



Corn Stalk Nitrate Test (CSNT)

The Corn Stalk Nitrate Test (**CSNT**) reflects nitrogen (N) availability during the growing season. The test is based on the fact that corn plants deficient in N will usually mobilize stored N from the lower portions of the stalk and leaves up to the developing grain. For N deficient plants, this can result in lower stalk N concentrations at the end of the season. Conversely, plants that take up excessive amounts of nitrogen (beyond that needed for maximum yields) will store N in the lower stalk resulting in higher stalk N concentrations at the end of the season.

CSNT results are most useful when evaluated over a period of several years on the same field. Crop history, manure applications, N fertilization, soil type and growing conditions all impact the N status of the plant. This test should not be used for first year corn following sod.

Sampling

Interpretation of **CSNT** results are based on samples taken in the following manner. Proper sampling is crucial to correct interpretation of the results. Samples taken by any other methods can lead to false conclusions.

1. Samples should be taken up to 7 days prior to harvest or up to 5 days post harvest.
2. Avoid soil contamination of stalk samples since it will affect the results.
3. In a uniform field (≤ 15 acres) randomly select and cut fifteen 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 of stubble remaining
 - i. Sample 6 inch segments of stalk.
 1. The bottom cut should be 2" above 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.
 4. 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.
 5. Ship samples to the lab as soon as possible.
 6. If samples can't be shipped the same day, refrigerate over night (do not freeze).
 7. Indicate whether the samples are 6 – 14 inch segments (Service code 163) or 2 – 8 inch segments (Service code 164). Nitrate levels are higher in the lower portions of the stalk and laboratory values will be adjusted so they are comparable to the NY interpretation and scale based on the 6 – 14 inch segments.

INTERPRETATION OF CSNT RESULTS FOR FIELD CORN

These are general guidelines

Corn Stalk Nitrate – N	INTERPRETIVE GUIDELINES
Low – < 250 ppm	High probability that N was deficient and limited yields. Evaluate N management to determine why N supply was inadequate. There's a good probability that there would've been a profitable response to more N in this field.
Marginal – 250 – 750 ppm	Depending upon growing conditions, N may or may not have been sufficient for economic yields. Farmers should strive for CSNT values in the optimum range.
Optimum – 750 – 2000 ppm	N was adequate for optimum economic yields.
Excessive - > 2000 ppm	N uptake exceeded requirement for optimum yield. Evaluate N applications and adjust accordingly.

- Late Season Corn Stalk Nitrate test results are reported as ppm Nitrate-N

Go to <http://nmsp.cals.cornell.edu/publications/factsheets/factsheet72.pdf> for additional interpretive guidelines from Cornell.

Go to www.dairyone.com/AgroOne or call 1-800-344-2697 x 2179 for additional information or sample information sheets.