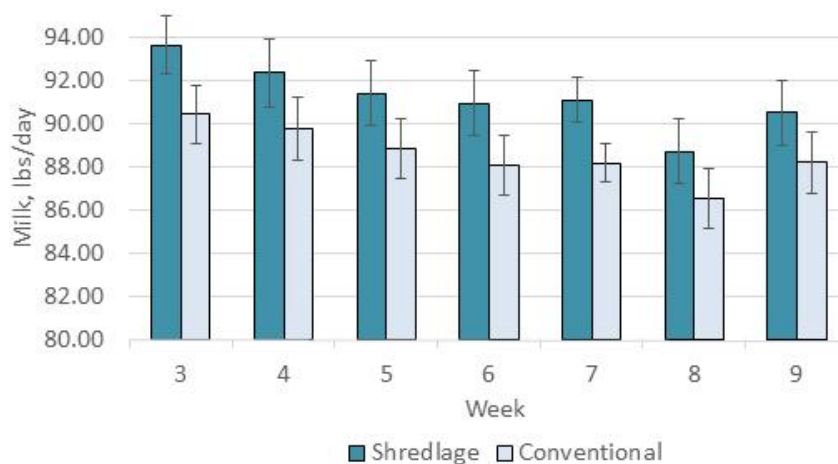


Figure 1. Average milk production by week, lbs/cow/day

Milk quality did not differ between diets at 6 weeks or 12 weeks. In week 6, fat % averaged 3.69 ± 0.78 , protein % averaged 3.03 ± 0.42 , SCC x 1,000 averaged 61.5 ± 208 , and MUN mg/dL averaged $13.0 \pm$

2.2. In week 12, fat % averaged 3.71 ± 0.67 , protein % averaged 3.09 ± 0.33 , SCC x 1,000 averaged 81.9 ± 214 , and MUN mg/dL averaged 13.0 ± 2.0 . Previous shredlage studies have reported any difference in milk quality measures when shredlage was fed (Ferraretto and Shaver, 2012; Shaver, 2014).

Fecal starch was 2% or less, indicating very good starch digestion in both diets and no difference between treatments. In week 6, fecal starch averaged 2.18 ± 1.16 % DM and 1.95 ± 0.78 % DM for the S Pen and the C pen, respectively. In week 12, fecal starch was 1.46 ± 0.64 % DM and 1.66 ± 0.86 % DM for the S Pen and the C pen, respectively.



Shredlage



Conventional corn silage

Figure 2. Top screen Penn State Shaker Box.

The percentage of material on the top screen of the Penn State Shaker Box was higher for shredlage (36.8 %) than conventional corn silage (13.9 %). The CSPS averaged 62.2 ± 2.8 for shredlage and 56.2 ± 4.0 for the conventional corn silage. However, milk production in the study was not correlated with the CSPS results. We found better relationships to milk production when we measured the starch and NDF concentrations in the fractions of the CSPS and plan to further explore these measures in 2016.

Overall results of this project were similar to what has been reported in other studies. Milk quality measures were not different, cows did not sort diets, and fecal starch was not different. Milk production response in this study was greater than reported other studies (Shaver, 2014; Ferraretto and Shaver, 2012; and Chase, 2015).

For a complete report, contact

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References

Ferraretto, L.F. and R.D. Shaver, 2012. Effect of corn shredlage on lactation performance and total tract starch digestibility by dairy cows. *The Professional Animal Scientist* 28:639-647.

Shaver, R.D. 2014. CCP Harvest: Shredlage vs. processed corn silage, does the cow care?. *Proceedings of the 2014 Penn State Dairy Cattle Nutrition Workshop*. P. 1-10.

Chase, L.E. 2015. Shredlage in dairy cattle rations. Proceedings of the 2015 Cornell Nutrition Conference for Feed Manufacturers. P. 215-220.

Take our Corn Silage Processing Survey!

You are invited to: uNDFom - 2015 Review

When: Thursday, January 28th, 2016 from 11 AM to 2 PM

Where: Dairy One - 730 Warren Rd, Ithaca, NY

Why:

Come and find out what we have seen in the lab and in the field with the use of uNDFom and the new fiber digestibility time points. In 2015 we got together with AMTS to help introduce the new CNCPS 6.5 Biology and now we want to share with you what we've seen in the lab, field observations since implementation and most importantly - feedback from you and your experiences.

Agenda

11:00 AM Welcome and Introductions - Sally Flis, Ph.D. - Feed and Crop Support Specialist, Dairy One

11:15 AM Review of what uNDFom and uNDF30, 120, 240 - Lynn Gilbert - AMTS

11:40 AM How has the forage looked? Review of analysis from the Dairy One Forage Lab in 2015 for uNDFom and uNDFomD - Sally Flis, Ph.D. - Feed and Crop Support Specialist, Dairy One

12:30 PM Lunch (Provided by Dairy One and AMTS)

1:00 PM How is uNDFom and uNDFom30, 120, 240 working in the field - Lynn Gilbert - AMTS

1:30 PM Question and Discussion - Dairy One and AMTS

RSVP to Sally Flis: sally.flis@dairyone.com or 607-229-5337 or
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