

David G. Hallauer
District Extension Agent
Crops & Soils/Horticulture

Plant Nutrient Analysis - Corn

Almost without fail, there will be one corn or soybean field with what we *thought* was planted in perfect conditions that looks less than stellar as we scout it 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 for diagnosis.

Plant analysis for monitoring of nutrient levels is typically done at the beginning of reproductive growth. If sampling for diagnostic purposes, however, don't wait. Go ahead and pull samples now while corrective action might still be a possibility. For 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.

What should you test for? In Kansas, N, P, K, S, Zn, Cl, and iron are the most commonly deficient nutrients. The KSU Soil Testing Lab and many others offer testing packages to provide a host of different nutrient testing options. Results will be returned as either a percent value or in parts per million for comparison to averages to help diagnose the issue at hand.

Tissue testing may not give you the 'final answer', but when used appropriately can help with field diagnostic 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 me at any of our District Offices or via e-mail to dhallaue@ksu.edu.

Physiological Leaf Curl in Tomatoes

After you've spent time waiting for soils to dry so you can get plants in the ground, hoping they weren't hailed on or eaten by wildlife, then keeping them watered as temperatures rise, the last thing a tomato grower wants to see is curling leaves. In some cases, it can be the result of disease or herbicide injury, but in many cases, it may just be the plant's natural response to help it 'balance' growth and development.

If growing conditions in your garden were such that tomato plants grew vigorously, sometimes you'll see top growth out pace root growth. When warm/dry weather hits, the plant has to take a step back and grow a few more roots before top growth can continue. To do so, it reduces leaf area by rolling leaves. The leaves curl along the length of the leaf (leaflet) in an upward fashion. It is often accompanied by a thickening of the leaf giving it a leathery texture.

Leaf rolling can also occur after heavy cultivation, hard rains, waterlogged soils or any sudden weather change. Fortunately, it should subside a week or so as the plant acclimates itself to the new growing conditions.