

SOIL COLLECTION APPROACHES: BULK, ZONE, OR SITE-SPECIFIC?

| | BULK OR COMPOSITE | ZONE OR POLYGON BASED | SITE-SPECIFIC OR GRID/SMART GRID |
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| OVERVIEW | <ul style="list-style-type: none"> The traditional method for sampling soils but is considered imprecise because it does not adequately account for differences in soil variability Involves taking samples in a random pattern across a field (avoiding problem soil areas) and blending them into one 'average' sample | <ul style="list-style-type: none"> Zone sampling divides a field into smaller production areas based on utilizing other map/data layers (such as yield or biomass (NDVI) imagery) to create these zones This approach assumes that soil variability within a field can be easily identified Sampling points are geo-referenced so changes can be tracked over time | <ul style="list-style-type: none"> For grid sampling, the field is divided into small areas or blocks of equal size and a sample location within each block is sampled to a georeferenced point Typical grid sizes range from 0.5-acre blocks to 5-acre blocks, with 2.5-acre blocks being a standard unit for analysis In general, the smaller the sampling unit, the greater the accuracy Results may then be used to determine the fertilizer application rate(s), or they may be entered into a mapping program that uses geo-statistics to draw fertilizer application boundaries |
| MOST APPROPRIATE | <ul style="list-style-type: none"> For smaller fields / blocks that have been uniformly cropped in the recent past and have little natural variation Used where a single fertilizer recommendation will be applied across a field | <ul style="list-style-type: none"> Primary focus is on mobile nutrients because relative levels of a mobile nutrient are frequently related to fixed soil properties Relatively low rates of fertilizer have been applied in recent years There is no history of manure application History of the field is known and can be used to divide the field into smaller units | <ul style="list-style-type: none"> Use when non-mobile nutrients are the primary concern (e.g. phosphorus) Soil test levels in the field range from very high to very low with substantial acres in both categories There is a history of manure use For use when small fields have been merged into large The field history is not known |
| PROS | <ul style="list-style-type: none"> Relatively inexpensive | <ul style="list-style-type: none"> Lower sampling costs than grid sampling; a more accurate judgment / nutrient recommendation is made when multiple data layers are used in the analysis | <ul style="list-style-type: none"> More intensive soil sampling often provides a different picture of a field than do conventional sampling procedures Ability to georeference samples and track nutrient change over time Ability to scale down to really identify infield variability For use with A&L's TerraSiteRx Data Analytics Platform www.TerraSiteRx.com |
| CONS | <ul style="list-style-type: none"> No info. about nutrient variability | <ul style="list-style-type: none"> May still overlook nutrient variability within zones, zone creation dependent on clear differences in biomass or yield data | <ul style="list-style-type: none"> Time and cost to sample is higher than other methods, but can provide significant return on investment (ROI) when applying prescription / variable rate inputs such as fertilizer |