



Variability Rate Fertilization Profitability Study

The objective of the variable rate fertilization study is to compare yield between variable rate and whole-field rate nitrogen fertilization. Fields can be zoned using any data source such as NDVI from imagery, previous years' crop yield, topography, or EC. Each zone should have two 2-acre plots fertilized at the whole field rate (based on a composite of the zone soil samples). The fertilizer rates for each zone should be based on soil tests for each zone, and the farmer-selected yield goals.

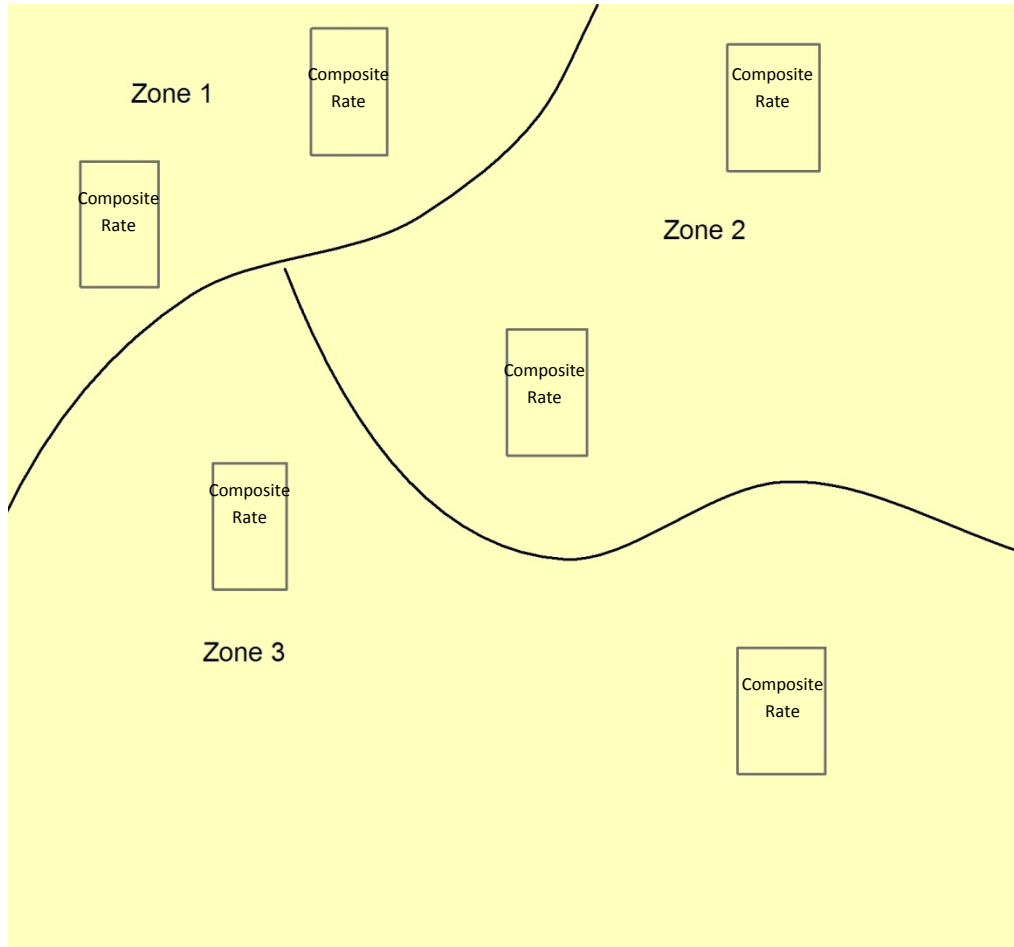
Farmer Responsibilities

1. Geographic description of each field. (options: latitude and longitude of field edges, legal description, field boundary)
2. Cropping history.
3. Crop selection and whole field and zone yield goals.
4. Divide each field into management zones. Each zone needs to include 2-acre plots (300' x 300'), fertilized at a constant rate based on the field composite soil test results. One soil sample and soil analysis for each zone, and one analysis for the composite sample.
5. Apply variable rate nitrogen fertilizer.
6. An as-applied map for each field.
7. Collect yield data for each field.

NDSU Responsibilities

1. NDSU will assist with developing the zones if needed.
2. Analyze the data and share results.
 - a. Yield and bushels produced on the entire field.
 - b. Yield and bushels produced on each zone.
 - c. Yield and bushels that would have been produced based on the whole-field check plots.
 - d. Correlate yield map to management zones.
 - e. Correlate yield to NDVI zones based on satellite imagery.

Example of Variable Rate Study Map



The composite fertilizer zones need to be fertilized based on the soil test analysis from the test done on the soil sample made by mixing soil from each management zone. Each zone needs to be soil sampled and tested separately to determine the required fertilizer.

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