K-STATE Research and Extension | Meadowlark District

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Soil Sampling Challenges

Soil fertility concerns are one of the most often explored reasons for issues with plant growth and development. Knowing those soil fertility levels starts with a *good* soil test. Good can mean a lot of things. When soil sampling, think of a good sample as one representative of the area sampled and providing accurate results.

If you are testing for a specific purpose: nutrient management planning, environmental regulation sampling, or even if you are trying to figure out if you have nutrient stratification, or a specific issue, there may be a specific or defined soil sampling procedure. If you are trying to do some general sampling on your own, consider some of these guidelines.

To help reduce variability, each sample should be a composite of many cores. Based on KSU soil testing research, collect a minimum of 12 to 15 cores. With this number of cores, sampling variability can be reduced significantly versus sampling where only two or three cores make up the composite. This aids in increasing recommendation accuracy as well.

It may not seem like sampling depth would be a big deal, but it can be. Nutrient levels and pH all change with depth, sometimes significantly. We recommend a six-inch depth for routine nutrient tests for P, K, Zn, or pH. *Sampling depth will likely be an issue this fall until adequate moisture returns soil profiles to more consistent levels.*

Don't focus on the really good or really bad spots. If you want to explore why an area might be on the extreme end of the production scale, sample separately. For the rest of the sampling area, sample in a zig-zag pattern to get a good cross section of the field sampled.

If you've done banded fertilizer applications in the past, think you might have nutrient stratification, or if you are considering a grid sampling program, other adjustments might need to be made as well. If you want to discuss any of those considerations, feel free to drop me a line.

These principals can be applied to just about any sampling project: crop, pasture, hay ground, garden, and turfgrass. For additional information on sampling in crop production fields, see the latest KSU Agronomy eUpdate online at: https://eupdate.agronomy.ksu.edu/issue_new/k-state-agronomy-eupdate-issue-923-thu-sep-8-2022 . Information on sampling in gardens can be found at: https://bookstore.ksre.ksu.edu/pubs/mf2320.pdf . Both resources are also available upon request from any District Office or e-mailing me at dhallaue@ksu.edu .