

# The Missouri Corn Stalk Nitrate Test Challenge

*By John Lory*

For the second year MU Soil Testing Lab and I will be teaming together to run the Missouri Corn Stalk Nitrate Challenge. We will analyze up to 10 samples at the MU lab from any Missouri farm at no cost if you submit the requested information when you submit samples. Typical analysis cost for the test is \$12 per sample.

The Stalk Nitrate Test is a powerful tool to assess how well you managed nitrogen in your corn crop this year. Research from

Iowa and other states has calibrated nitrate concentration in the corn stalk with the nitrogen status of the harvested corn crop. Nitrate concentrations above 2000 parts per million are indicative of a crop that had excess nitrogen; nitrate concentrations below 700 parts per million are indicative of plants that had marginal nitrogen supply (250-700 parts per million) or were clearly nitrogen deficient (<250 parts per million).

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### How to sample fields

- The window of opportunity for collecting samples is from ¼ milk stage to up to three weeks after black layer formation.
- Use a set of hand shears or loppers to remove an eight-inch segment of corn stalk from the corn plant. The top cut should be 14 inches above the ground; the bottom cut six inches above the ground.
- Get a stalk segment from at least 15 randomly selected plants from the field or subfield you are sampling.
- Place the samples in a paper bag for shipping to the lab for analysis. Do not freeze the sample. Samples held more than 24 hours before shipping should be refrigerated.

Send samples to: Attention Stalk Nitrate Test Challenge, 23 Mumford Hall, University of Missouri Soil Testing Lab, Columbia, MO 65211 or MU Delta Regional Soil Testing Lab, 147 State Hwy T, Portageville, MO 63873.

Visit the Corn Stalk Nitrate Challenge website at [http://nmplanner.missouri.edu/tools/Stalk\\_Nitrate\\_Challenge.asp](http://nmplanner.missouri.edu/tools/Stalk_Nitrate_Challenge.asp) for more information and to download more copies of the reporting form.

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## STALK NITRATE CHALLENGE DATA FORM

Your Name: \_\_\_\_\_ Your phone # or email address: \_\_\_\_\_

Your address: \_\_\_\_\_

Field location (You can get lat/long of a point at <http://maps.google.com>. (right click and select "what's here")): \_\_\_\_\_

Corn Variety: \_\_\_\_\_ Planting date: \_\_\_\_\_

Yield goal: \_\_\_\_\_ bu/A Actual/expected yield: \_\_\_\_\_ bu/A

Winter cover/trap crop? (if yes, what crop?): \_\_\_\_\_ Crop(s) previous year: \_\_\_\_\_

### Source of Nitrogen 1:

Fertilizer type \_\_\_\_\_ Date of Application: \_\_\_\_\_

Method of application: \_\_\_\_\_ Target N rate: \_\_\_\_\_ lbs/A

If surface applied: Incorporated (yes/no): \_\_\_\_\_ Days to incorporation: \_\_\_\_\_

N loss inhibitor used (yes/no) \_\_\_\_\_ Type used \_\_\_\_\_

### Source of Nitrogen 2 (if needed):

Fertilizer type \_\_\_\_\_ Date of Application: \_\_\_\_\_

Method of application: \_\_\_\_\_ Target N rate: \_\_\_\_\_ lbs/A

If surface applied: Incorporated (yes/no): \_\_\_\_\_ Days to incorporation: \_\_\_\_\_

N loss inhibitor used (yes/no) \_\_\_\_\_ Type used \_\_\_\_\_

### Source of Nitrogen 3 (if needed):

Fertilizer type \_\_\_\_\_ Date of Application: \_\_\_\_\_

Method of application: \_\_\_\_\_ Target N rate: \_\_\_\_\_ lbs/A

If surface applied: Incorporated (yes/no): \_\_\_\_\_ Days to incorporation: \_\_\_\_\_

N loss inhibitor used (yes/no) \_\_\_\_\_ Type used \_\_\_\_\_

### Stalk Nitrate Sample Information:

Date of sampling: \_\_\_\_\_

Number of stalks included: \_\_\_\_\_ Area represented by sample \_\_\_\_\_ Acres

There will be **no analysis cost for your first 10 samples** if you provide the requested information. Test cost typically is \$12/sample. Discount may be available for more samples. Contact John Lory for more information.

**SAMPLE HANDLING:** Sample anytime from 1/4 milk line to three weeks after black layer information. Sample at least **15 stalks** from the sampling area. For each stalk remove the 8-inch section from six inches above the ground to 14 inches above the ground. Select representative plants and do not include heavily diseased or damaged plants. Place the sample in a paper bag (not plastic). *Do not freeze sample.* Refrigerate if samples are shipped more than on day after sampling.

Mail the sample plus this data sheet to: Missouri Soil Testing Lab, Attn: Stalk Nitrate Test Challenge, 23 Mumford Hall, University of Missouri, Columbia MO 65211 or MU Delta Regional Soil Testing Lab, 147 State Hwy T, Portageville, MO 63873. You **must** include a completed form with each sample to receive no-cost analysis.

**Questions?** Contact John Lory (LoryJ@missouri.edu or 573-884-7815).