



Dairy One

Forage Laboratory

August 2015 Newsletter

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Weather and Forage Quality

Sally Flis, Ph.D.

Feed and Crop Support Specialist - Dairy One

With another corn season coming to an end and lots of variation in the weather across the region, I decided to take a look back at a few years and see what rainfall and corn silage analysis looked like. As we have seen again this year, rainfall varies largely by location, so to limit this variability I have looked at rainfall and corn silage analysis from Cayuga County, NY.

Table 1. Rainfall record for Auburn, NY by Season for 2012 and 2013.

Season	2012	2013
Winter	8.1	4.5
Spring	4.9	8.9
Summer	8.9	25.7
Growing Total	13.8	34.6
September	3.7	6.3
Season Total	25.6	45.4

Average annual rainfall in Auburn, NY is 39.06 inches, making 2012 lower than average rainfall and 2013 higher than average rainfall (Table 1). In 2013, there was almost 3 times as much rain in the summer (June, July, and August) than in 2012. High rainfall and soil moisture levels are related to higher fiber content in corn. Forage analysis results from the lab found that in 2012, aNDF was 3.5% lower than in 2013 (Table 2). However, lignin was similar. The total starch in the samples was also lower in 2013 than in 2012, 1.5%. Decreased ear size and fill are related to plant stress, and high rainfall will cause increased plant stress. Saturated soils limit the ability of roots to be able to take up nutrients from the soil and to breathe.

Table 2. Fresh Corn Silage Samples from September to November from Cayuga County, NY (n=20).

Item	2012	2013
Dry Matter, %	32.6 ± 5.9	35.1 ± 5.4
CP (% DM)	7.3 ± 0.8	7.8 ± 1.0
aNDF (% DM)	39.7 ± 4.6	43.2 ± 4.4
Lignin (% DM)	3.1 ± 0.5	2.9 ± 0.4
Starch (% DM)	35.3 ± 6.1	33.8 ± 5.1

Though the lignins were similar, it would be interesting to have uNDFom numbers to see if they differed. Given the variable weather conditions across NY state this year, we are making an effort to pull together crop and weather data from different regions to look at the impact of environmental conditions on uNDFom.

New Soil Health Seminar Center to Join 2015 Empire Farm Days

This year, the Agro-One lab will be taking part in the new Soil Health Seminar Center as a member of the New York State Soil Health Work Group. The Soil Health Seminar Center will host two speakers and a panel of farmers daily from 9:30 am to 12:15 pm at the new Soil Health Seminar Center, located at Lot 922 Empire Farm Days, August 11-13, 2015, at Rodman Lott and Son Farms in Seneca Falls, NY. The trio of 45-minute sessions will cover a variety of soil health practices including cover cropping, reduced tillage, and nutrient management.

Dr. William F. Brinton, founder and president of Woods End Soil Laboratory, Mt. Vernon, Maine will speak on Soil Biology, Soil Health Testing and Soil Health Management Systems. David Wilson from Kings Agri-Seeds, Adam Robertson from Seedway, and Karl Czymmek from Cornell will be speaking about Cover Crops. David Degolyer from Western Crop Management Association will speak about Nutrient Management Strategies and Tools.

Field demonstrations associated with the Soil Health Seminar Center include cover crop plots established by Seedway and Kings Agriseeds. A rainfall simulator will demonstrate the effects of different soil management practices on soil health and function. The Penn State University-designed interseeder will be on exhibit near the Center. The Cornell Soil Health Program personnel and members of the NY Soil Health Work Group will be at the Center to answer questions about soil health testing and management.

For more information, please visit: <http://conta.cc/1MKIhGN>

Corn Stalk Nitrate Test

On any farm, it is important to evaluate your management decisions at the end of a season. One test that is helpful for the evaluation of your corn crop management is the Corn Stalk Nitrate Test (CSNT). This test is intended to determine the N status of the corn plant at the end of the season. When the plant is deficient in N, it will mobilize N from the lower parts of the plant up to the developing grain. This results in lower concentrations of nitrate in the lower part of the stalk. Conversely, plants that take up excessive amounts of N will have higher concentrations of nitrate in the lower part of the stalk.

The results of the CSNT reflect the availability of N during the season. The interpretation of the results is most beneficial after a few years of testing history has been accumulated for a field. The results in the first year can give some insight on how weather impacted your management decisions or to help diagnose crop performance concerns. After a few years of results are available, you can use the tests to make decisions about N application rates from manure or

fertilizer. Having good records of manure application, planting dates, fertilizer application, and harvest dates and yields will make the results of the test even more meaningful for management decisions.

Sampling Procedure

Samples for CSNT should be taken up to 7 days prior to harvest and up to 5 days post-harvest. This test is not recommended for first year corn following sod. When sampling, it is important to avoid soil contamination of stalk samples.

1. In a uniform field (≤ 15 acres) randomly select and cut 15 stalk segments as follows:
 - a. Standard cut (Pre-harvest or post-harvest with ≥ 14 inches stubble remaining)
 - i. Sample 8" segments of stalk
 1. The bottom cut should be 6" above ground level and top cut 14"
 2. The 8" segment should then be quartered lengthwise
 3. Discard 3 of the 4 quarters
 - b. Post-harvest with 8 – 13 inches stubble remaining
 - i. Sample 6" segments of stalk
 1. The bottom cut should be 2" above the ground level and top cut 8"
 2. Quarter lengthwise and discard 3 of 4 quarters
 - c. Combine remaining quarter samples into one composite sample and ship to the lab.
 2. To minimize mold development and promote drying, package samples in paper bags (not plastic).
 - a. Optional: Cutting quarter samples into 1 or 2 inch segments will also hasten drying
 3. Ship samples to lab as soon as possible
 4. If samples cannot be shipped the same day, refrigerate overnight (do not freeze).

Corn Stalk Nitrate Test Sampling Procedure

Indicate whether the samples are 6 - 14 inch segments or 2 - 8 inch segments. Nitrates levels are higher in the 2 - 8 inch segments of the stalk and laboratory values will be adjusted so they are comparable to the NY interpretation and scale based on the 6 to 14 inch segments.

Interpretation of CSNT Results

- Low < 250 ppm N - Plants had difficulty accessing enough N. Evaluate N supply to the crop, likely would have been a profitable response from more N applied to the field.
- Marginal = 250 to 750 ppm N - Depending on growing conditions, N may or may not have been sufficient for economic yields. Producers should strive for CSNT values in the optimum range.
- Optimal = 750 to 2000 ppm N - N adequate for optimum economic yields.
- Excessive > 2000 ppm N - N uptake exceeded requirement for optimum yield. Evaluate N applications.

Visit our website for more information on Agro-One soil testing or to print forms, please visit <http://dairyone.com/analytical-services/agronomy-services/corn-stalk-nitrate-test/> or call 1-800-344-2697 ext. 2172.

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Dairy One - Forage Laboratory
730 Warren Road ~ Ithaca, NY ~ 14850
Phone: 1-800-344-2697 Ext. 2172

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