



# Aerial Insights to Prescriptions

Presented by Brian Sutton

Sponsored by:

# JAG GROUP



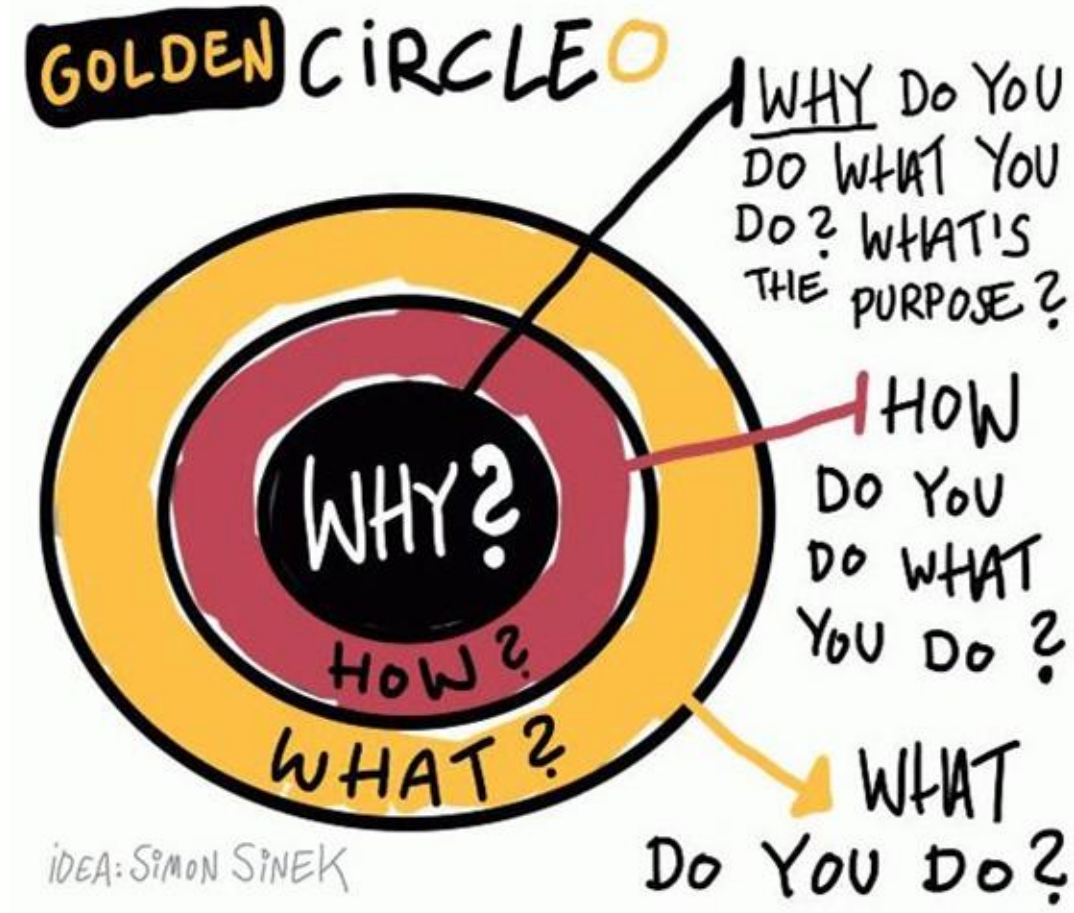


# Aerial Insights to Prescriptions

Brian Sutton

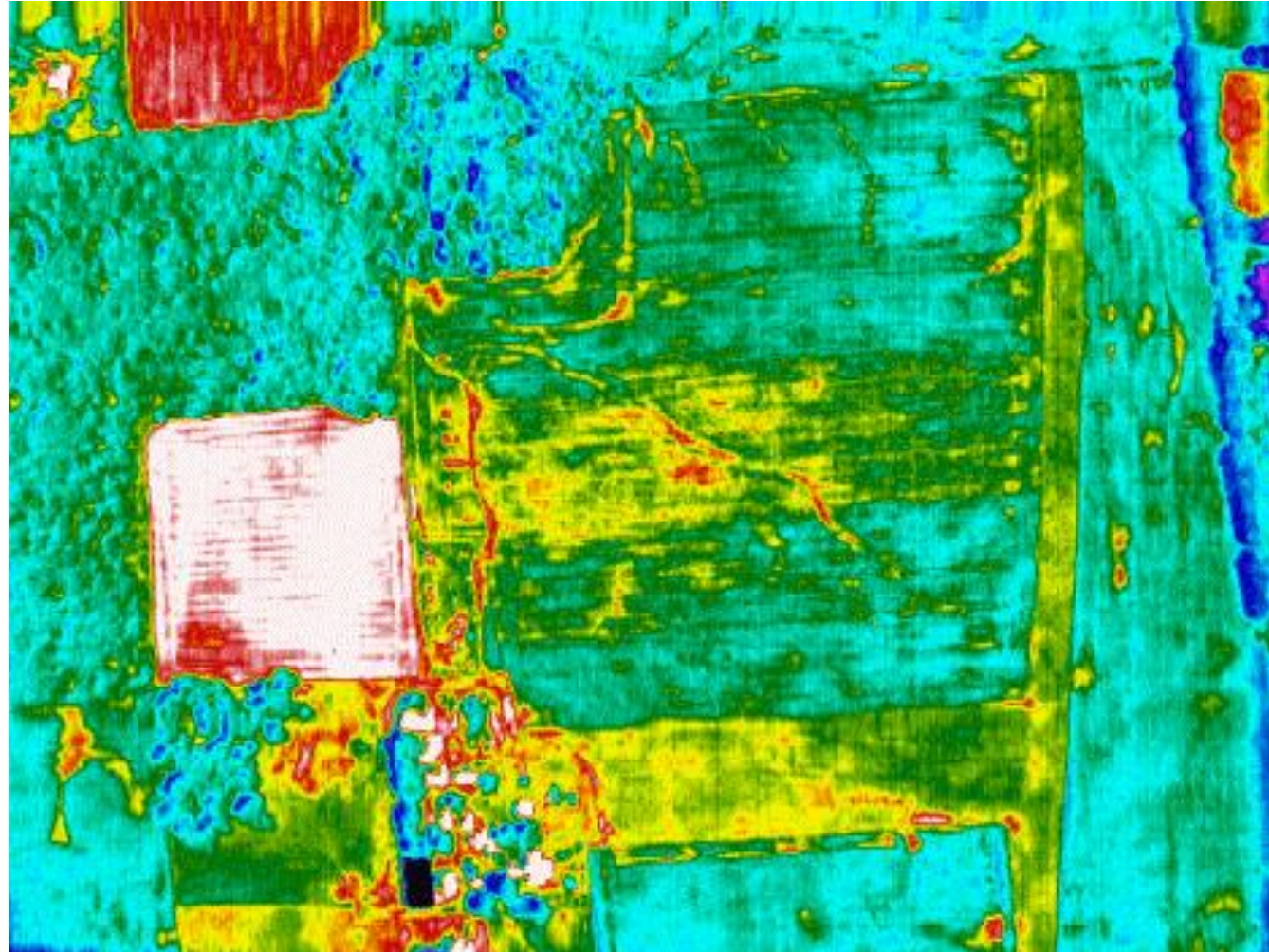


# Aerial Imagery to Actionable Items



“Driving Precision Prescriptions With Imagery”

# My Story



# Uses for Imagery

- \*Tile line and drainage decisions
  - \*Prescription Planting
  - \*Re-plant Decisions
    - \*Irrigation
  - \*Intensive Scouting
- \*Nitrogen management
  - \*Disease detection
  - \*Yield Prediction
    - \*Senescence
  - \*Harvest Decisions

It's All About PRESCRIPTIONS!

**Prescriptions**  
**Prescriptions**  
**Prescriptions**

We love imagery, but it's all about the *prescriptions*!!

# Planting Prescriptions



# Nitrogen Prescriptions



# Where it all starts: The MOST Important Picture



# SSURGO – The biggest detriment to precision agriculture that will ever exist!

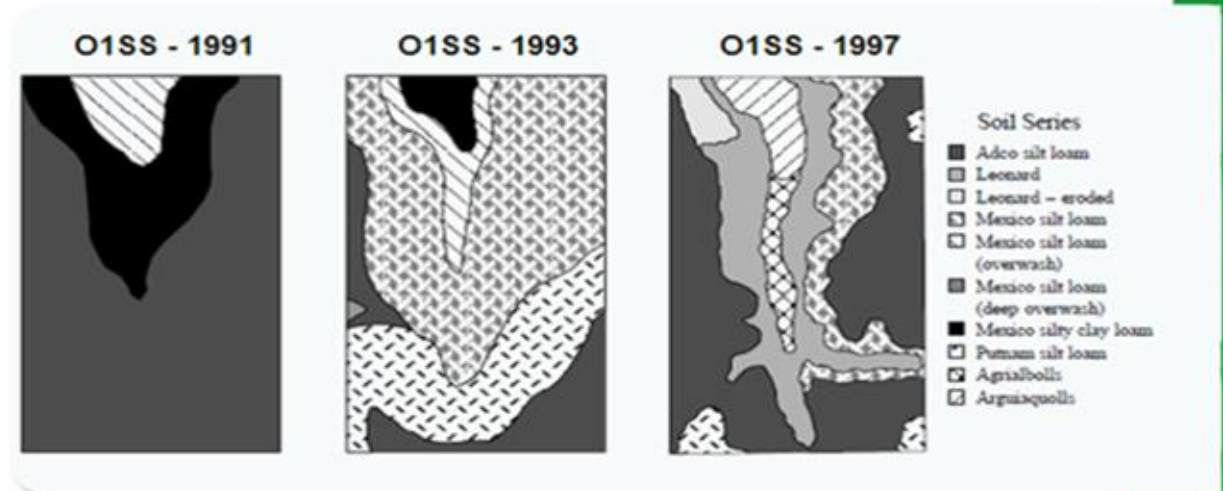
## Is SSURGO the answer?

Here a study was done by giving three different groups the same set of instructions the USDA used, and sending them the same field.

As you can see, there is very little repeatability in this method due to human interpretation.

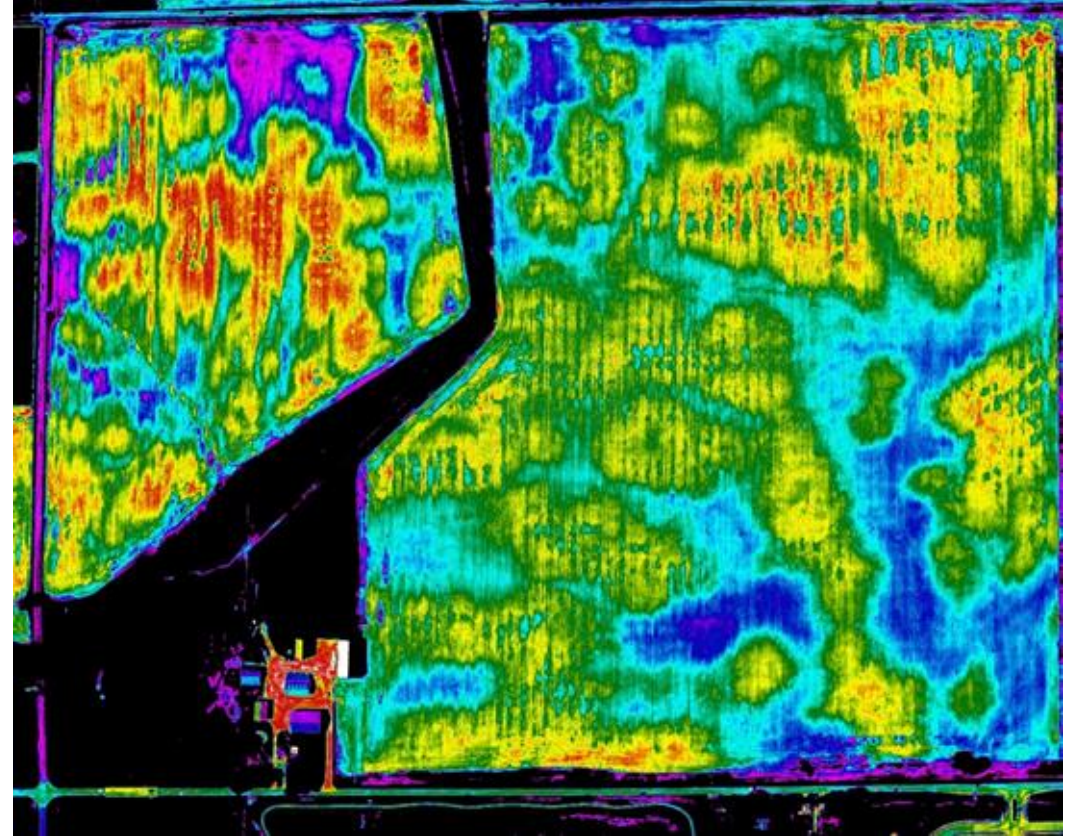
## USDA Soil Surveys – Lack Precision

### Soil Survey Limitations



- Soil survey captures general details; repeatability of lines questionable
- May or may not adequately explain variation in yield

# Visual converted into ADVI



Instead of SSURGO or 2 ½ acre grids  
we use 6 inch pixels!!

# Introducing HindsightN



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## ORGANIC MATTER PERCENTAGE

Low:  High:

LBS N per % Organic matter

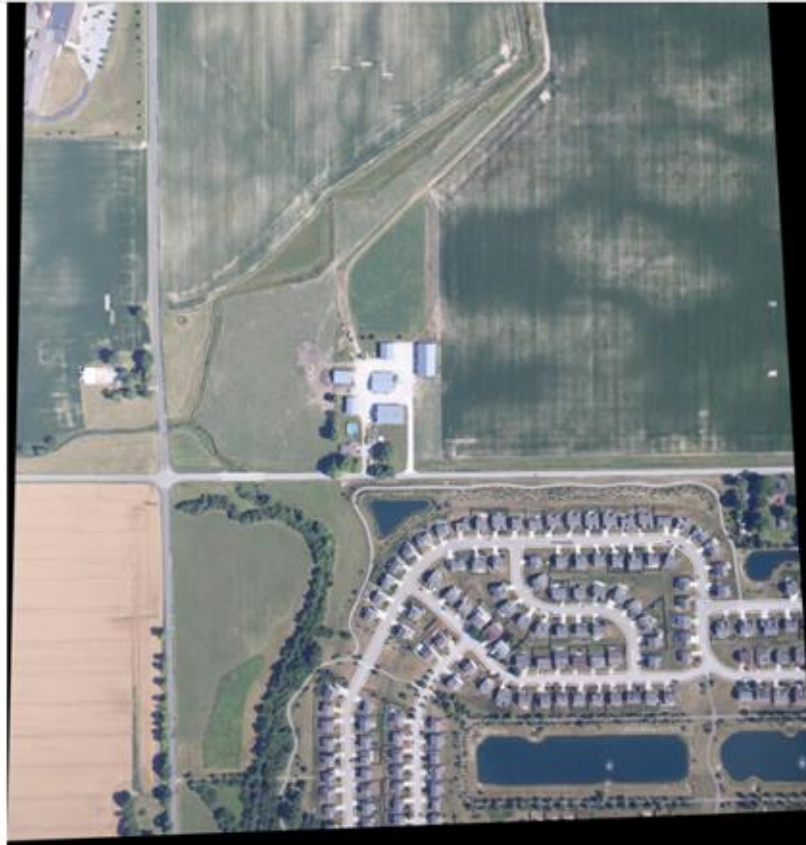


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## ESTIMATED YIELD PER ACRE

Low:  High:

LBS of N per bushel of yield:

# Introducing HindsightN

PREVIOUSLY APPLIED N

Total LBS:

Select your product type:

28% (Gallons)

32% (Gallons)

Urea (LBS)

Anhydrous (LBS)

Other (enter LBS of N per Gal or LB of product):

Field - HomeplaceW\_11



Create a prescription...

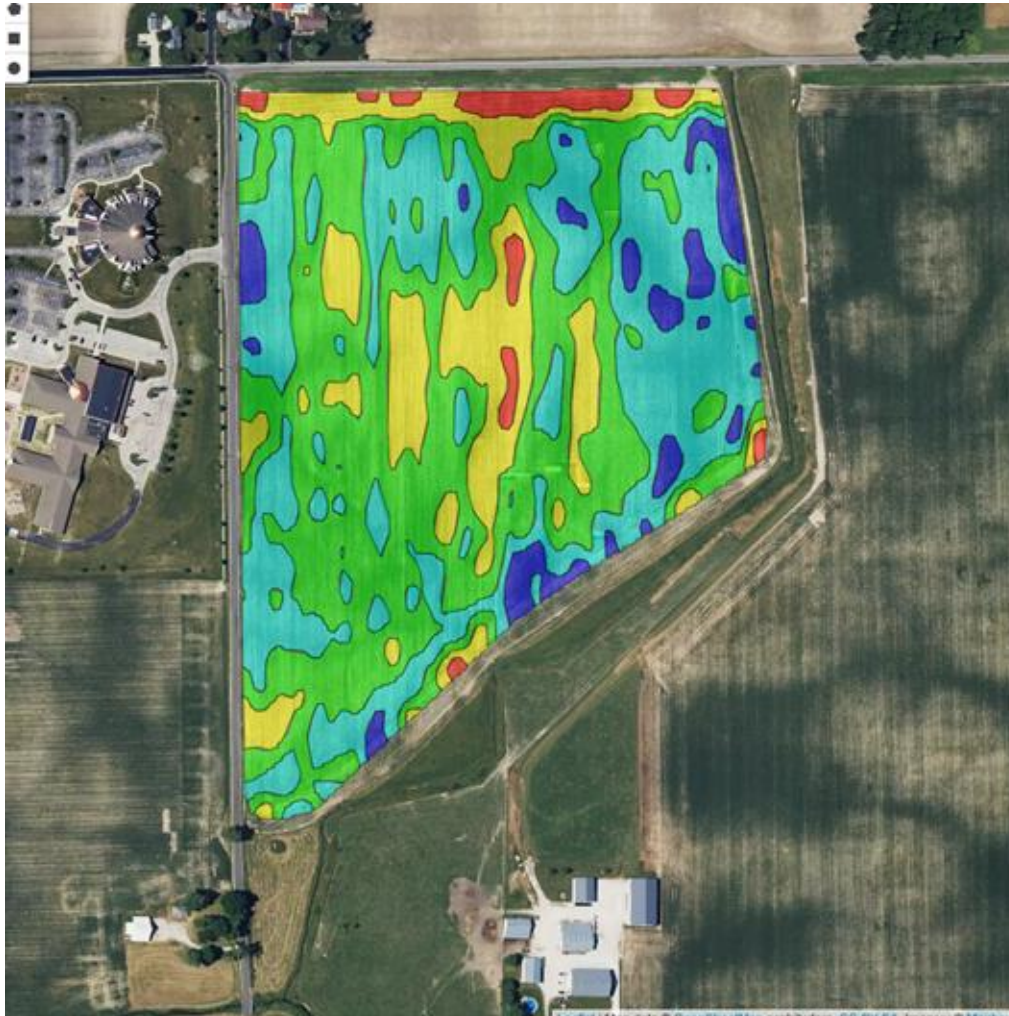
Number of Zones (2-5):

Blending Ratio (1-10):

By Value  Pivotal

Product Rates:

# Real time Nitrogen Prescriptions!



SPLIT ZONE

Product Rates:

Needed N LBS: 150  
Gallons of 32:   
**CHANGE**

Needed N LBS: 113  
Gallons of 32:   
**CHANGE**

Needed N LBS: 76  
Gallons of 32:   
**CHANGE**

Needed N LBS: 38  
Gallons of 32:   
**CHANGE**

Needed N LBS: 1  
Gallons of 32:   
**CHANGE**

# Economic Calculator

UPDATE FIELD DATA

## Hindsight™ Economic Calculator

Inputs				
Global Inputs	Pre-Season	With Planting	Side Dress	Late Season
Cost Of N (\$/lb)	<input type="text" value="0.7"/> \$	<input type="text" value="0.7"/> \$	<input type="text" value="0.7"/> \$	<input type="text" value="0.7"/> \$
Cost Of Application (\$/acre)	<input type="text" value="20"/> \$	<input type="text" value="5"/> \$	<input type="text" value="10"/> \$	<input type="text" value="15"/> \$
Estimated percentage of N application lost	<input type="text" value="20"/> %	<input type="text" value="15"/> %	<input type="text" value="10"/> %	<input type="text" value="5"/> %
<b>Traditional Blanket Method</b>				
Pounds of N applied (current operation)	<input type="text" value="225"/> lbs/ac	<input type="text" value="0"/> lbs/ac	<input type="text" value="0"/> lbs/ac	<input type="text" value="0"/> lbs/ac
Total cost of pass (application + N)	\$7962	\$0	\$0	\$0
Available N (left after leaching)	180 lbs/ac	0 lbs/ac	0 lbs/ac	0 lbs/ac
Total Available N	180 lbs/ac			
<b>Hindsight™ Method</b>				
Pounds of N applied (Hindsight™)	<input type="text" value="0"/> lbs/ac	<input type="text" value="70"/> lbs/ac	<input type="text" value="70"/> lbs/ac	63 lbs/ac (average)
Total cost of pass (application + N)	\$0	\$2422	\$2646	\$2637
Available N (left after leaching)	0 lbs/ac	60 lbs/ac	63 lbs/ac	
Total Available N (before Hindsight™ pass)	123 lbs/ac			
Average Target Yield (Hindsight™)	248 bu/ac (average)			
Average lbs/ac of N applied using Hindsight™	203 lbs/ac (average)			
Price of Corn	\$ <input type="text" value="5"/>			
Field Size	44.9 acres			

# Economic Calculator

Economic Analysis	Traditional Blanket	Hindsight™	Hindsight™ Advantage
Total Cost of N inputs including application	\$7,962	\$7,705	\$257
Cost of Hindsight (\$10/ac)	\$0	\$449	<b>-\$449</b>
Loss From Missed Yield	<b>-\$6,518</b>	\$0	\$6,518
<b>TOTAL HINDSIGHT™ ADVANTAGE</b>			<b>\$6,326 (141\$/ac)</b>

Nitrogen Efficiency Analysis	Traditional Blanket	Hindsight™
Average Total LB N Applied Per Acre	225 <sup>lb</sup> /ac	203 <sup>lb</sup> /ac
Estimated Yield Per Acre	219 <sup>bu</sup> /ac	248 <sup>bu</sup> /ac
Nitrogen Use Efficiency	1.03 <sup>lb-n</sup> /bu	0.82 <sup>lb-n</sup> /bu
Nitrogen Loss From Over Application	340 lbs	48 lbs

Overage and Missed Yield Map using conventional blanket application



# VALUE!

**Each 1000 seeds cost about \$3.00**

If you save 2000 seeds per acre using the prescription planting map,  
that equals \$6.00 alone!

**Yield Increase**

All it takes is just 1 bushel per acre yield increase to get about  
another \$4.00

**Cost of AirScout / HindsightN \$10.00**

These two benefits alone already pay for the entire year of  
AirScout /HindsightN at \$10.00 per acre

# What If's!!

## Floods or Drought happens...

**Hindsight allows you to make adjustments later  
in the season!**

If you end up in a prevent plant situation,  
**All your nitrogen money is still in the bank!**

If you end up in a drought situation,  
**Cut your losses and eliminate all late season Nitrogen!**

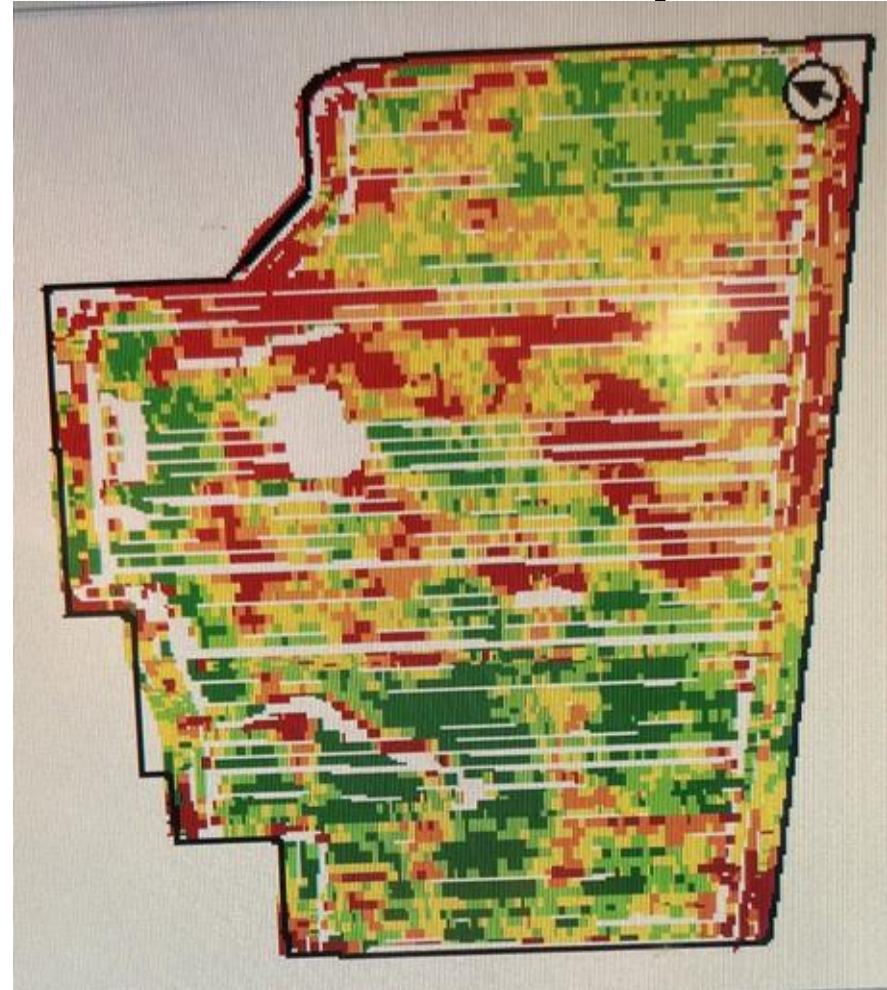
If you end up with good potential for a bumper crop,  
**SHOOT FOR THE MOON!!**

# Show and Tell

6/19/24



# Yield Map



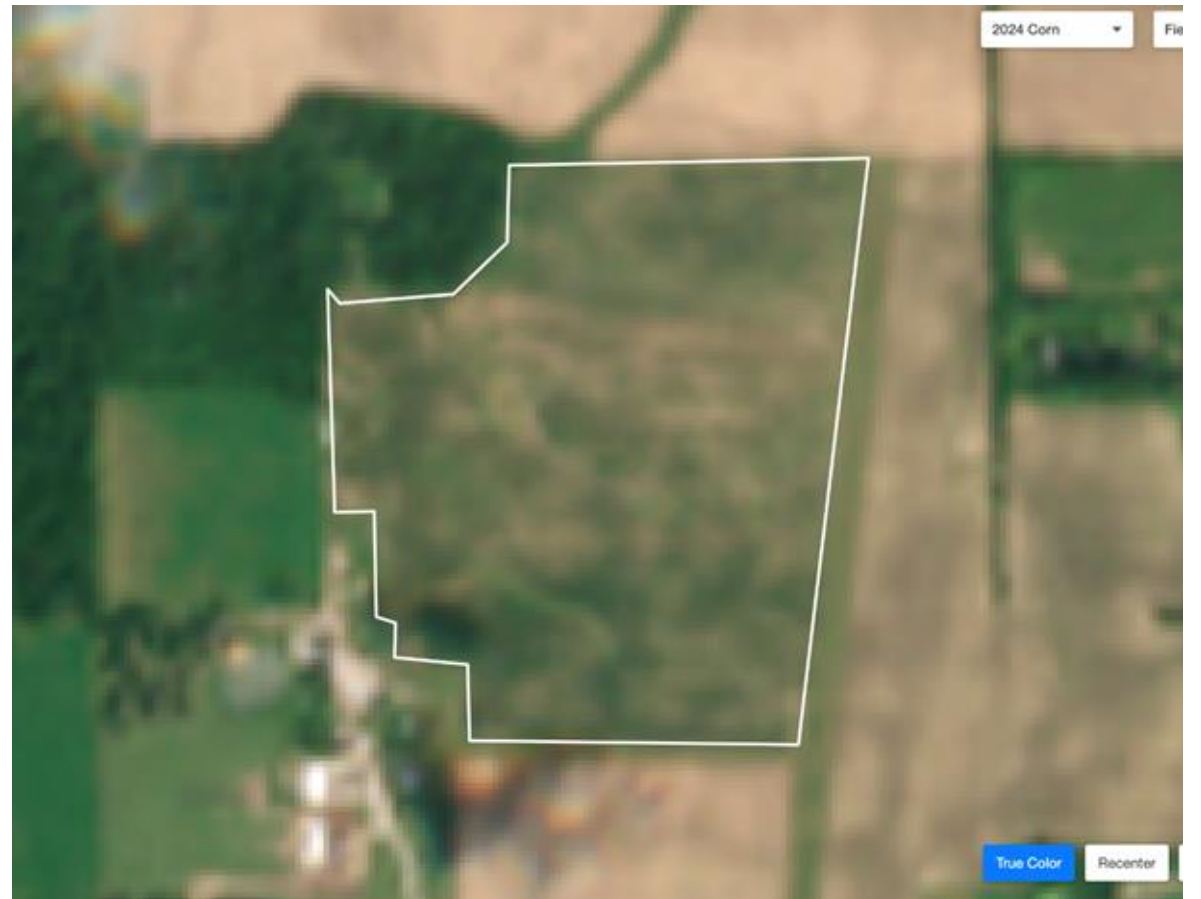
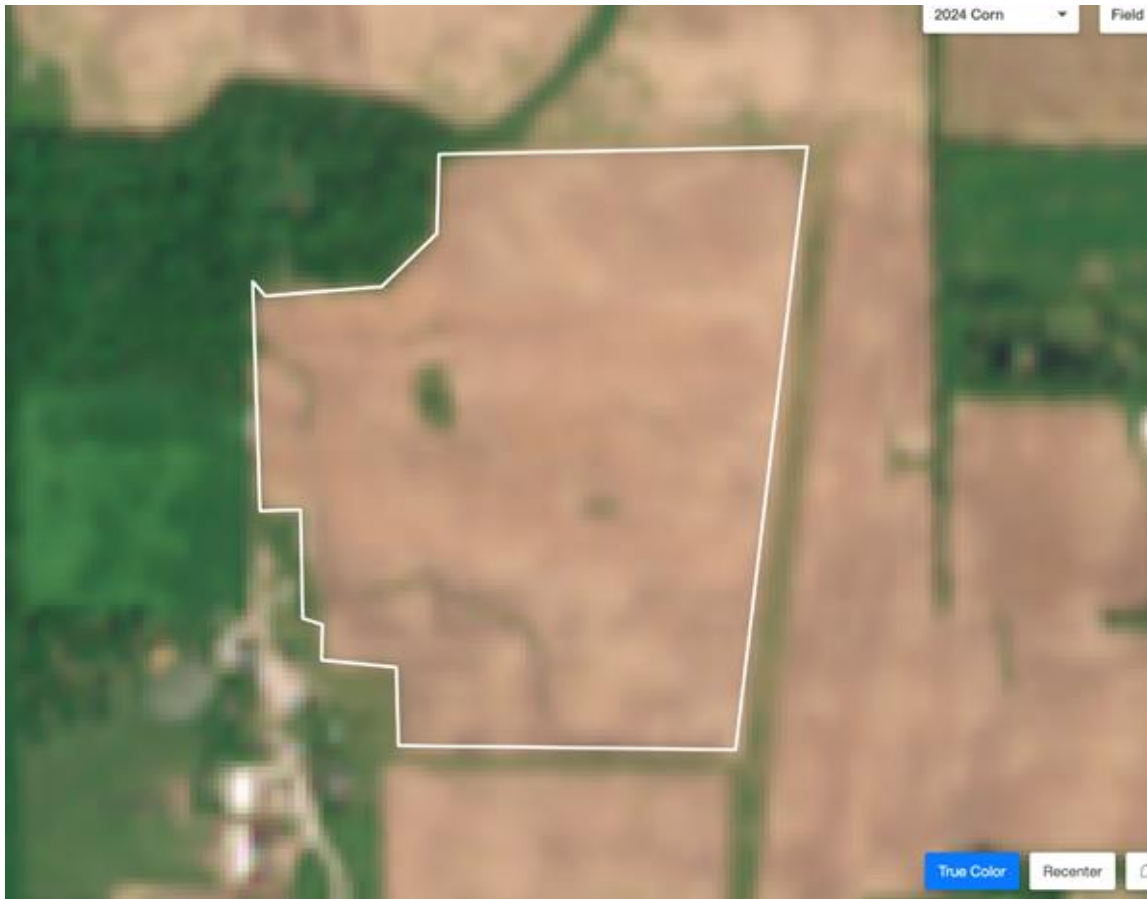
# Show and Tell: 9/8/24



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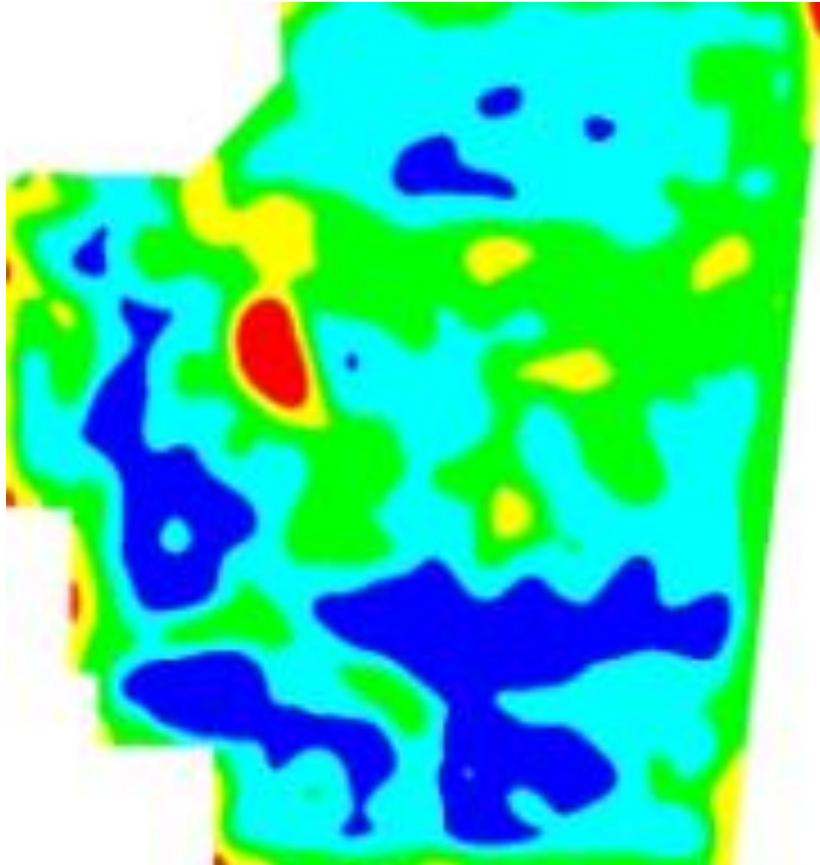


# Show and Tell: Satellite Imagery???

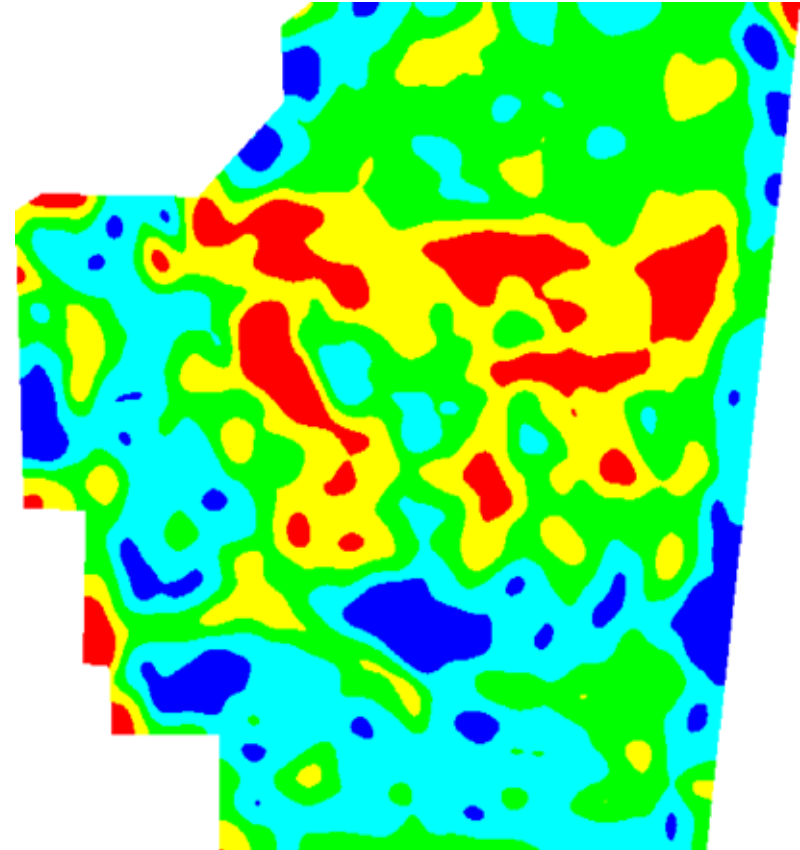


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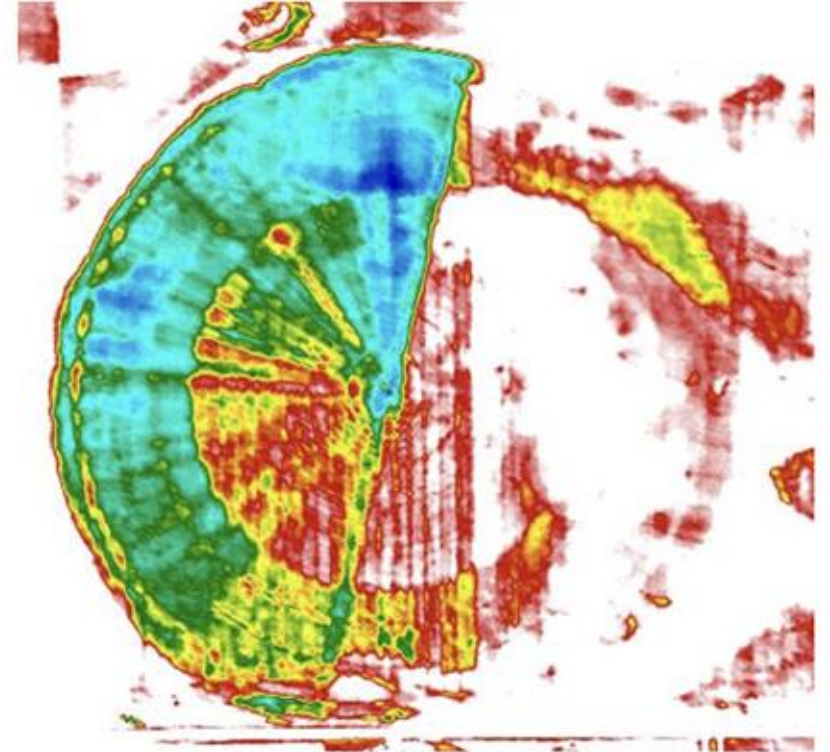
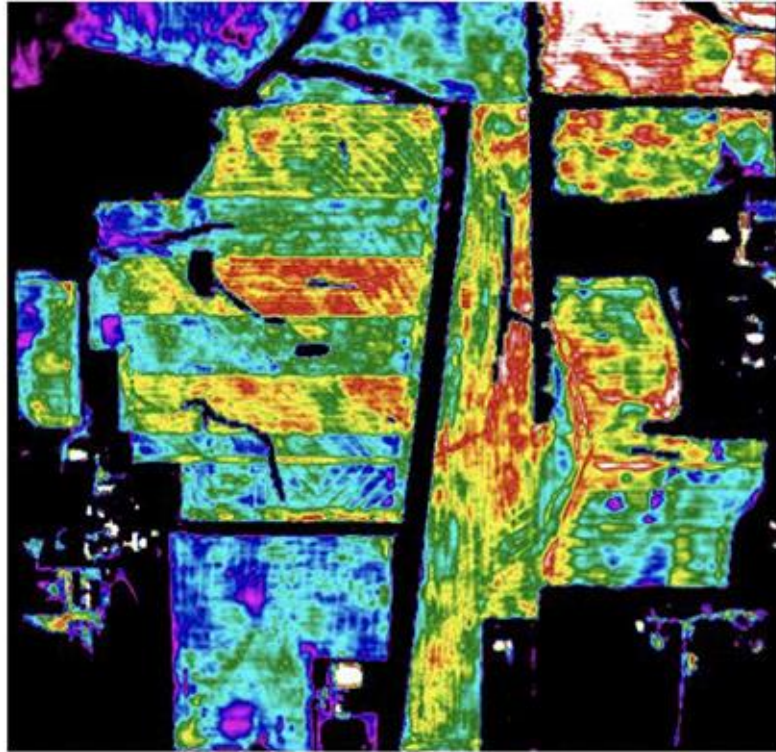
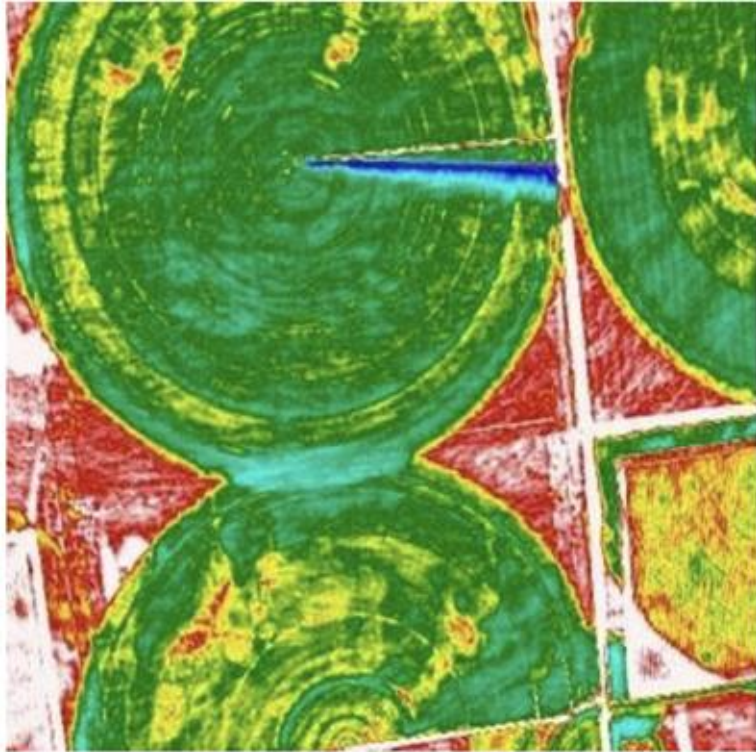
Satellite Prescription



AirScout Prescription



# Using Aerial Imagery to Drive Actionable Items



# What's Next?

Hagie with  
dual box cover  
crop seeder!!



# What's Next?

Cover crop  
evaluation.

What else?  
Keep thinking....



# What's Next?

What else?

Keep thinking....



**Thank You!**