Dairy One
Forage Laboratory

August 2014 Newsletter

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Corn Stalk Nitrate Test

Driving around VT, NY, and PA there is corn in about every stage of growth and we are still seeing PSNT soil tests coming into the Agro-One lab. It is safe to say there is some corn out there that will be ready for chopping in the next month.

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 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 reflects 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).

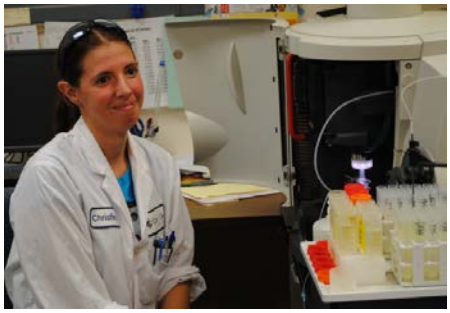
Indicate whether the samples are 6 - 14 inch segments or 2 - 8 inch segments.
Nitrates levels are higher in the 2 - 8 inch segments of the stalk and laboratory values will be adjusted so they are comparable to the NY interpretation and scale based on the 6 to 14 inch segments.

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 = 250to 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 http://dairyone.com/analytical-services/agronomy-services/corn-stalk-nitrate-test/ or call 1-800-344-2697 ext. 2172.

Greeting from the Lab

Meet the Minerals Analysis Senior Technician



My name is Christina Loconte and I am the Senior Technician in charge of Minerals analysis in the Forage Lab. Prior to my promotion, I began my career at Dairy One as a fiber technician performing ADF, NDF, lignin, CF and NDFD analyses. I've been a Senior Tech for 2 years and oversee all aspects of daily minerals analysis. This includes managing the other Mineral Technicians, daily workflow, ordering of supplies, sample preparation and digestion, running the Inductively Coupled Plasma Spectrometer (ICP) and quality assurance. On a typical day, we analyze 120 - 320 samples for minerals from start to finish. The greatest number of samples I processed in one day is 400. I have a Bachelor's degree in mathematics and since chemistry is essentially math at its core, I love all of the calculations involved in the determination of results. I recently completed additional college coursework in chemistry and attended "ICP School" sponsored by Thermo-Fisher, our instrument manufacturer. I got to spend a week in Florida learning more about instrument operation, maintenance and software. It helped to fine tune my skill set. Outside of work, I'm a *gamer* and enjoy playing games of all types and spending time with my family and pets.

Ask the Lab

In the last month we got questions about both the Agro-One and Forage lab services.

A reader from central NY asks...

Are you receiving more liquid whey samples than in the past?

Yes, especially since several new yogurt plants in NY have opened or expanded over the last few years. Samples have been submitted for use as feed or for field spreading. Prior to sampling whey at the farm, it is very important that it is sufficiently agitated or stirred. Solids in the whey can settle out. Agitation is required to "resuspend" the solids. Failure to do so will lead to an underestimation of the nutrient value in the whey.

Given the choice, is there a particular analysis profile that would help someone to decide whether they use a whey source for ration balancing or for nutrient management?

I would recommend the Forage Lab Liquid Package (19). The values from this test could be converted to K2O and P2O5 for application as a waste. Using the As Fed values, convert total K to K2O multiply by 1.2 and to convert total P to P2O5

multiply by 2.27. Finally to convert from % wet basis to lbs/1000 gal multiply by 83.4. A more accurate way to evaluate it would be to send in 2 samples: one for the Liquid Package (19) and one for manure analysis. The information missing from the Liquid Package (19) is the density of the sample.

How do you go about submitting whey samples to the lab? Is the analysis procedure different depending on what you are going to do with the results?

The whey sample should be submitted in any tightly sealed container so it does not leak or spill during shipping. The manure or water sample containers we have would be suitable for submitting a whey sample for either a feed or manure analysis. The procedure is the same for the mineral concentrations and the N or protein concentrations. The biggest difference is in the reporting. A feed analysis reports the values as concentrations, whereas a manure analysis generates values as concentrations, lbs/ton and lbs/1000 gallons.

Finally: A coworker uses a different lab for their soil samples. They would like to switch to Agro-One but say they have built up history on the fields and sample results through their current lab. Is there a way to transfer that history?

There are a few things to be cautious about when comparing samples across labs. First, you have to make sure the extraction is the same. Different labs across the county use different extractions for soil sample analysis. Some are more aggressive than others at extracting nutrients and the recommendations for nutrient applications from the lab are based on the extraction used. Second, if the extractions are the same, are the units that the nutrients are reported in the same (ppm or lbs/acre). Finally, even if the extractions and units are the same, results from one lab to another can be slightly different, so caution should always be used when comparing results across labs.

With all that said, we have a few ways we could accommodate this request. If a spreadsheet of the previous results could be provided we could work with our programmers to put together online access that would have the old results and new results as they are accumulated. The other way would be to use the Fields and Crops Manager web based software. In this program soil test results from any lab can be entered and will be stored over time. Additionally, as new samples are taken and sent to Agro-One for analysis they can be automatically added to the software, saving on data entry. For more information, contact Sally Flis via e-mail at sally.flis@dairyone.com.

If you have questions for the lab send them to Sally Flis - sally.flis@dairyone.com

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