

Why the desire for more accuracy?

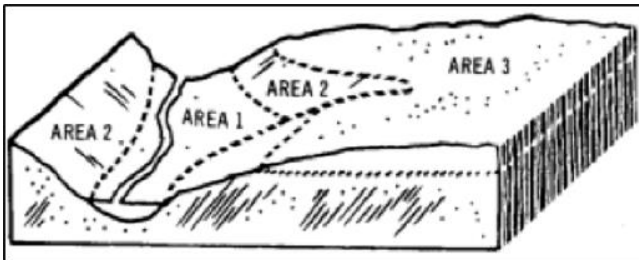
The days of zig-zagging across an 80-acre field for a soil sample are far in the rear view mirror. Smaller sample areas for more precise fertilizer application has become the norm to improve yields and reduce the potential for off-site environmental impacts.

Benefits

- Increased productivity by identifying soil nutrients or soil chemical factors that limit plant growth within a field.
- Increased fertilizer use efficiency by applying the most appropriate rates for the variable soils and yield potentials across a field.
- Protects the environment by reducing potential for over fertilization and excessive losses through runoff or leaching.
- Identifies underperforming sites including polluted, contaminated soils.

Taking a representative sample

- Identify within-field yield variability from historical yield maps if available.
- Consider field topography, yield variability and soil types, sampling in contrasting zones separately.
- No sample should represent more than 25 acres.
- Cores should be taken to a depth of eight inches.
- Use a zig-zag pattern when pulling samples to keep those points at a uniform distance from each other.



Divide into zone characteristics
Ohio State University Extension, 2012

Precision Sampling: Zone or Grid?

Each approach can be effective, allowing application equipment to vary nutrient delivery rates as it passes through the field.

Zone management uses multiple pieces of data to determine sampling locations. These may include: yield history by area, soil types, grower experience as well as many other layers. These are all considered when dividing fields into sampling **zones**. Each zone should be no larger than 25 acres. Take a minimum of 10 to 15 cores within each zone.

Systematic grid sampling is just as it sounds. A uniform grid is laid over the field using geographic information software (GIS), dividing the field into 2.5-acre quadrants. Sampling equipment is driven through the field to each quadrant and cores are typically pulled from four separate areas, each approximately 8 to 10 feet in diameter. Two samples are taken from each area, for a total of eight from each 2.5-acre quadrant. This is repeated across the entire field and can be time prohibitive for some. Flat fields with very little variance in topography or soil types may be best suited for systematic grid sampling, and where variability is expected due to fertilizer or manure application practices in the past.

Where can I go for more information?

OSU Extension

<http://agcrops.osu.edu/sites/agcropsations>

University of Nebraska - Lincoln

<http://cropwatch.unl.edu/ssm/soilsampling>

Purdue University

<https://www.extension.purdue.edu/extmedia/AY/AY-281.html>

A & L Laboratories <http://algreatlakes.com/pages/faqs>