Precision Nutrient Management

Ag technology Field Day
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Outline

- Perfection
- Impact of Institutional Knowledge
- Resolution
- Zones
- Layers
Perfection: The Goal
Perfection P & K

- Immobile P and K
- Soil and Crop Driven
  - First Year evaluate response

Souder South Application Strips

- P rich strip will be the south strip in each rep, apply 60 lb P2O5/acre
- K rich strip will be the middle strip, apply 80 lb K2O/acre
- North strip in each rep will be a P and K rich strip that receives both 60 lb P2O5/acre and 80 lb K2O/acre
Perfection P & K

- Immobile P and K
- Rate Studies in each zone
Perfection P & K

- Understand the Benefits and Limitations of Soil Testing
- Broad sweeping recommendations
- Recommendations are Conservative in both directions
- Will recommend only when likely to respond
- Rate will ensure maximum yield for the majority
Perfection N

- Mobile Nutrients N, S, B
- Yield Driven!!
  - Make determinations based off Environment and Plant measured in Season
Perfection N

- Understand the Benefits and Limitations of Soil Testing
  - Nitrogen levels in soil are not static
    - Soil test in August not always relevant in March.
  - Dependent upon environment and yield level
  - Multiple yield potentials in the field
  - Recommendation based on Averages.
Perfection N

- N-Rich Strip as a decision **tool**.
  - Not Perfection

- Impact of right field rate

- Simple Yes or No
  - No data, but means more is years of extreme.
  - Years of Moisture, Nuclear
  - Years of Drought, Abscent

- N-Rich and SBNRC
  - 20 lbs N/acre on Winter Wheat, 0 difference in yield
    - Price of N drives value of Practice.
  - 18 locations in 2 yrs, Zero samples <12% Protein
Perfection N

- Fields are highly variable
  - Why apply flat field rate
  - Why apply even zone level rate
Management Zones

- Great way to break the field up
- Moved from
  - 1 rate over entire farm
  - 1 rate for each field
  - 1 rate for each zone
- Smaller the application area a informed decision is made on the more precise.
Drawing Lines

- Lines for zones based on 1 factor
  - Yield History
    - Yield levels
    - Yield Stability
  - Topography
  - Soil Type
  - Soil EC
  - Geography / boundaries
  - Organic Matter
  - Nutrient levels
Determing the Variable

- Using 1 factor to determine other unrelated factors
What is OSU Doing

- NPKS response strips.
- Looking at
  - Soil Type
  - Past practice
  - Soil Test Values
  - Cropping System
  - Environment
Thank you!!!

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