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# Four Facts about Corn Stalk Nitrate Analysis

End of the season corn stalk nitrate analysis is an excellent source of information to help in making your nitrogen (N) management decisions. Here are four quick facts about corn stalk nitrate analysis available at AgSource Laboratories each fall.

1. **WHY TEST:** Nitrogen management is one of the most difficult decisions in corn production because of the many factors that influence N behavior. Corn stalk nitrate analysis provides reliable feedback about how your N management is performing in the field overtime by testing yearly each fall. Good yields and dark green plants are good indicators of adequate nitrogen, but they cannot reveal if too much N has been applied.

2. **RESEARCH SUMMARY:** Iowa State University developed the testing procedure. Studies at Purdue and Iowa State University show that the nitrogen status of a corn crop can be assessed by measuring nitrate concentrations in the lower portion of cornstalks at the end of the growing season. Surveys indicate that a high percentage of corn fields receive substantially more N fertilizer than is needed.

3. **WHAT TO COLLECT:** 1 - 3 weeks after black layer has formed on 80% of the kernels of most ears, collect fifteen 8 inch segments of stalks found between 6 and 14 inches above the soil. Areas of differing soil types or management should be sampled separately. Place in a paper bag (not plastic). Label paper bag to match sample information sheet(s). Samples should be sent to an AgSource Laboratory near you as soon as possible. Refrigerate, do not freeze samples, if there is a delay in shipping of one or more days.

4. **INTREPRETING RESULTS:** At the lab samples are dried, ground and analyzed for Nitrate concentration in parts per million (ppm). Remember corn stalk nitrate analysis tells you how you did, not what you need to do. Thus, the results are very helpful in planning for N management in upcoming years. Analysis results fit into 1 of 3 categories described below:

   - ◊ ***DEFICIENT:*** 0-700 ppm. Corn could have yielded higher with additional N. Some common examples of N losses are improper fertilizer or manure application rates well before growing season or locally high rainfall. Additionally, low pH, poor weed control or compaction can limit the crop's ability to uptake N.
   - ◊ ***ADEQUATE:*** 700-2,000 ppm. Your goal is to constantly have fields test in this range. It means your N management plan is working and you are maximizing profits.
   - ◊ ***EXCESS:*** Over 2,000 ppm. More N was applied than needed for corn growth. Look at N rate and make sure excess is not being applied as fertilizer and/or manure. This may represent economic loss, and potential loss of Nitrogen into the environment. Evaluate why? What is the previous crop history of the field for a legume crop? Drought stress will often result in an accumulation of excess N in the corn stalk.

Using this information will result in greater nitrogen use and greater profit returns while properly following nutrient management plans. See how you are doing and send in your corn stalks today for corn stalk nitrate analysis.

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