# END-OF-SEASON CORN STALK NITRATE TEST PUBLICATION UPDATED

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Using nitrogen fertilizer and manure for corn production is a typical practice that can produce optimal yield and increased profitability. As harvest draws near and farmers begin to turn their thoughts to the next planting season, measuring the amount of nitrogen in the lower portion of corn stalks after maturity (black layer) can help assess the current year and help with decisions about nitrogen management in future years.

Understanding this type of nitrogen test for corn is the focus of a newly revised publication, "Use of the End-of-Season Corn Stalk Nitrate Test in Iowa Corn Production" (CROP 3154) available through the ISU Extension Store. This publication provides updated research on the corn stalk nitrate test (CSNT) to help readers understand what the research is telling us and to update the interpretations we can draw from testing. Detailed graphs in the publication provide data on the relationship between the CSNT and relative corn yield response to nitrogen.

Conducting this type of plant testing can provide valuable guidance when determining application rates and management for future corn crops. This test works best by indicating when there was too much available nitrogen in the soil system during the current corn crop. It's important for farmers to understand if they have a system that is supplying more nitrogen than needed.

There are three categories of interpretation discussed in the publication – high, sufficient and low. Research conducted at Iowa State and in other Midwestern states has consistently shown that test concentrations greater than 2,000 ppm of nitrate-nitrogen to be in the high category, and that changes can be made to application rates. Test results in the 250-2,000 ppm range indicate a sufficient nitrogen supply, while results less than 250 ppm indicate a deficient supply. The test should be conducted for several years before making major changes to application rates or management practices. In no case does the test indicate how much to change an application rate.

The publication also provides instructions for how to sample corn stalks for the CSNT, as well as recommendations for preserving the sample and sending it to a testing lab.

Additional Information:
Nitrogen Use in Iowa Corn Production
https://store.extension.iastate.edu/product/14281
Use of the Late-Spring Soil Nitrate Test in Iowa Corn Production
https://store.extension.iastate.edu/product/5259
Corn Nitrogen Rate Calculator
(http://cnrc.agron.iastate.edu/)