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Trash-In Trash-Out: Soil Sampling Strategies for Optimum Soil Test Results

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Why Soil Sample

- To know what is in your soil
- Identify and treat soil variability
- Maximize fertilizer use efficiency
- Maximize crop productivity

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Soil Sampling Issues

- Incorrect depth
- Improper tools
- Too much variation
- Too few cores
- Soil moisture status?
- When to take samples?

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Correct depth

- Standard soil core depth = 6”
- Less than 6”?
- Greater than 6”?
- Always include a 0-6” sample

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Proper Tools

- Tools should be stainless steel or chrome plated
- Tools made for soil sampling
  - Soil auger and probe
- Clean buckets
- Improper tools can introduce contaminants

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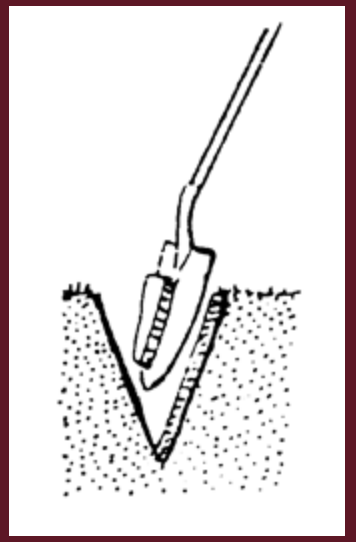
Alternate Tool Use

- Shovels can be used if necessary
  - Sharp shooters preferred over spades
- Collect a known depth (0-6”)



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Variation

- Soils are naturally variable
- Variation should be controlled as much as possible

Soil Test Values		
Analysis	Range	Average
pH	4.9-6.3	5.6
Buffer Index	7.1-7.4	7.3
Phosphorus	23-114	36
Potassium	149-770	306
Zhang and Arnall		

- Grid sampling

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Variation

- Not excluding problem areas
  - Wet areas/low spots
  - Sand boils
  - Fertilizer spills
- If low spots and sand boils are large enough sample separately

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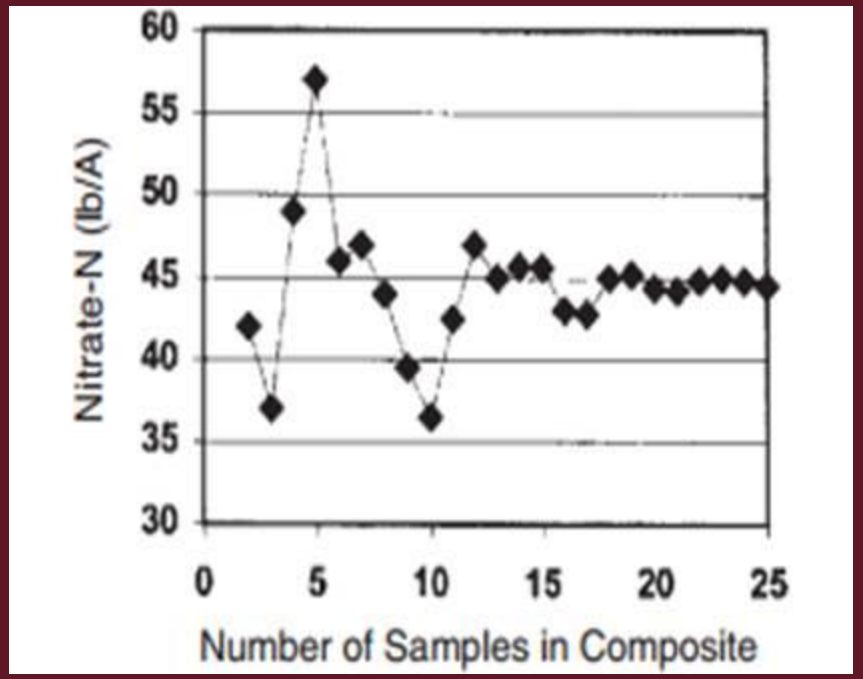
Proper # of Cores

- Soil tests only report what's in the soil you collected
- Composite multiple cores into one sample
- Balance of time, cost, and accuracy
- 20 = minimum



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Soil Moisture

- What is too wet?
- What is too dry?
- Soil core integrity is key

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Soil Moisture

- Dry conditions considerations
- Potassium and pH reports may be less accurate
- Extended dry periods often produced lower available K amounts and lower pH values
- pH results depend on test method used by lab

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When to Sample

- No time of year is necessarily better than another
  - Fall vs Spring
- Sample the same time of year with similar environmental conditions

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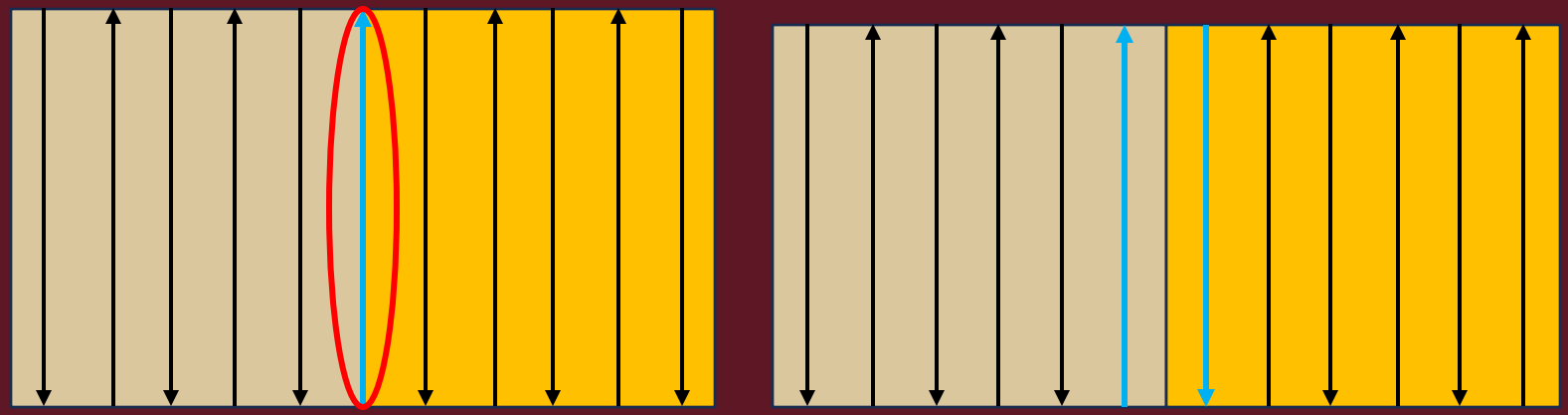
Grid Sampling

- Grid sampling helps control variation
- When designing field grids account for natural variability
- Make sure grid sizes align with equipment capabilities



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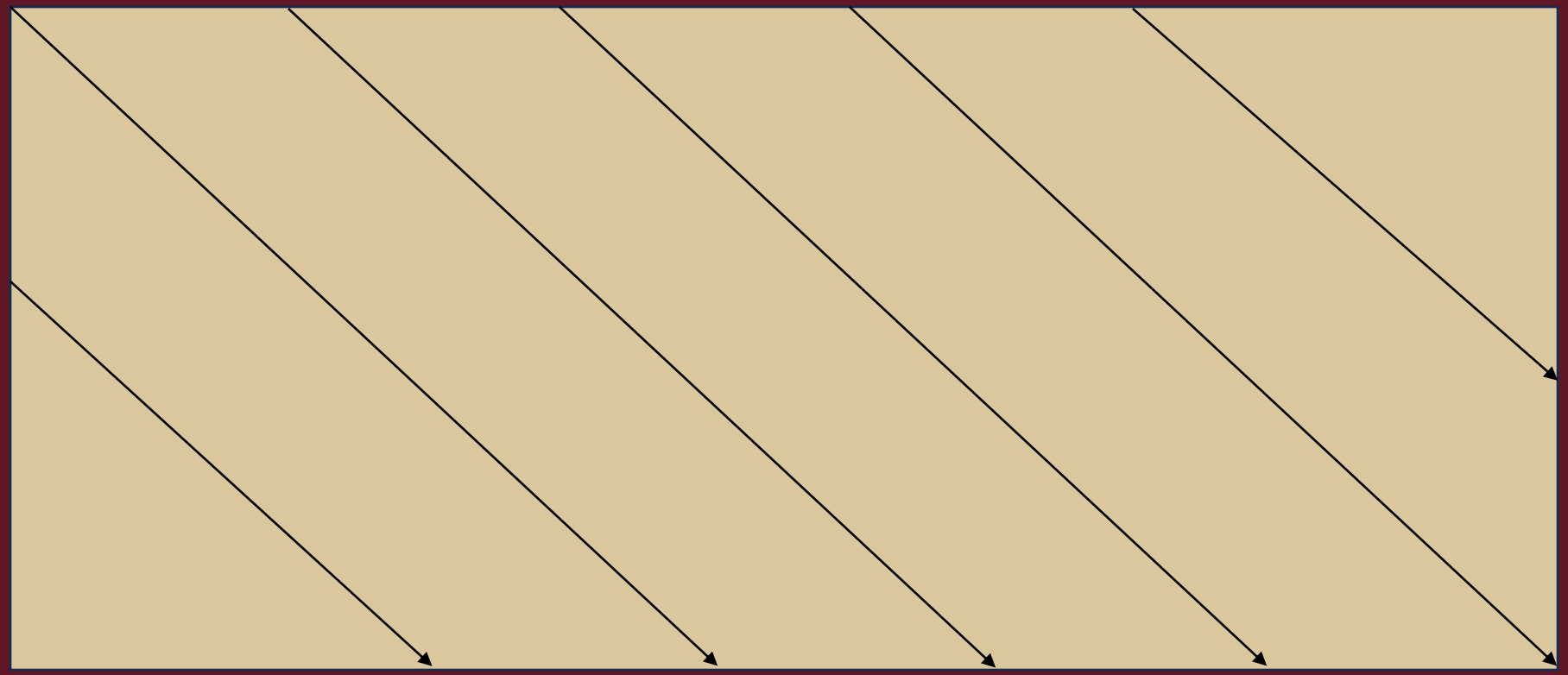
Grid Sampling

- Align grids with application AB lines



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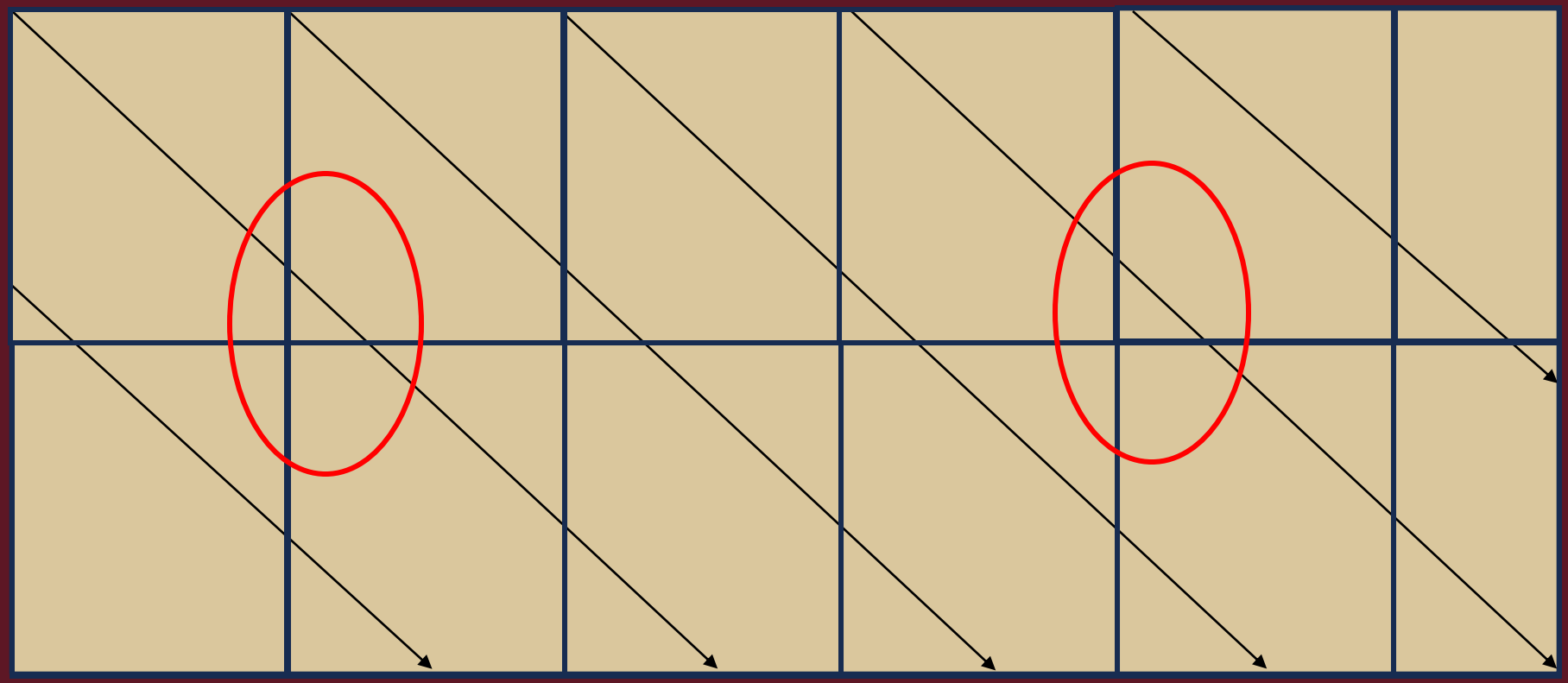

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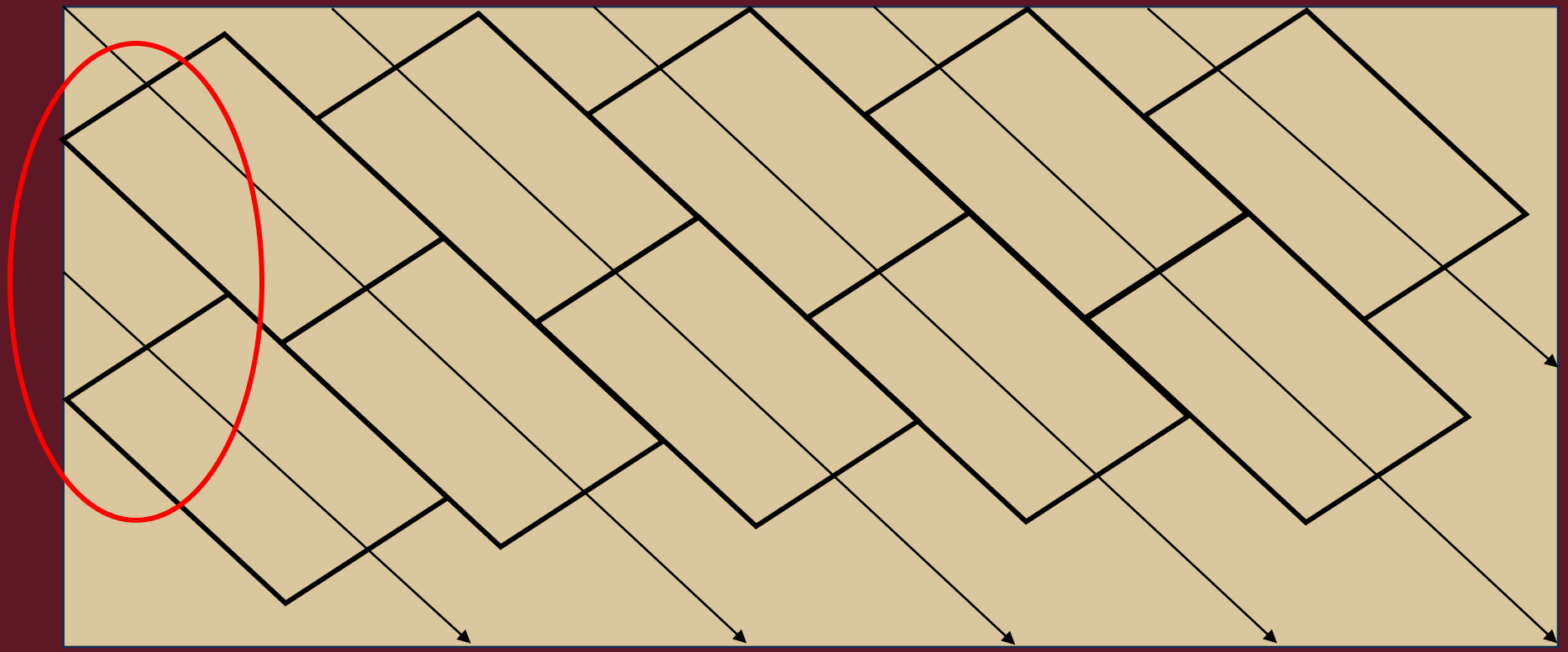

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Questions?

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