Decision making with High Resolution Crop Imagery

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Imagery

- “Smart” Scouting
- Identify and remediate problem areas
- Identify stressed crop areas (NDVI)
- Evaluate live stand counts
- In-season fertility, insecticide & fungicide management
- Proxy for yield
- Verification of cropping practices and decisions
- Equipment / management issues
Considerations

- Direct scout with imagery
- Evaluate in-season decisions (N, fungicide, etc.)
- Readily available today at reasonable costs
- Homework...
  - How delivered, accessed and viewed
  - Type of imagery
  - More the better
  - Requires ground truthing
  - Watch out for erroneous data
  - Spatial accuracy if using to create Rx’s

Remote Sensed Imagery

- Types of Imagery:
  - RGB (Visible)
  - IR (Infrared)
  - RedEdge (RE)
  - NDVI or ADVI
  - Thermal
- Resolution for required management / decisions.
- Multiple images per year needed for in-season decisions and Rx (overwhelming...).
- Accessibility of imagery data...
Remote Sensed Imagery

**NDVI / ADVI Imagery**
- Measures light being reflected from plants
- Identifies areas of varying biomass & health
- Aids in differentiating between natural and manmade variability

**Thermal Imagery**
- Estimate of emitted energy / temperature of plants
- Early indicator of stressed crop areas
- Aids in smart scouting, replant decisions and is-season management of inputs like fungicides.

Late June

<table>
<thead>
<tr>
<th>IR</th>
<th>NDVI / ADVI</th>
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<tbody>
<tr>
<td><img src="image1" alt="Sprayer Passes" /></td>
<td><img src="image2" alt="High Veg Density" /></td>
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<tr>
<td><img src="image3" alt="Planter Passes" /></td>
<td><img src="image4" alt="Low Veg Density" /></td>
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</table>
Identified Nutrient Application Issue

NDVI / RGB map collected late-July

NDVI Image
July 29

Producer Value:
Identify and quantify equipment / management issues
What can be learned during the season?

**ADVI Image:** Identified circular patterns that led to SDS (Sudden Death Syndrome)

Associated with drainage and cyst nematode issues

What can be learned during the season?

**ADVI Imagery:** 2 collects mid-season

Identifying disease spread

Source: Brian Sutton of Sutton Farms / AirScout
High Resolution Imagery

Additional example of in-season verification of field operations and N late-season application.

Spring Evaluation for Planting and Fertilizer

- **Field Conditions** related to variability and management zones.
- **Weather Model** - understanding 3 to 5 day forecast.
**P and K Rx’s**

As-Planted Evaluation

Zone Delineation  
Prescription  
Execution / Verification
As-Planted

Nitrogen Program Verification

6/9 6/19 6/29 7/8 7/19 7/26 8/1 8/19

#NutrientIntel
COLLECT IN-SEASON DATA

Bare Soil (April 17)

Identify varying soil OM, CEC, water holding capacity, and texture.
Best Management Practices for Addressing Challenges with Imagery Quality
https://ohioline.osu.edu/factsheet/fabe-5541

“Smart” Sampling Sites

Bare Soil (April 17)
Prescription Creation (Rx)

INFORMATION

• Imagery (WHERE) = zones
• Agronomic knowledge (HOW MUCH)
  - Smart Scouting
  - Weather information
  - Soil N samples?
  - Prior production knowledge
SUMMARY

Growing opportunities to utilize imagery during the season
Identify your need and type of imagery
Consider a service that provides multiple collects over the growing season

#DataIntel  #NutrientIntel

Digital Agriculture
Providing solutions to meet world demand

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