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## Impact of Nitrogen Based Manure Management Planning on Soil Zinc Accumulation

Stephanie Kulesza, PhD  
Department of Crop and Soil Sciences

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### Stories from the Field

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### How does this happen?

Over Time:

- Decreases Yield
- Decreases Nutrient Uptake
- Increases Accumulation Rate

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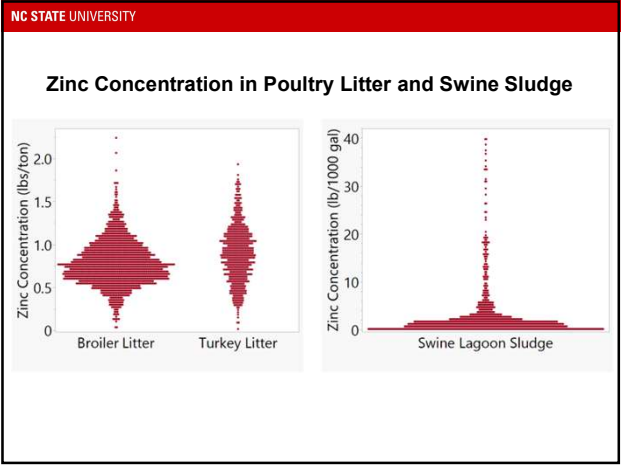
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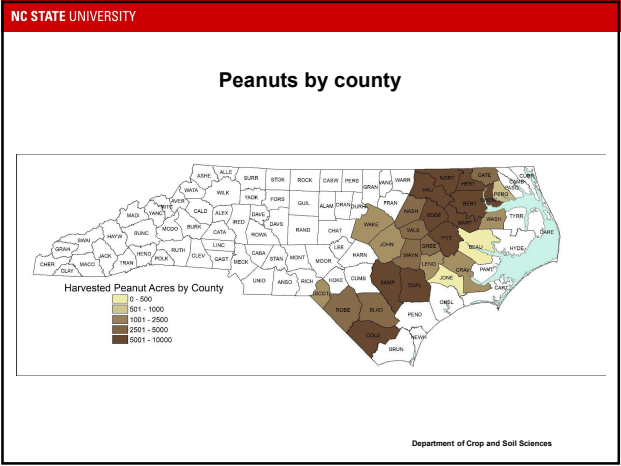
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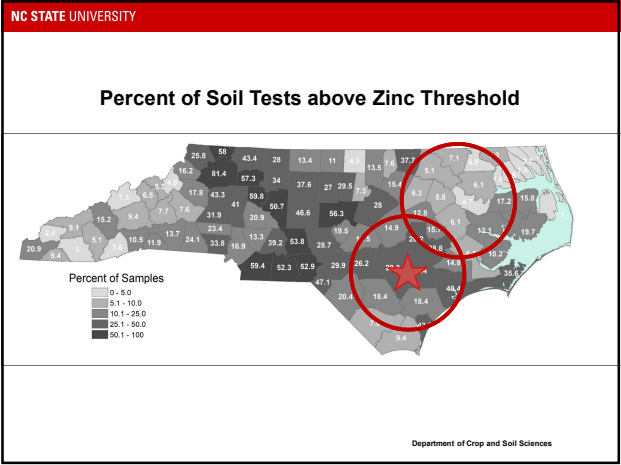
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### What affects zinc availability and can create toxicity?

- Amount of zinc in the soil
- Additional zinc added through manure

**• pH!**

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### What can cause localized zinc toxicity?

- Uneven application of manure
  - Wrong field
    - Double application
  - Mechanical breakdown
    - Tanker spill
  - Historical events
    - Multiple applications to parts of the field
    - Old barns or sheds
- How do we keep records or map to prevent further issues?

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### Zinc Management

- What can we do if zinc has become an issue?
  - Soil Turnover
    - Test the A horizon to determine suitability
    - Till/plow to redistribute nutrients
    - Do not apply further zinc to the field
  - Lime (pH!)
    - Keep soil pH in the optimum range (6.2)
    - Make sure micronutrients don't become an issue
  - Drawdown Strategies
    - Hyperaccumulators
    - Remove biomass

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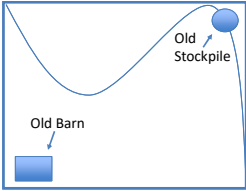
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### Preventing Zinc Accumulation

- **Always** use a manure test
- Make sure equipment is calibrated
- Understand the effective swath width of the spreader
- Keep good records



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Thank you! Questions?

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