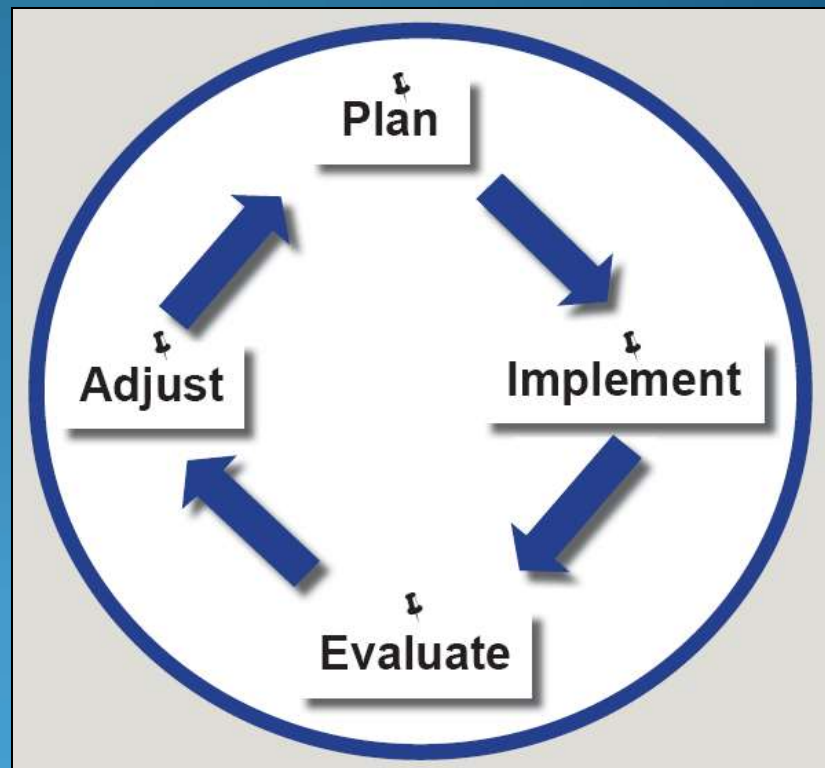


On-Farm Network[®]

Tracy Blackmer
Sheila Hebenstreit

Adaptive Management

Need to evaluate
what actually
happened.



Do you have enough?

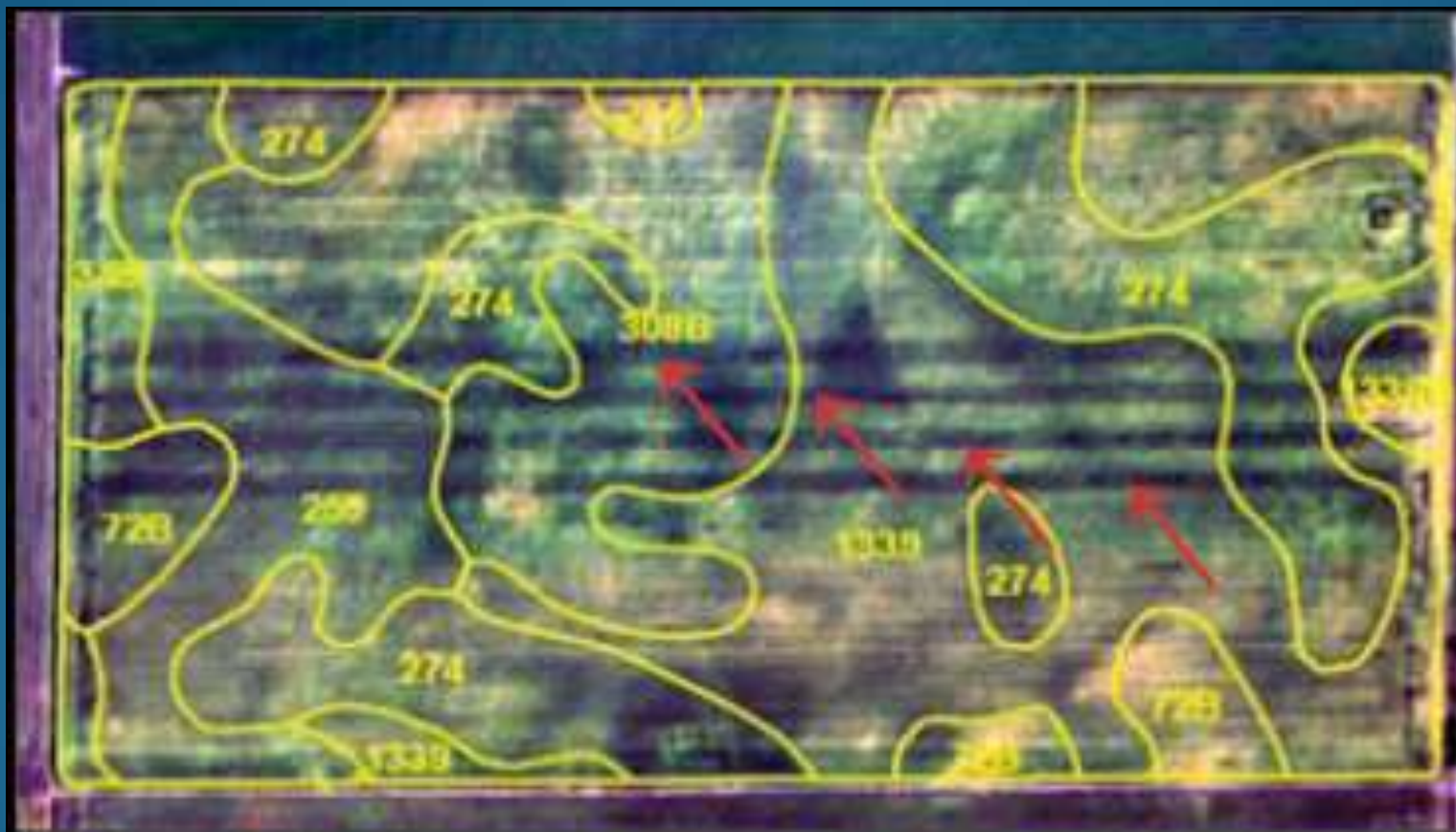
Do you know if you
are within 50 lb N/a?

50 lbs N @\$0.50/lb N = \$25
5 bu corn@\$5.00/bu = \$25

Can you look at a field
and know if you are
within 5 bu/a of optimal
for N?



Aerial Image of Field



Nitrogen Trials

Year	Rotation	Fertilizer N		Grain Yield		
		Low Rate	High Rate	Low Rate	High Rate	Diff.
		-----lb N/acre-----		-----bu/acre-----		
2001	C-SB	80	130	177	176	-1
2002	C-SB	70	120	193	195	2
2003	C-C	130	180	167	166	-1
2004	C-SB	60	110	200	206	6
	C-C	110	160	172	178	6
2005	C-SB	60	110	192	197	5
	C-C	110	160	182	194	12
2006	C-C	120	150	188	193	4
2007	C-C	125	150	177	182	5
2008	C-C	130	155	169	174	4

Stalk Nitrate Sampling

Involves end-of-season cornstalk sampling

Stalk samples are collected from 6-14 in. above the ground after the plant reaches physiological maturity.



Guided Stalk Nitrate Sampling

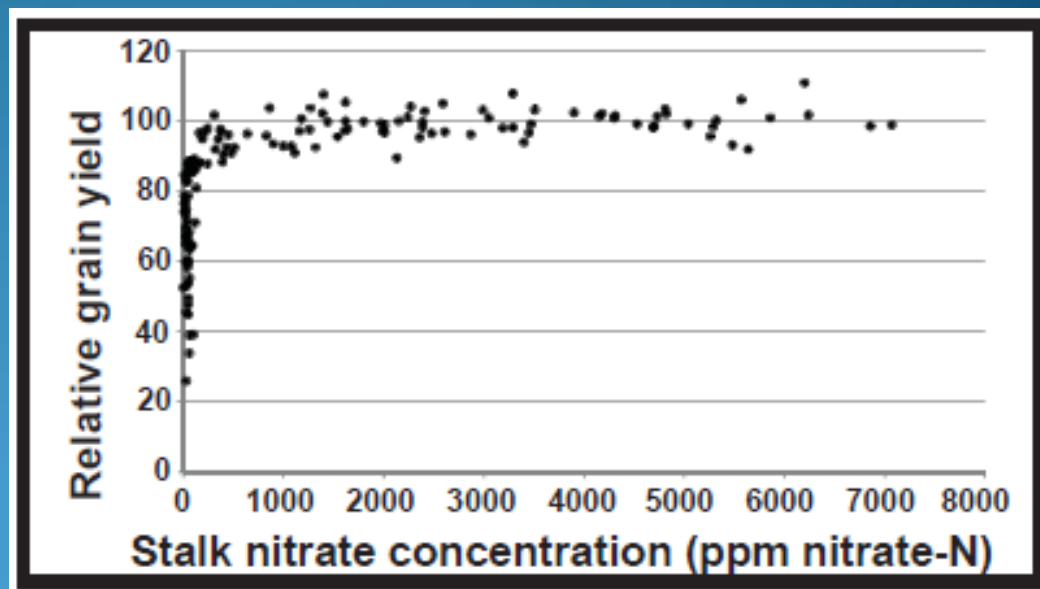
Yield differences can't be detected when over-fertilized.

Stalk nitrates will continue to increase when over-fertilized.



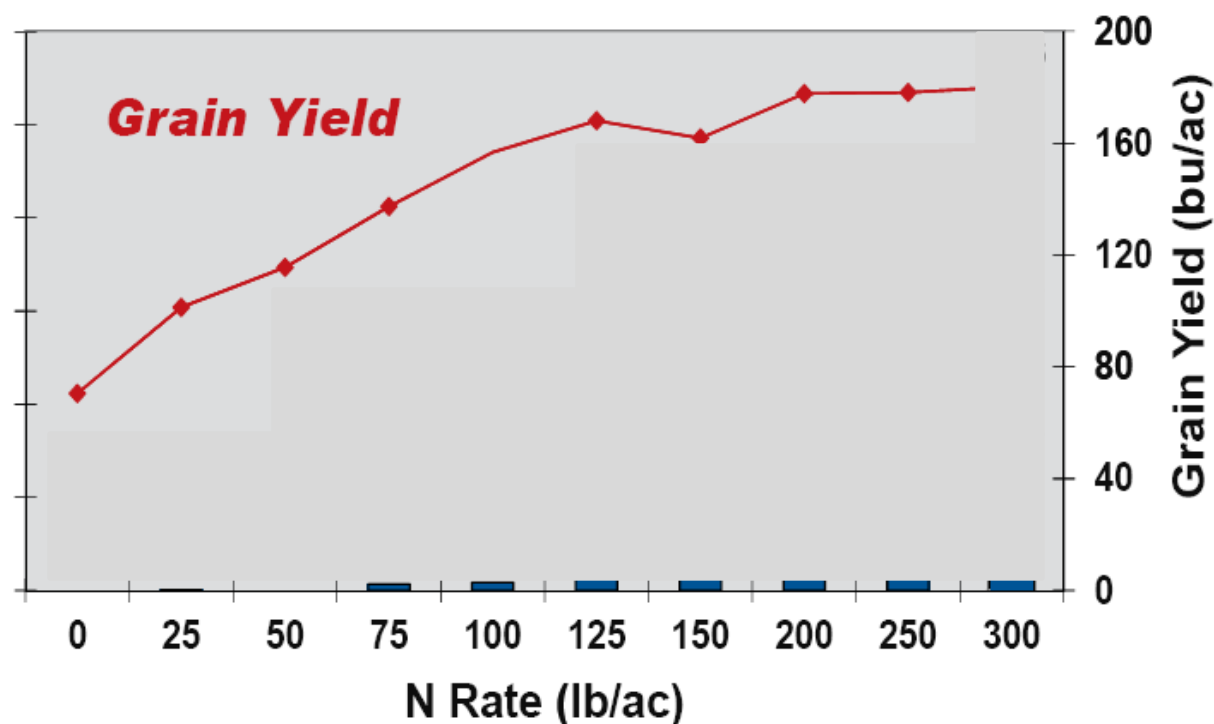
Stalk Nitrate Sampling

Stalk Nitrate Sampling



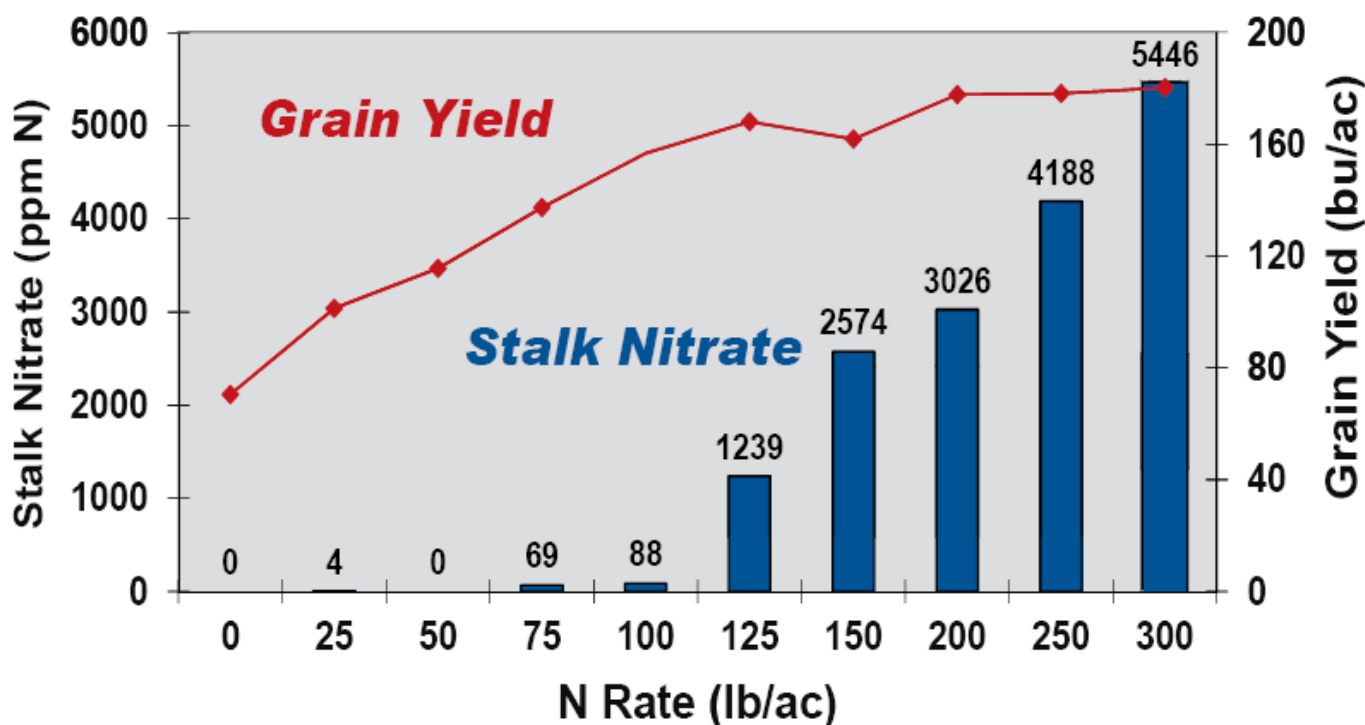
Methodologies

Figure 2. Corn grain yields as affected by nitrogen fertilizer rates.



Methodologies

Figure 2. Corn grain yields and stalk nitrate values as affected by nitrogen fertilizer rates.



Stalk Nitrate Sampling

4 Samples collected

What would you think?

Same field

Uniform N application

Sample
results

Classification

1. 160

Low

2. 5752

Excess

3. 56

Low

4. 5473

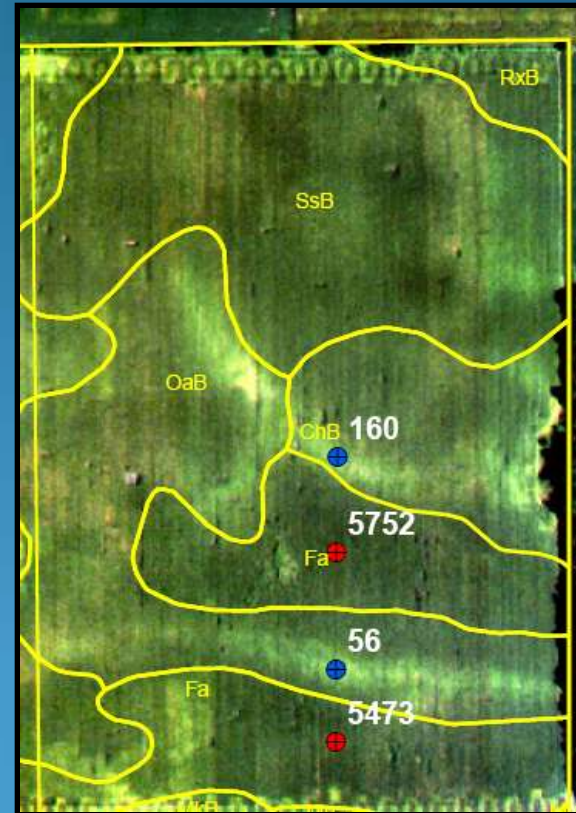
Excess

Stalk Nitrate Sampling

4 Samples collected

Matched with imagery

Matched with soil map units



Stalk Nitrate Sampling

4 Samples collected

Matched with imagery

Matched with soil map units



Stalk Nitrate Sampling

4 Samples collected

Matched with imagery

Matched with soil map units



Stalk Nitrate Sampling

4 Samples collected

Matched with imagery

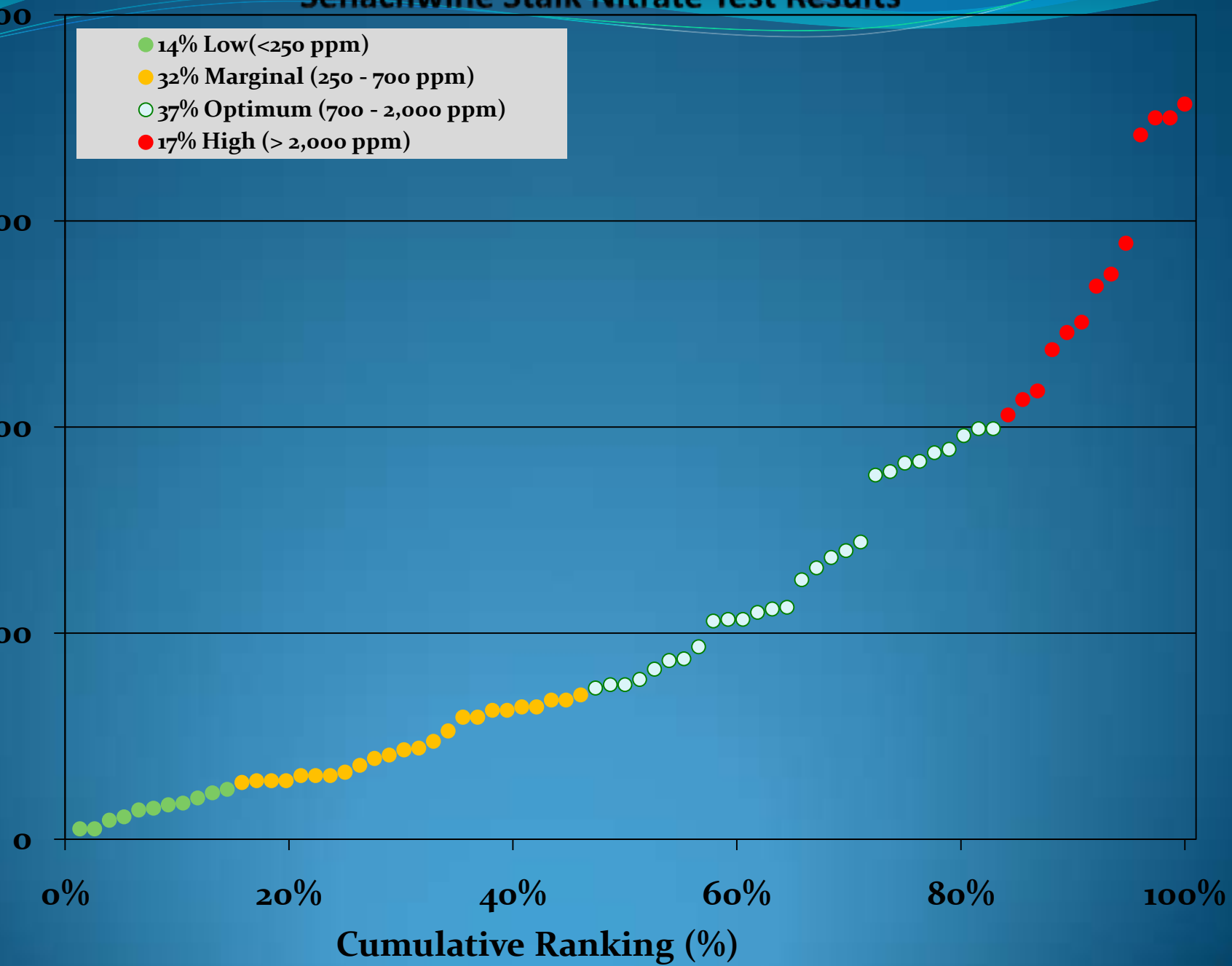
Matched with soil map units



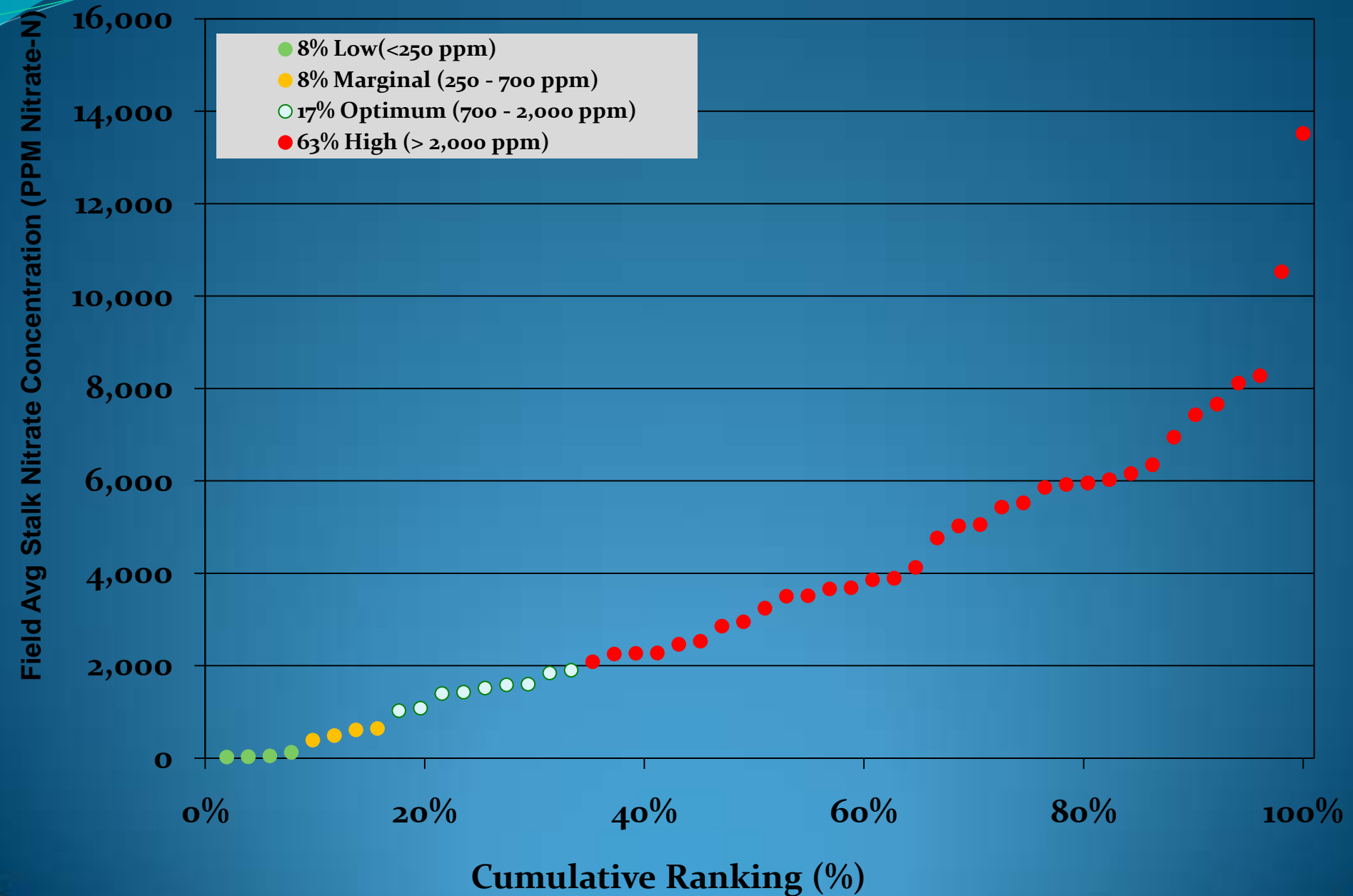
Senachwine Stalk Nitrate Test Results

Field Avg Stalk Nitrate Concentration (PPM Nitrate-N)

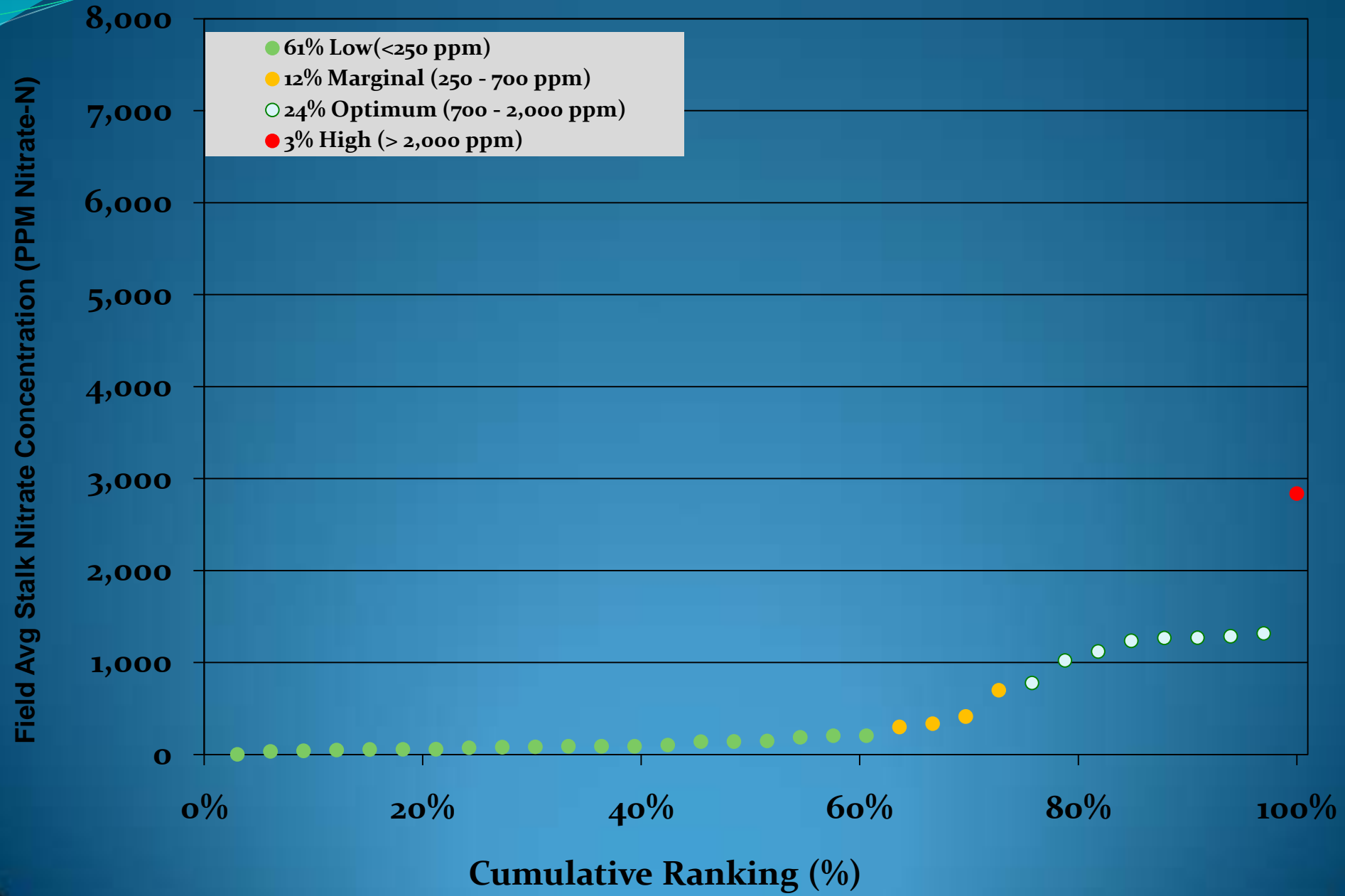
- 14% Low (<250 ppm)
- 32% Marginal (250 - 700 ppm)
- 37% Optimum (700 - 2,000 ppm)
- 17% High (> 2,000 ppm)



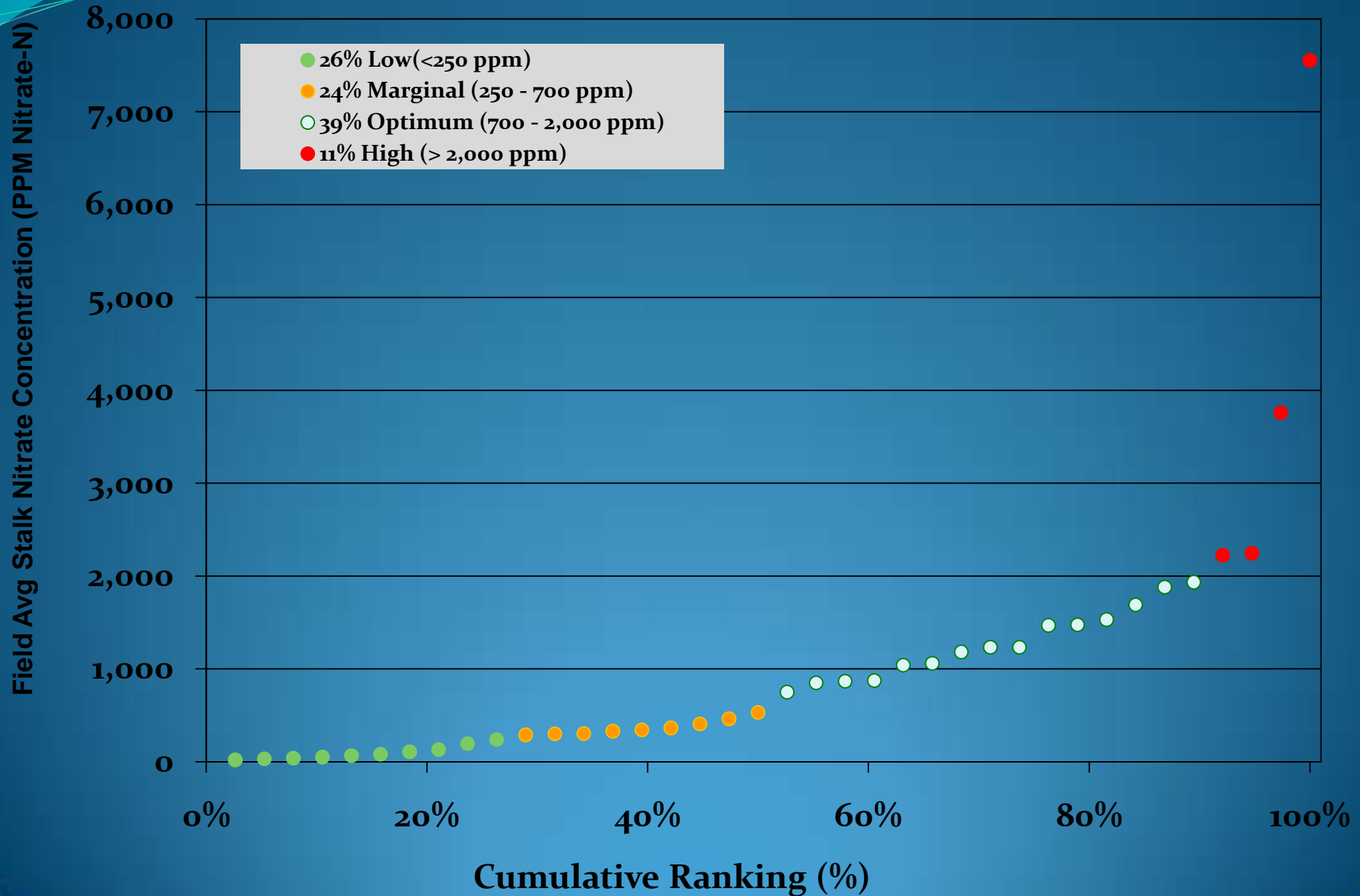
Sauk River Stalk Nitrate Test Results

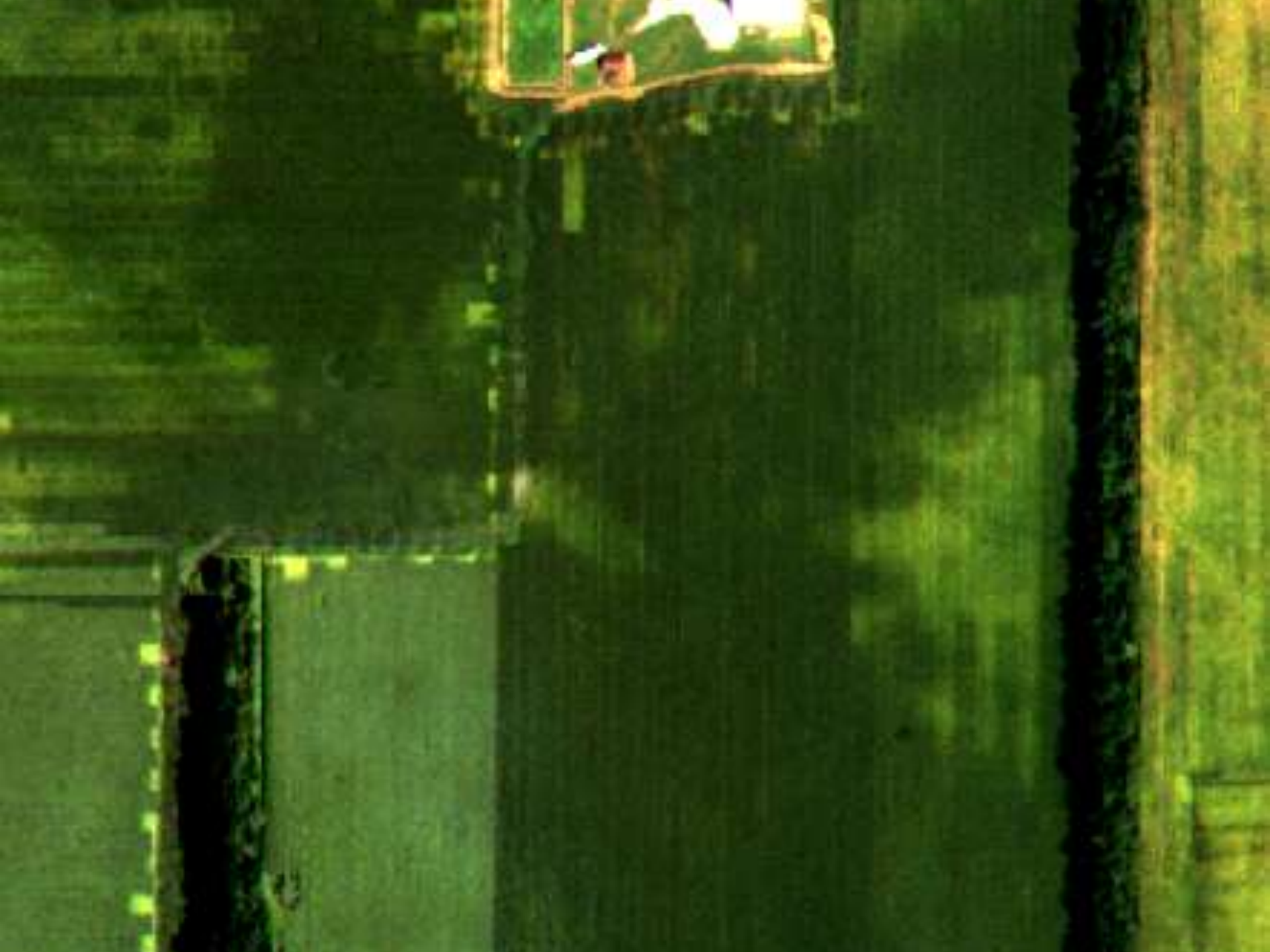


Jefferson Group Stalk Nitrate Test Results

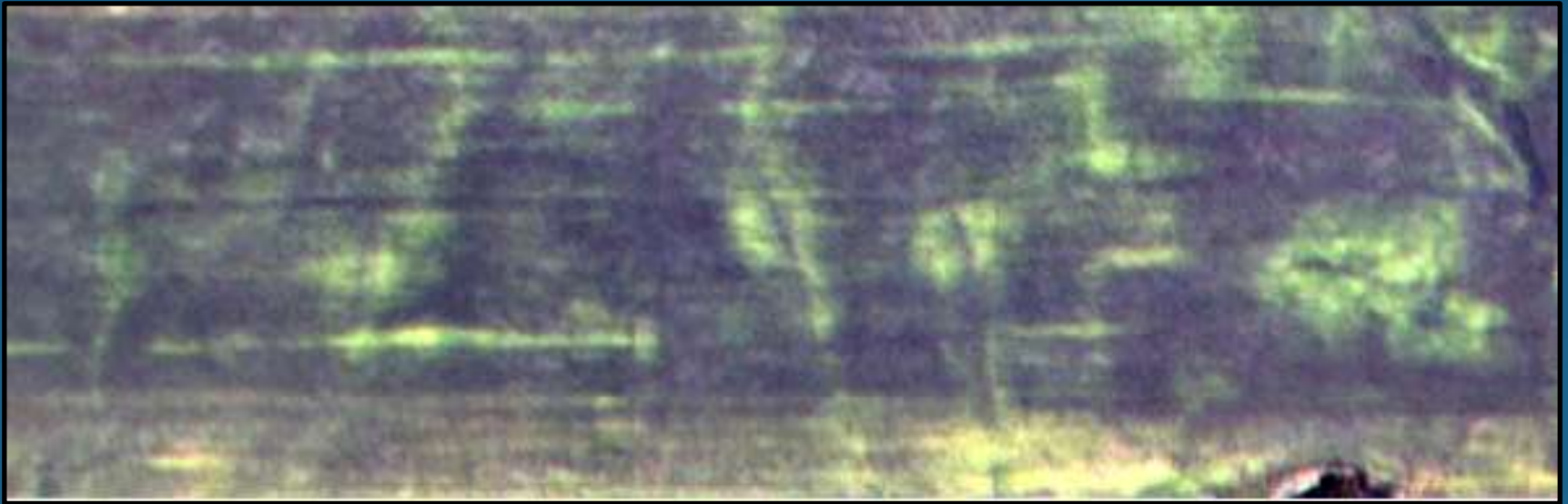


Indiana Stalk Nitrate Test Results

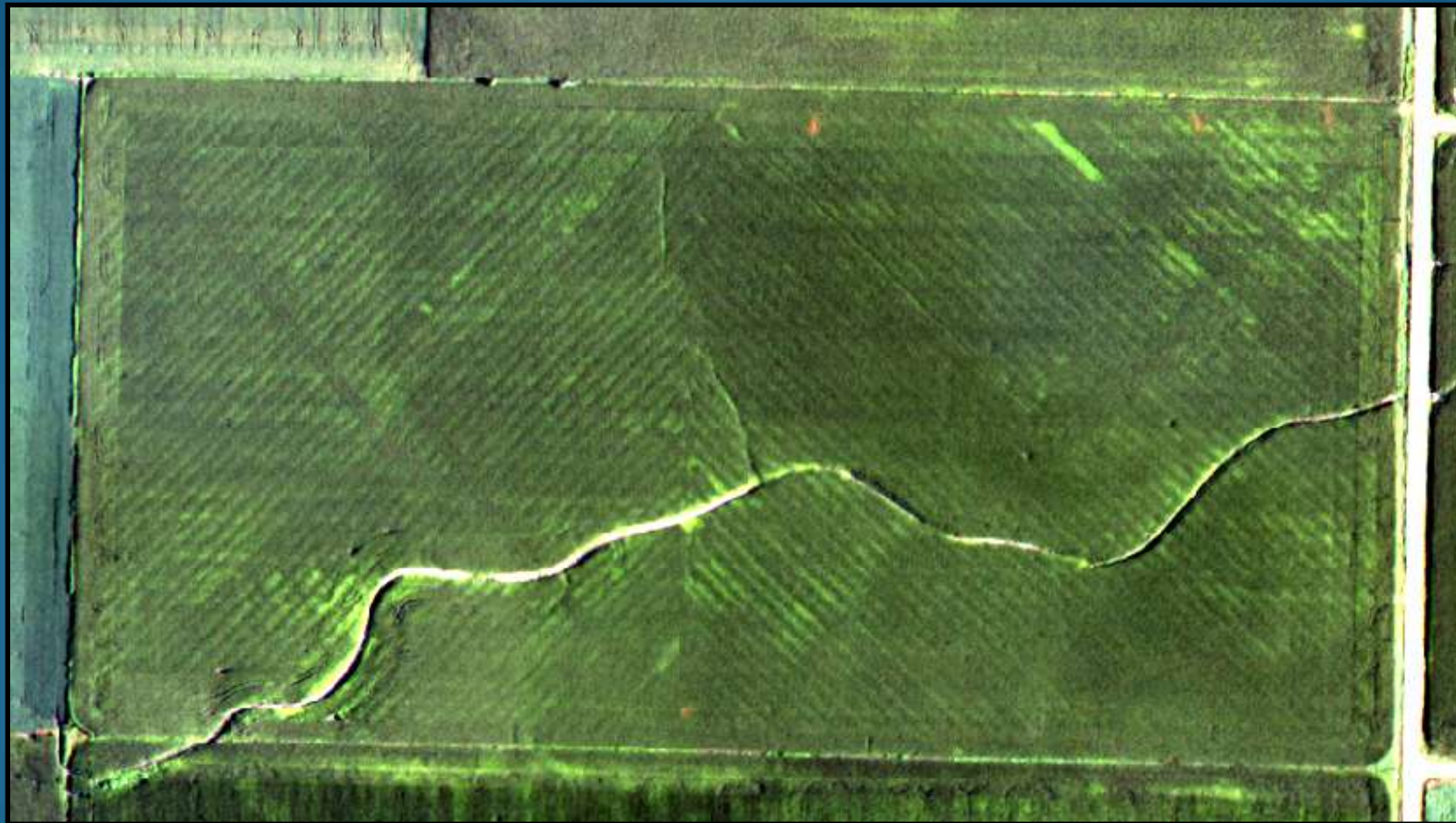




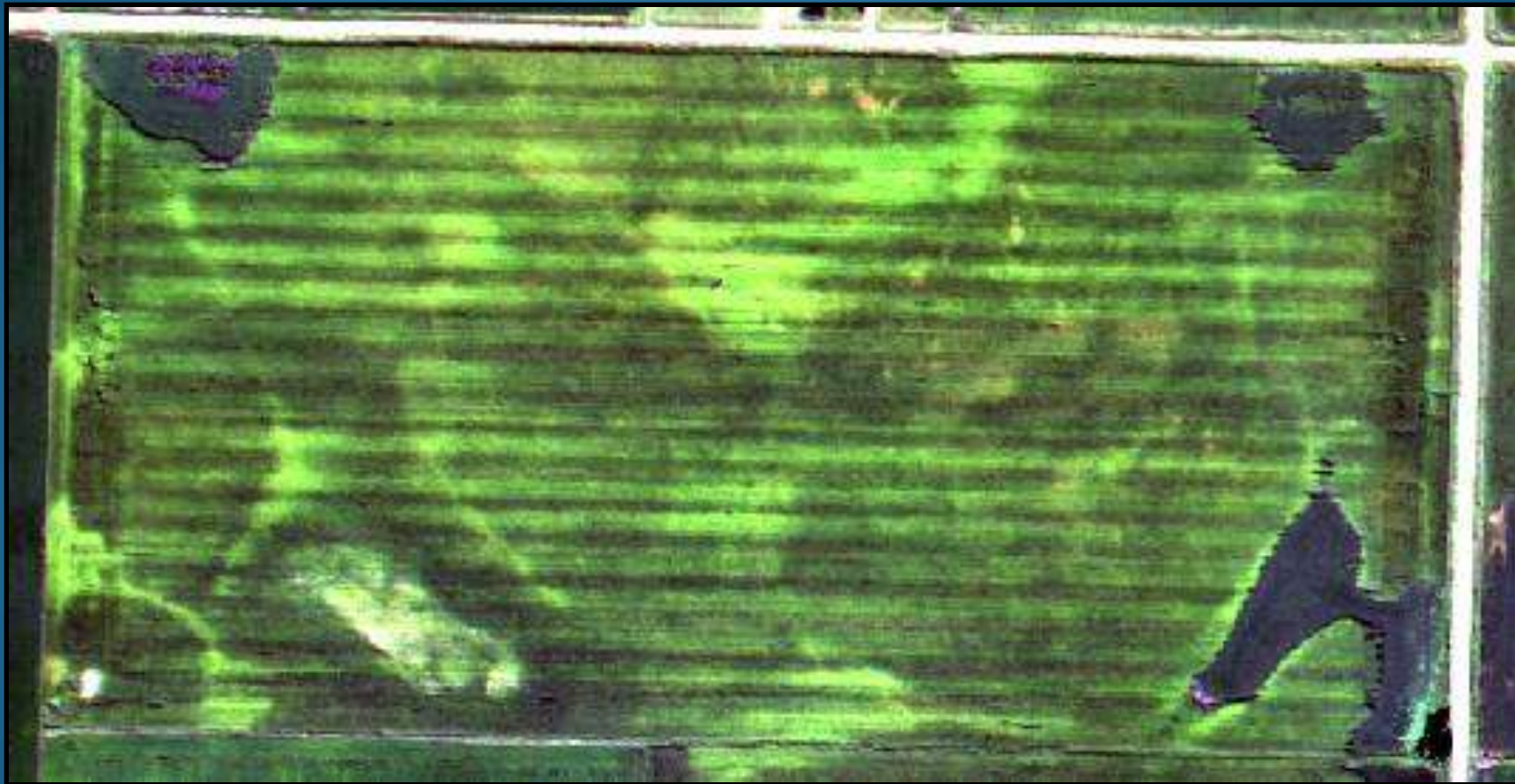
UAN (28%) Application



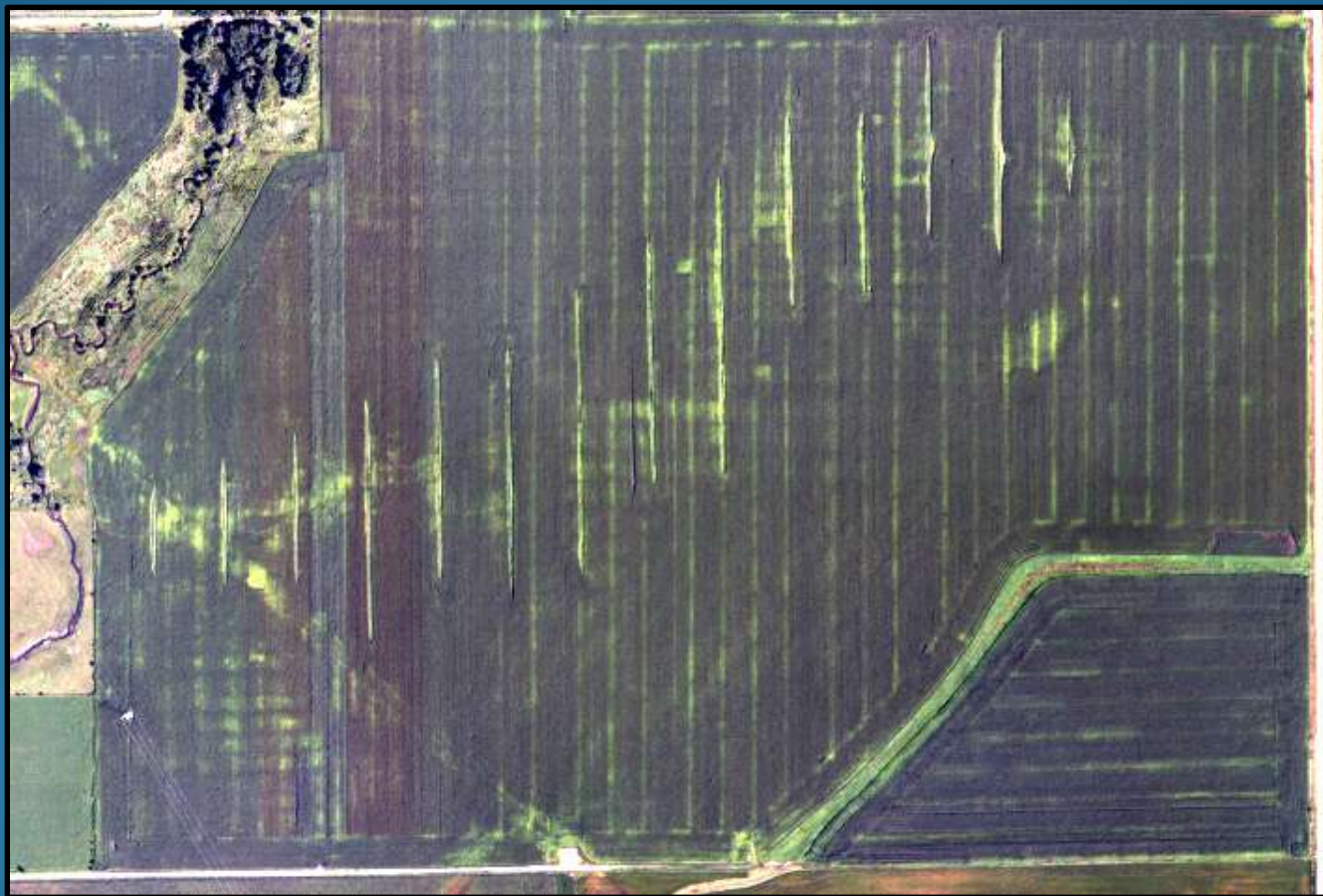
Manure Application



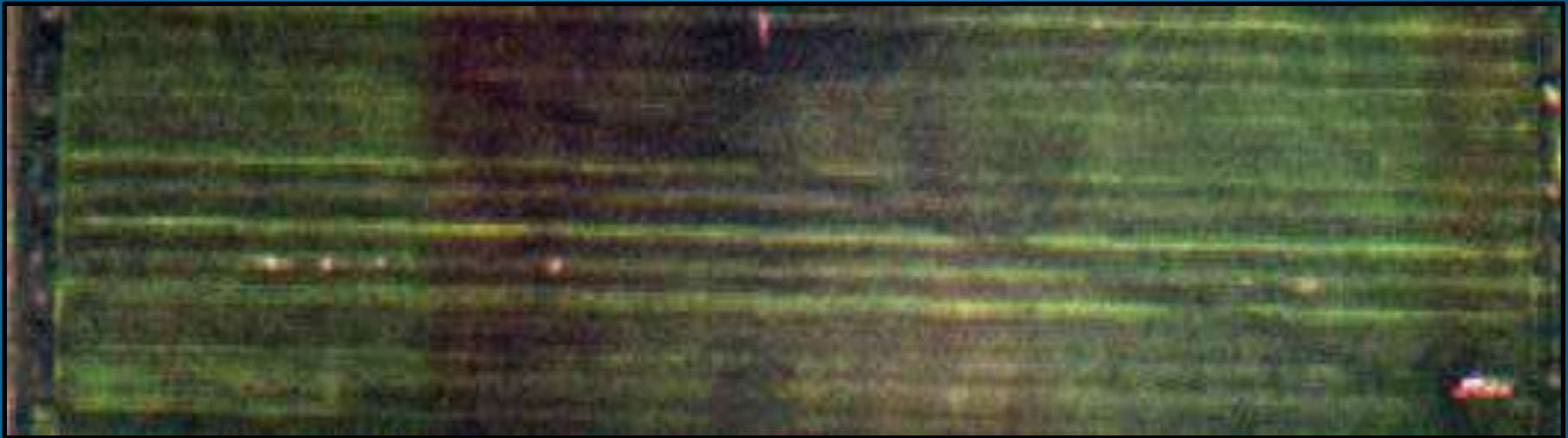
Urea Application



NH₃ Application



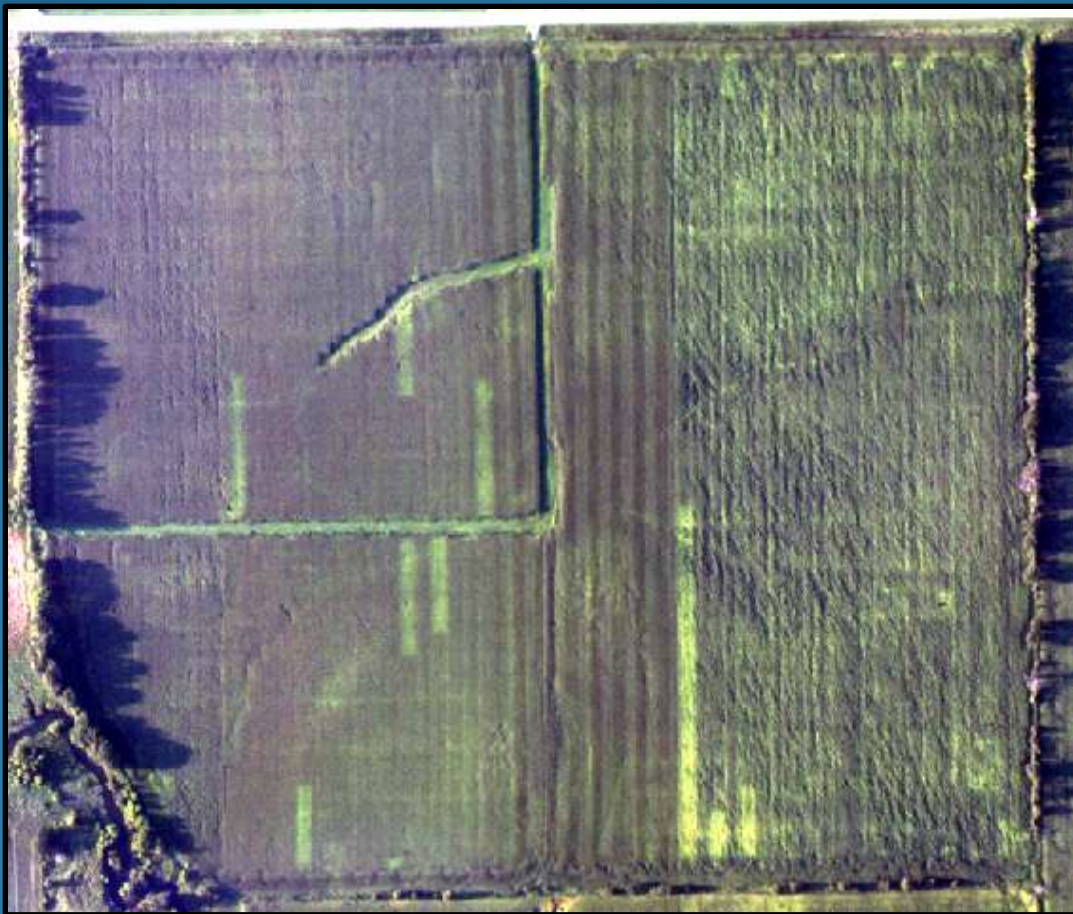
Manure Application



Manure Application



NH₃ Application



Planter Application





Tile Lines



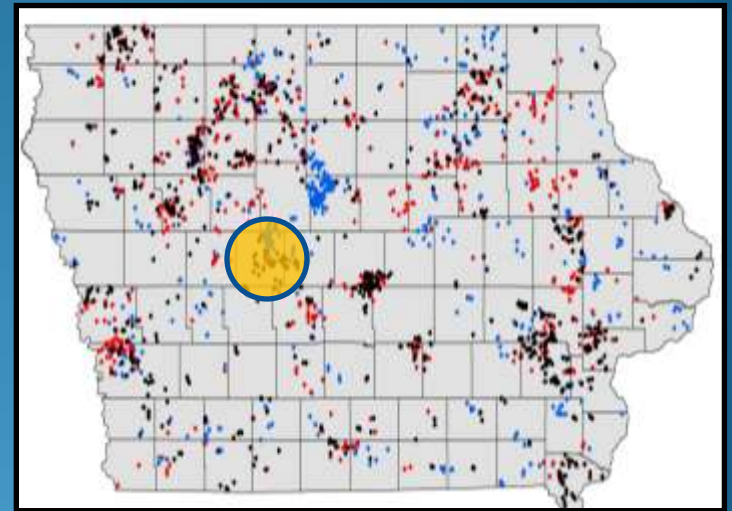
Why Me?

Most studies show that the agronomists such myself are the primary source for their management recommendations.



Who am I?

I am agronomist
I write nutrient management plans
I sell fertilizer
I am a director for ISA
I am on the advisory council for the
On- Farm Network
I am on the Greene County SWCD.



Point 1

As a fertilizer retailer, I can promote practices that reduce sales.

- Credibility with growers is key to sales.
- My pay includes commission
- My pay is increased by increasing all sales.



Point 2

Improving N management improves grower profitability.

- Fertilizer savings is one component
- Protecting/increasing yield is another.
- Freedom to operate has an economic value

Corn Nitrogen Rate Calculator

Finding the Maximum Return To N and Most Profitable N Rate
A Regional (Corn Belt) Approach to Nitrogen Rate Guidelines

State: Iowa

Number of sites: 188

Rotation: Corn Following Soybean

Non-Responsive Sites Included

Nitrogen Price (\$/lb): 0.40

Corn Price (\$/bu): 5.44

Price Ratio: 0.07

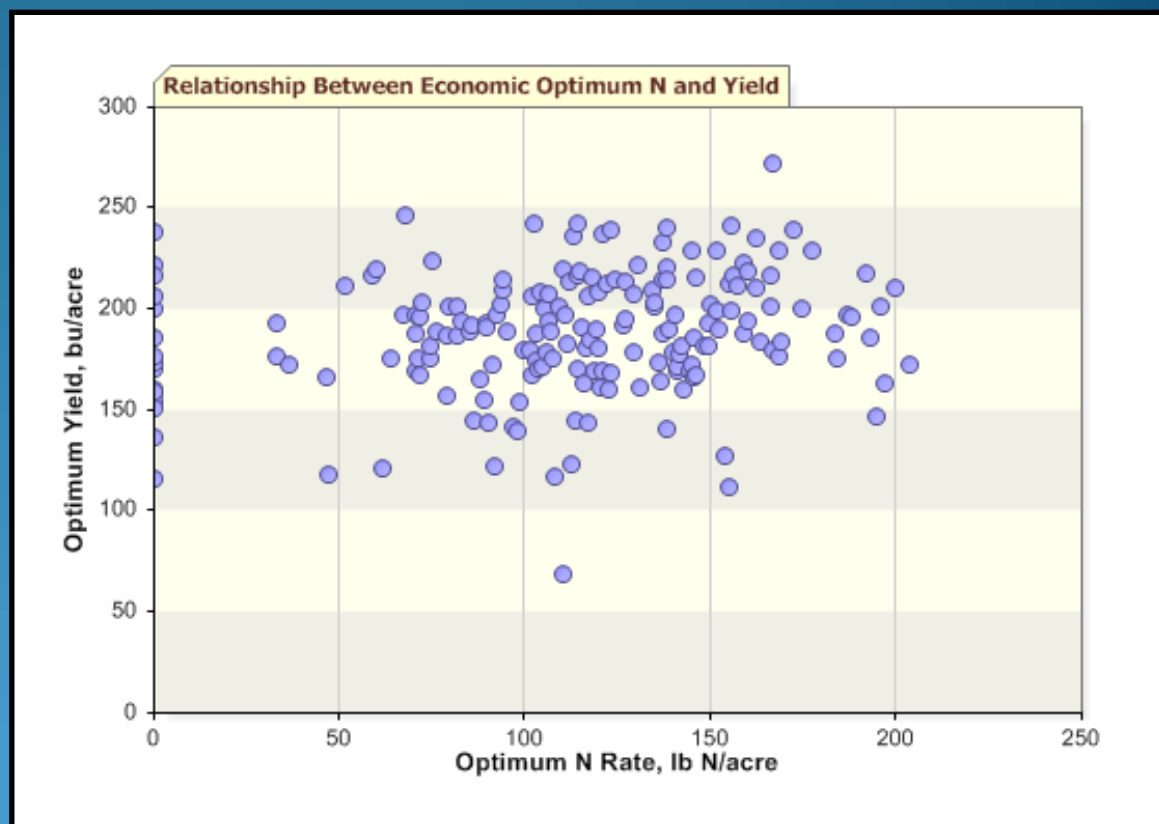
MRTN Rate (lb N/acre):	136
Profitable N Rate Range (lb N/acre):	124 - 149
Net Return to N at MRTN Rate (\$/acre):	\$232.35
Percent of Maximum Yield at MRTN Rate:	99%
Anhydrous Ammonia (82% N) at MRTN Rate (lb product/acre):	166
Anhydrous Ammonia (82% N) Cost at MRTN Rate (\$/acre):	\$54.40

Most profitable N rate is at the maximum return to N (MRTN).
Profitable N rate range provides economic return within \$1/acre of the MRTN.

Point 2 cont.

Improving N management

- More than N rate
- Right rate between 0 and over 200 lbs N.
- Improve the odds.



Point 3

Having data increases my ability to bring about changes.

If I recommend a change and anything appears to go wrong, I will get the blame.

Data, especially local data, empowers me to be more bold on making changes.



Point 4

Changes are coming in nutrient management, and I feel an obligation to make them better.

If I do nothing, changes will come and be worse.

If I help organize growers to collect data, we can influence the types of changes that are coming



Point 5

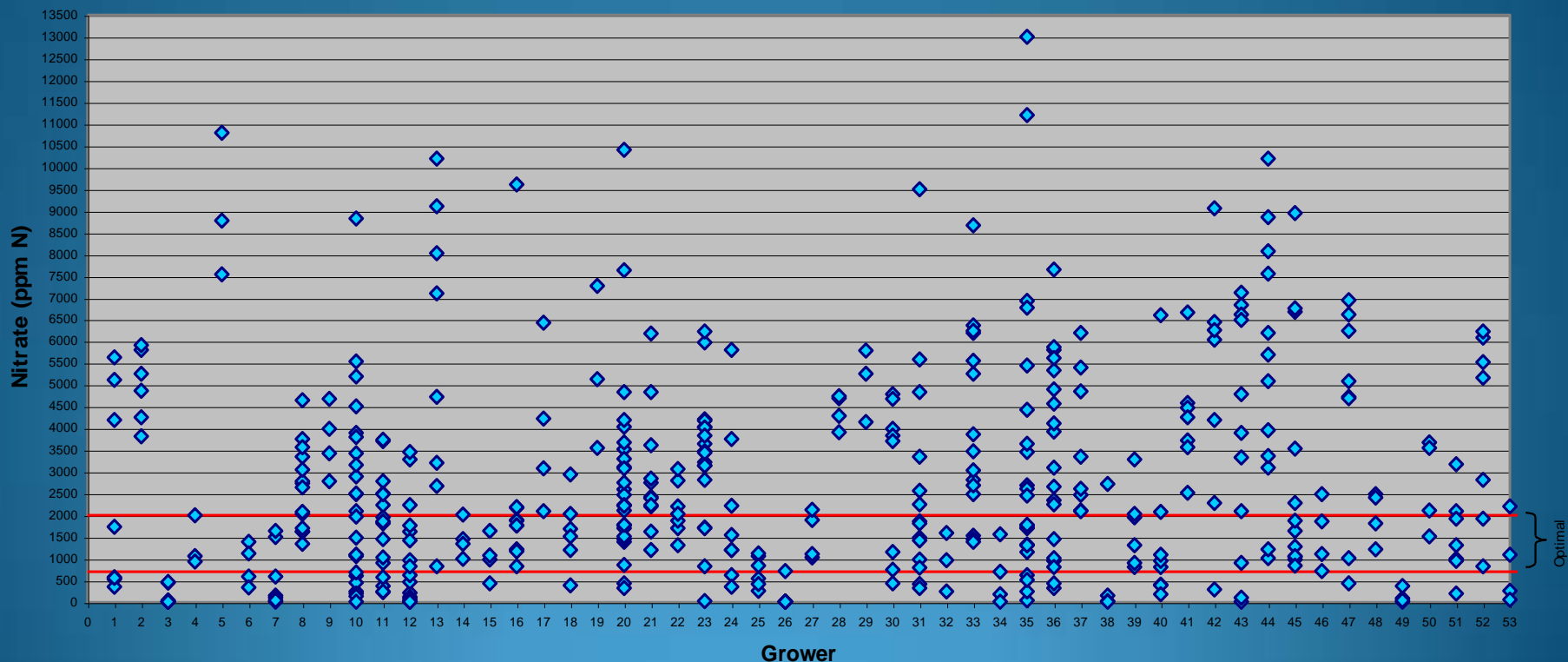
Growers will participate in collecting data

- 52 growers participating (over 60% of operators)
- 320 composite samples
- Individual and aggregate results

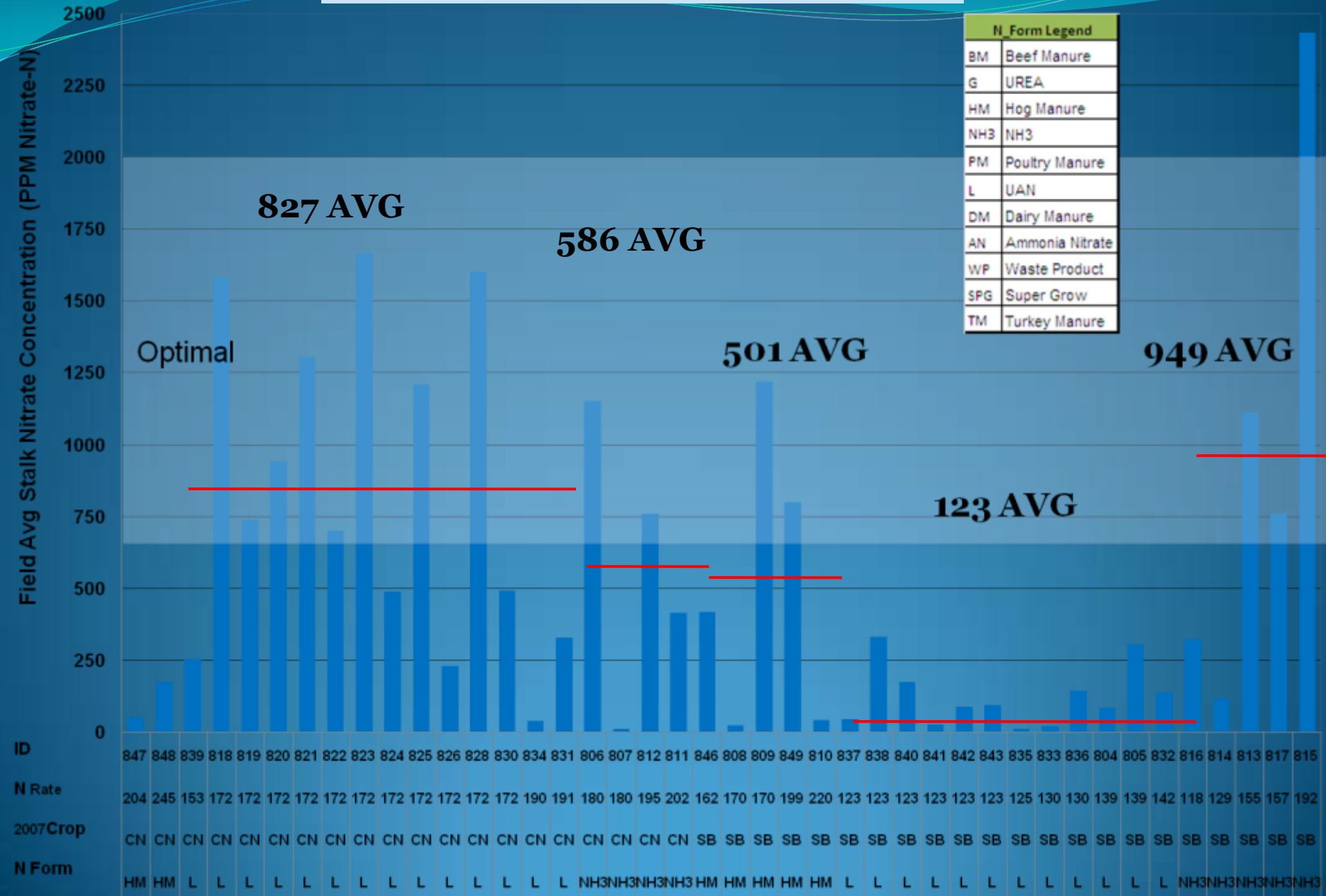


Group Participation

2005 Corn Stalk Nitrate Analysis (West Buttrick Creek):
Comparison Between Growers



Jefferson Group



Point 6

Getting growers to discuss yields

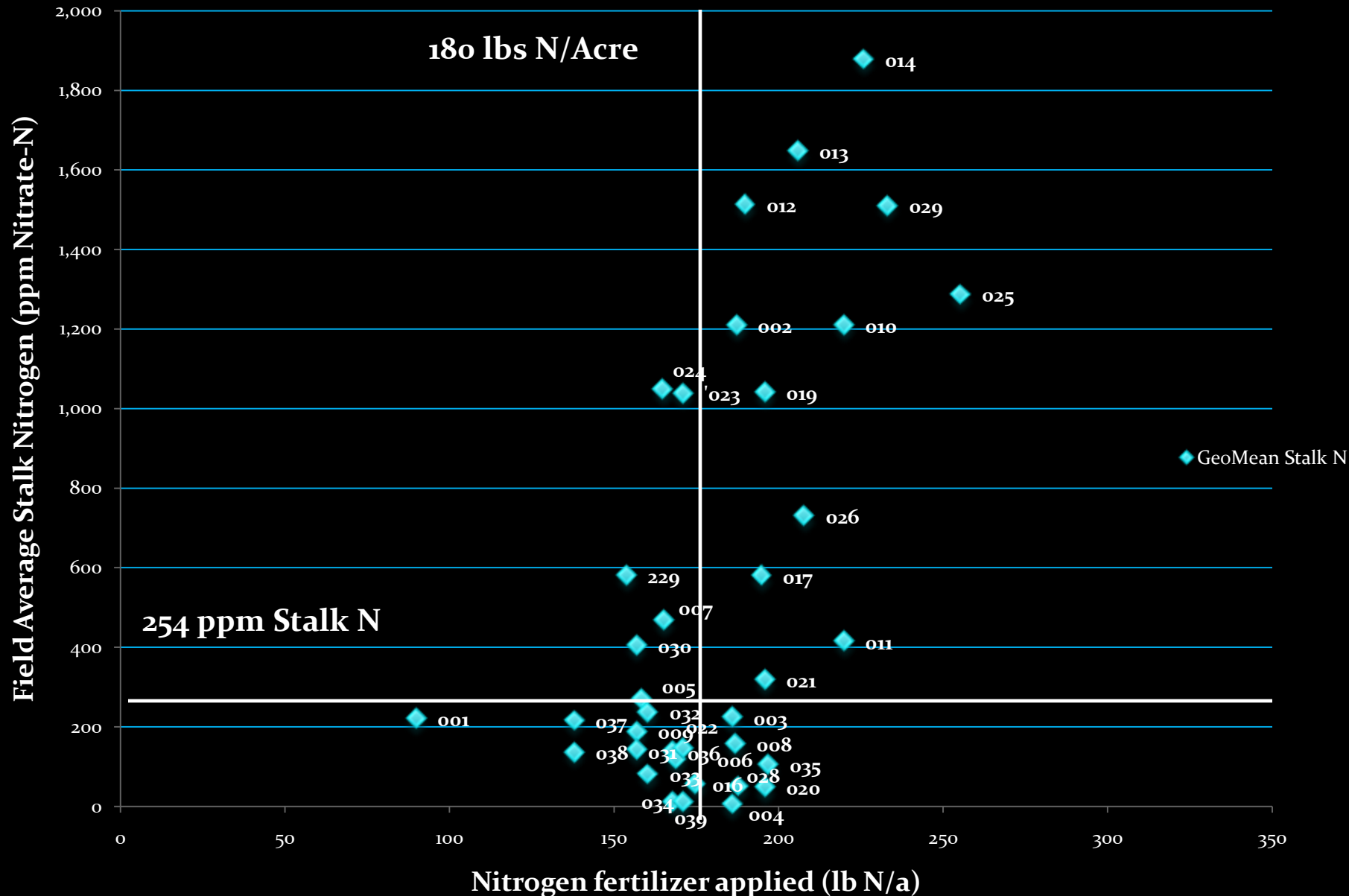
- Group learning
- Local data



Questions

????

Stalk Nitrate and Nitrogen Fertilizer Applied Oliver Ditch Watershed, 2010



Injected UAN (28% or 32%)

If UAN is injected

Volatilization is not an issue

