

Corn Stalk Nitrate Testing

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The corn stalk nitrate test is a late-season or end-of-season analysis on matured corn stalks. The research was developed at Iowa State University to help evaluate nitrogen management in corn after maturity. If corn did not have sufficient nitrogen, the corn stalk nitrate level will be low.

Corn Stalk Nitrate Test Interpretation:

- 1) **Low:** Less than 250 ppm. Nitrogen was likely deficient and limited yield potential.
- 2) **Sufficient:** 250 - 2,000 ppm
- 4) **High:** > 2,000 ppm. Nitrogen supply likely exceeded plant requirement.

When to sample the corn stalks:

Corn stalks can be collected about one to three weeks after black layer stage (physiological maturity) through immediately after harvest. After harvest, nitrate in corn stalk may leach out of tissue.

- 1) The **earliest time** to collect the samples is 1/4 milk line (from the top of the kernel) on the majority of kernels. May test higher if sampled early.
- 2) The **Optimum time** to collect the samples is 1-3 weeks after black layer formation on 80% of the kernels on most ears.
- 3) Samples can be collected **up to harvest**, but results may not be consistent of true corn nitrogen status.

How to collect the corn stalk sample:

- 1) How many corn stalks for a sample? 12 to 15
- 2) From the soil surface, measure up 6 inches and cut the next 8 inches of stalk.
- 3) Do not collect damaged or diseased stalks.
- 4) Remove any outside leaf sheath tissue.
- 5) Place the 12 - 15 stalks in plant tissue envelopes and submit them to the laboratory.
- 6) Do not place the corn stalks in plastic or Ziploc bags. The plant material can get moldy.

Collecting a good sample:

- Sample 1-3 weeks after black layer
- Collect 15 eight-inch stalk segments between six and 14 inches above the soil surface
- Randomly select stalks from about a one acre area that represents a larger area
- Separately sample different soil types and management areas
- Place stalks in paper bags, not plastic, for shipment to the lab
- Ship samples within one day or refrigerate until shipping

