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### ***Plant Nutrient Analysis - Corn***

Without fail, there will be one corn or soybean field we thought was planted in perfect conditions that looks less than stellar when scouted during the growing season. If you suspect a nutrient deficiency (particularly of a secondary or micronutrient we don't always have good soil tests for), plant analysis is a great option to consider.

Plant analysis for monitoring of nutrient levels is typically done at the onset of reproductive growth. If sampling for diagnostic purposes, however, don't wait - pull samples now while corrective action might still be possible. For either purpose, if collecting plants less than 12 inches tall, collect the whole plant at ground level. For larger plants, collect the top fully developed leaves (those with leaf collars). After reproductive growth starts, collect the ear leaves (below the uppermost developing ear).

While nutrient *monitoring* samples are best taken randomly throughout the field, *diagnostic* samples should focus on plants in normal areas of the field as compared to problem spots. Plants/leaves should be collected from both areas for comparative purposes. If a nutrient deficiency is suspected, soil samples from each area can be helpful as well. Tissue samples should be allowed to wilt overnight and placed in a paper bag/mailing envelope then shipped to a lab for analysis. Avoid the use of plastic bags or tightly sealed containers.

In Kansas, N, P, K, S, Zn, Cl, and Fe (iron) are the most commonly deficient nutrients. The KSU Soil Testing Lab and many others offer testing packages to provide options for testing of multiple nutrients. Results will be returned as either a percent value or in parts per million for comparison to averages to help in the diagnostic process.

Tissue testing may not give you the 'final answer', but when used appropriately, it can help diagnose issues during the growing season as well aid in monitoring of a nutrient management program, both of which can help you fine tune management for future growing seasons. For additional information on tissue testing through the KSU Soil Testing Lab or tissue test result averages, contact any of our District Offices or e-mail me at [dhallaue@ksu.edu](mailto:dhallaue@ksu.edu).

### ***Cumulative Stresses to Trees and Shrubs***

Sometimes it's not the big events that most damage trees, but smaller ones. For example, sharp drops in temperature occurred in the fall of 2019 and again in 2020 before trees were fully hardened off. The fall of 2021 was warm and dry – a trend that continued in to early spring. Other stresses like too much water from heavy spring showers, disease pressure, insect defoliation, or even physical injuries can affect trees as well. Individually, none of the aforementioned likely harms the tree all that much. Cumulatively, it can mean decline or death.

Not all trees will respond to stressors the same. Some are just better adapted. Still, it's good to evaluate all trees in the landscape to ensure they are growing as they should. Start with a look at branch tips. If less than four inches of growth is found on the majority of branches, it could suggest a tree under stress.

Once deemed a tree under stress, find out why – and water again if we return to hot/dry. Look first for environmental issues and physical damage. For disease possibilities, check out this KSU reference: <https://www.bookstore.ksre.ksu.edu/pubs/mf3132.pdf>. If none of them quite fit, drop me a line and we'll see if we can figure it out.