Precision Farming

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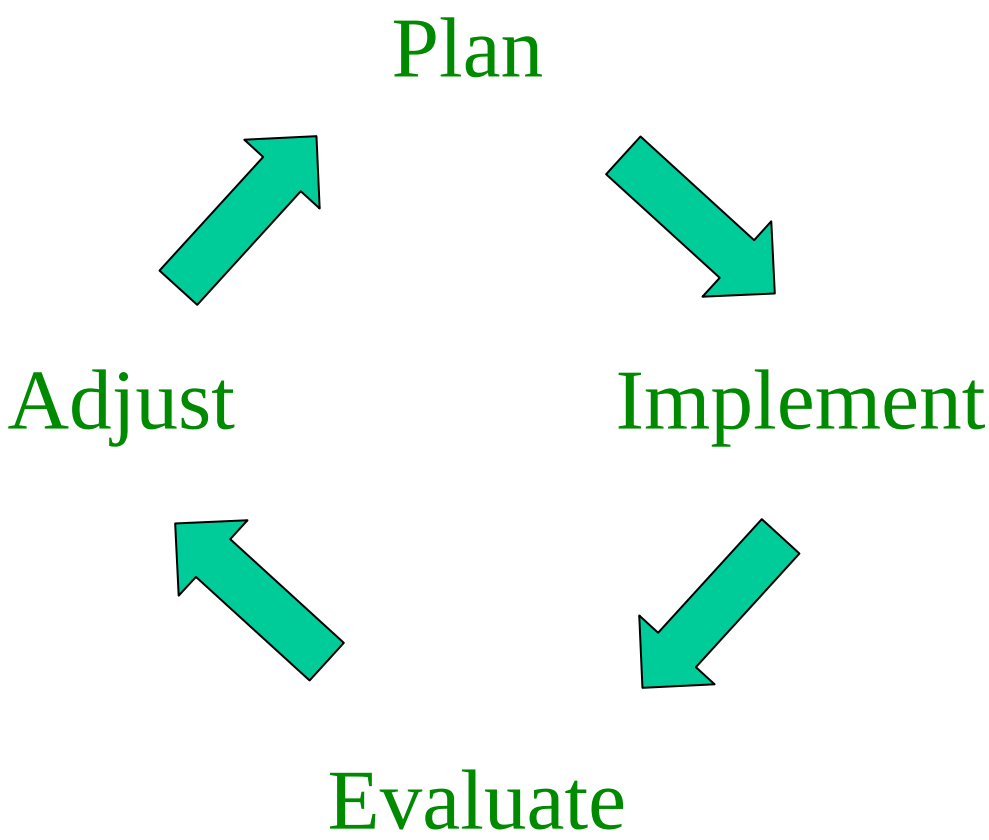
IOWA SOYBEAN ASSOCIATION
Expanding Opportunities. Delivering Results.

On-Farm™ Network

Diesel fuel usage

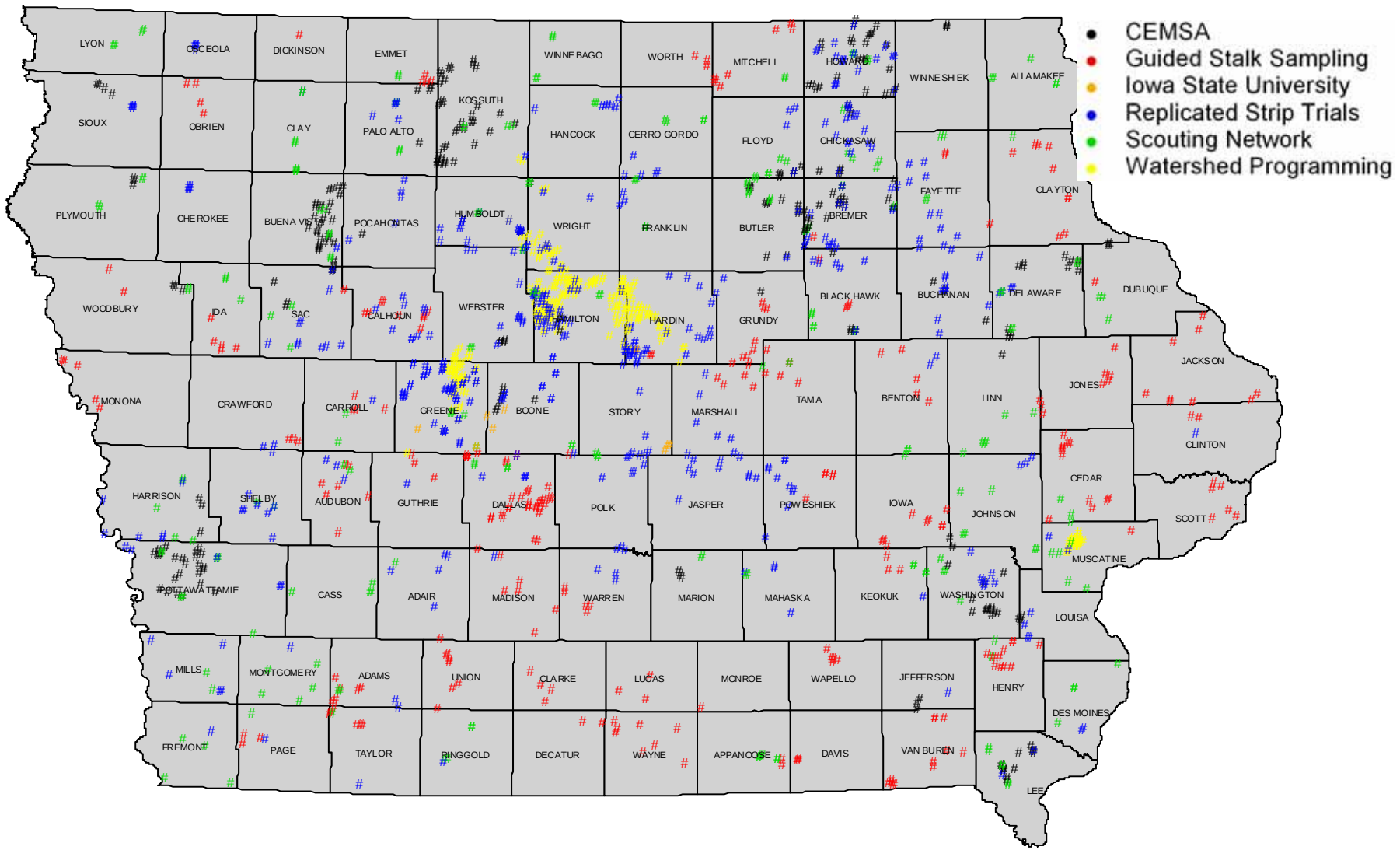
Activity	Crop Type	
	Corn	Soybean
	----------gallons/acre----------	
NH3 Application	0.60	-
Field Cultivating	0.57	0.57
Planting	0.37	0.37
Spraying	0.15	0.15
Disk ripping	1.75	-
Combine	1.2	0.95
Grain cart	0.48	0.17
Total	5.12	2.21

Quantifying Agronomic Performance



Quantifying Agronomic Performance

Site locations




2100
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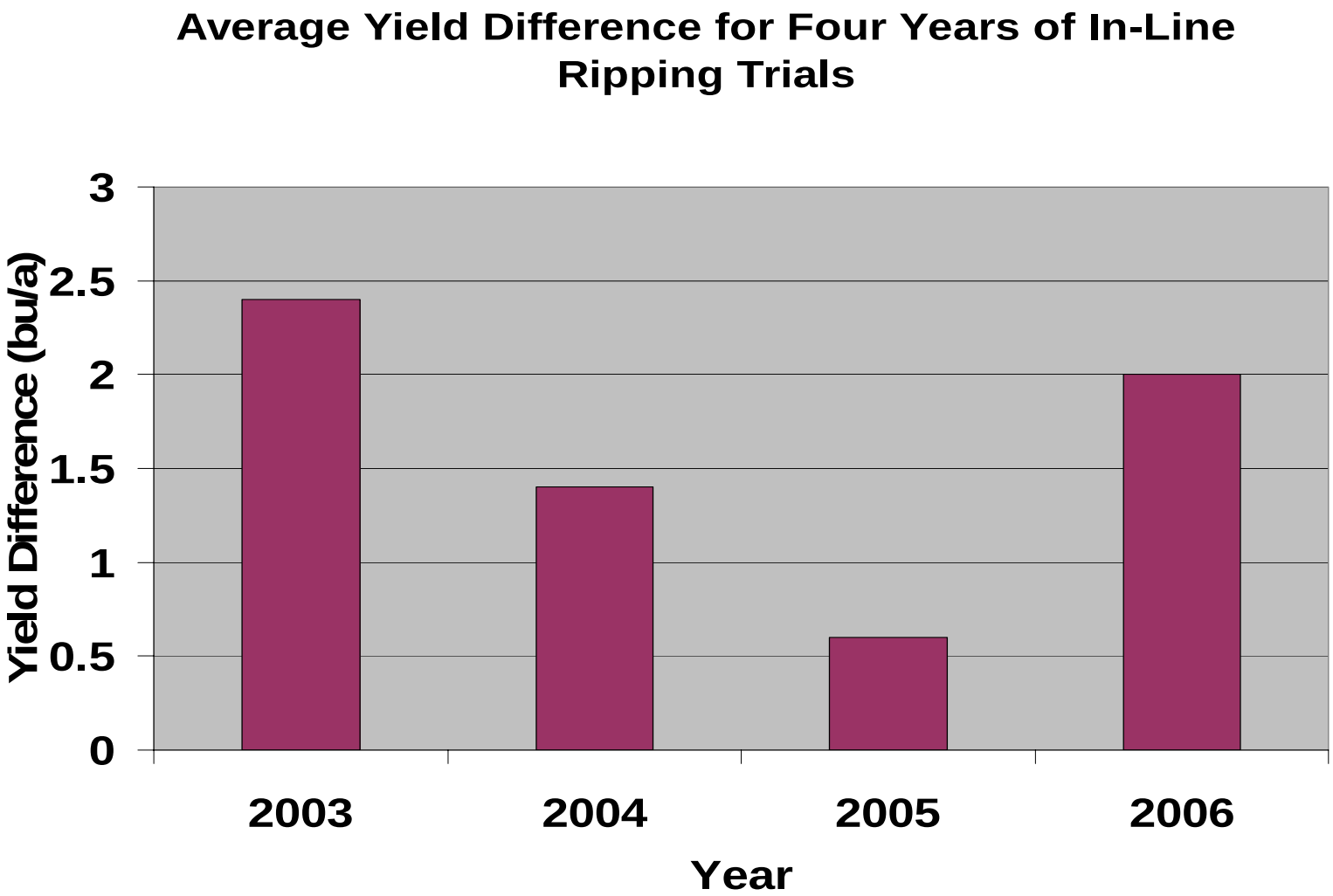
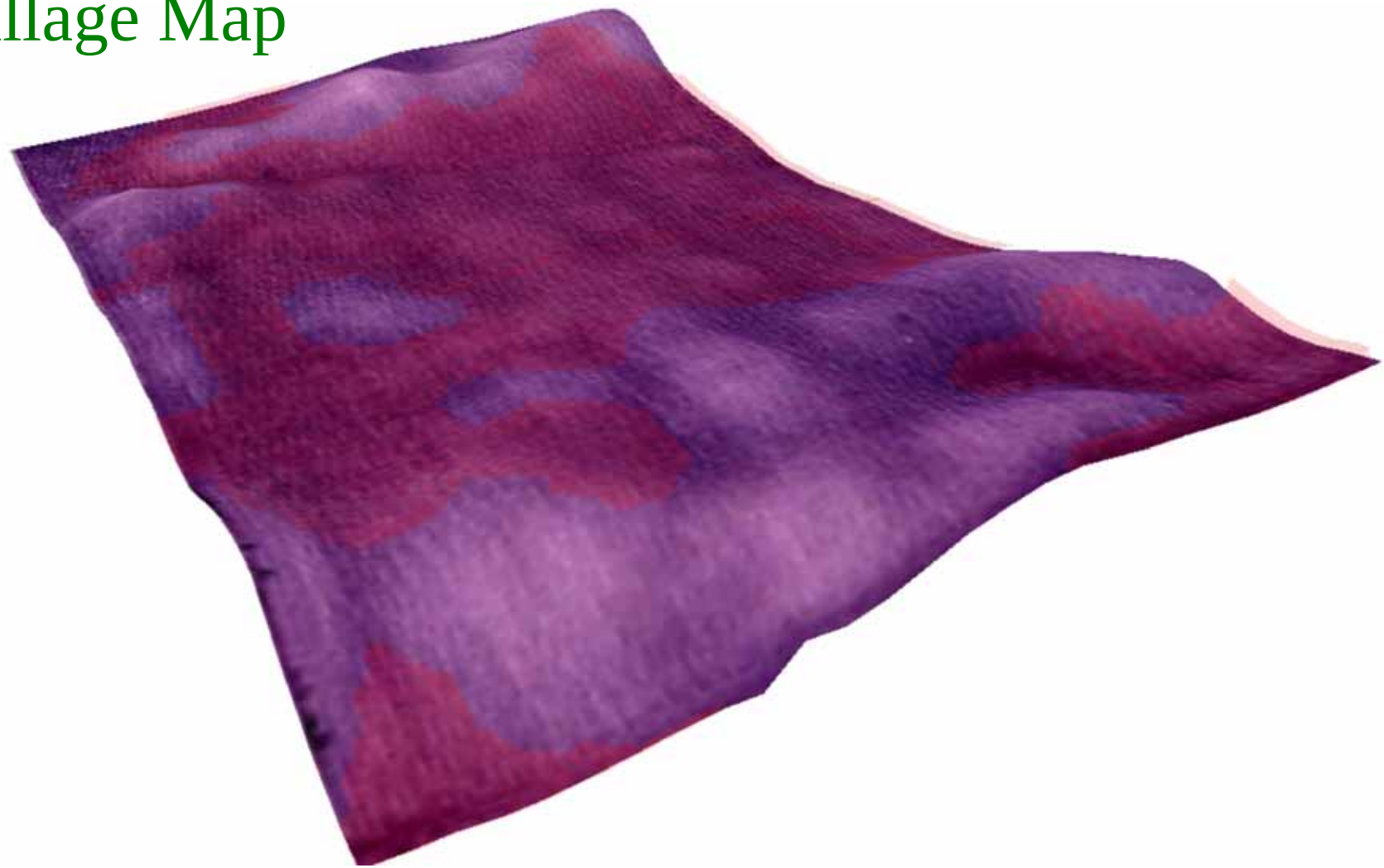
Quantifying Agronomic Performance

Deep Ripping



Quantifying Agronomic Performance

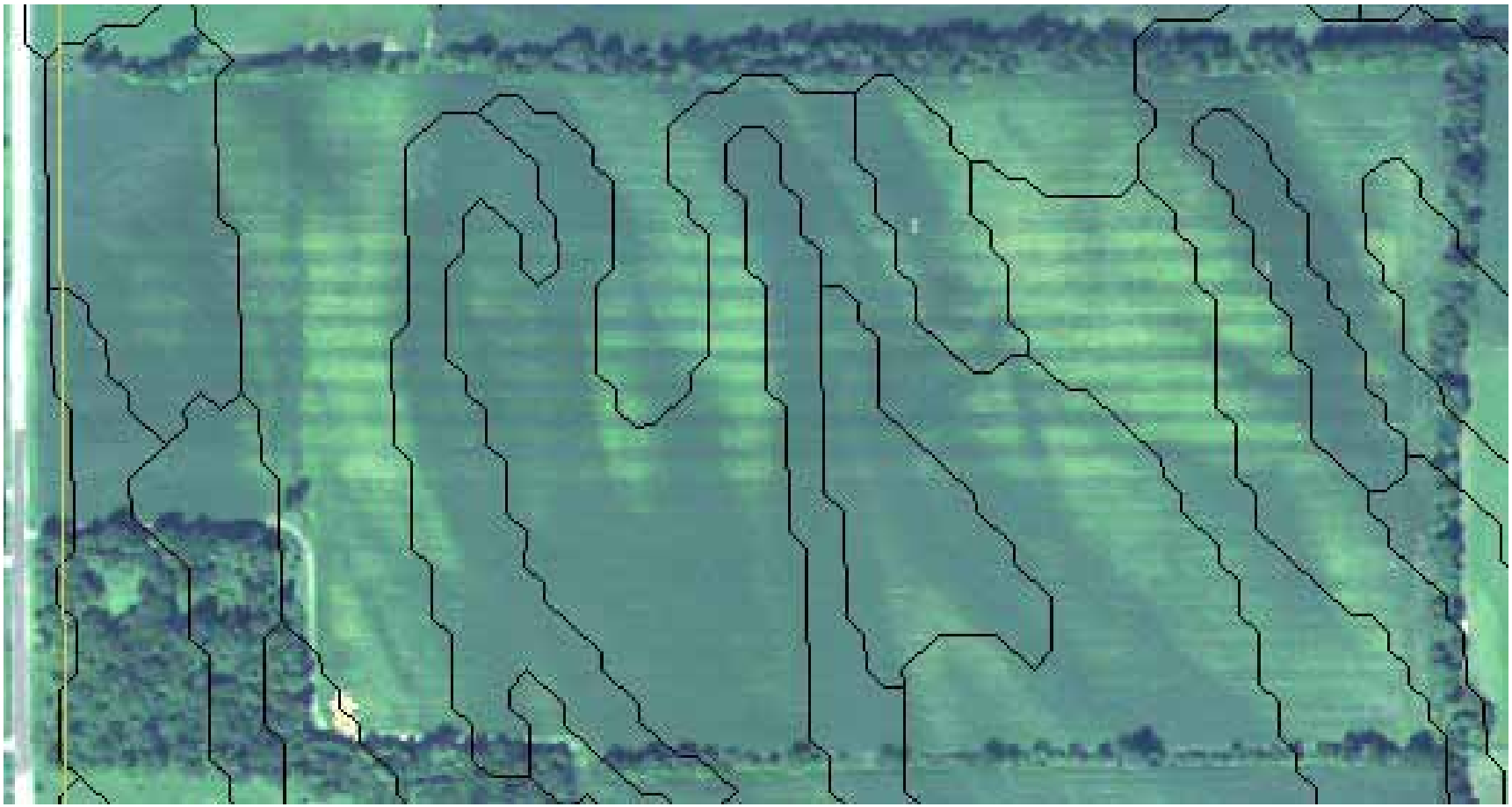
Tillage Map



Quantifying Agronomic Performance

Quantifying Agronomic Performance

At least 3 replications across the field of fixed rates.

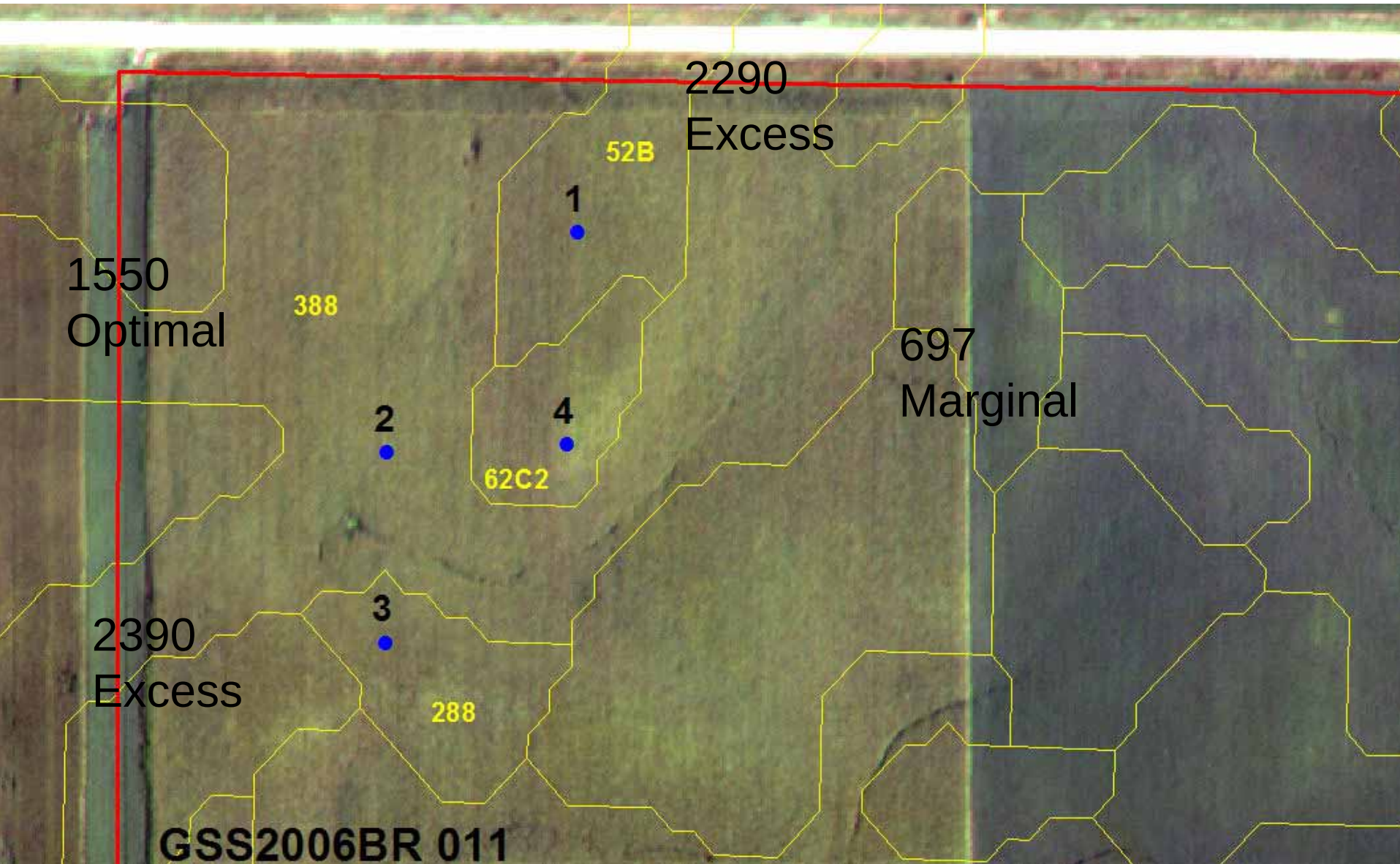


Case Study – Six years of evaluations

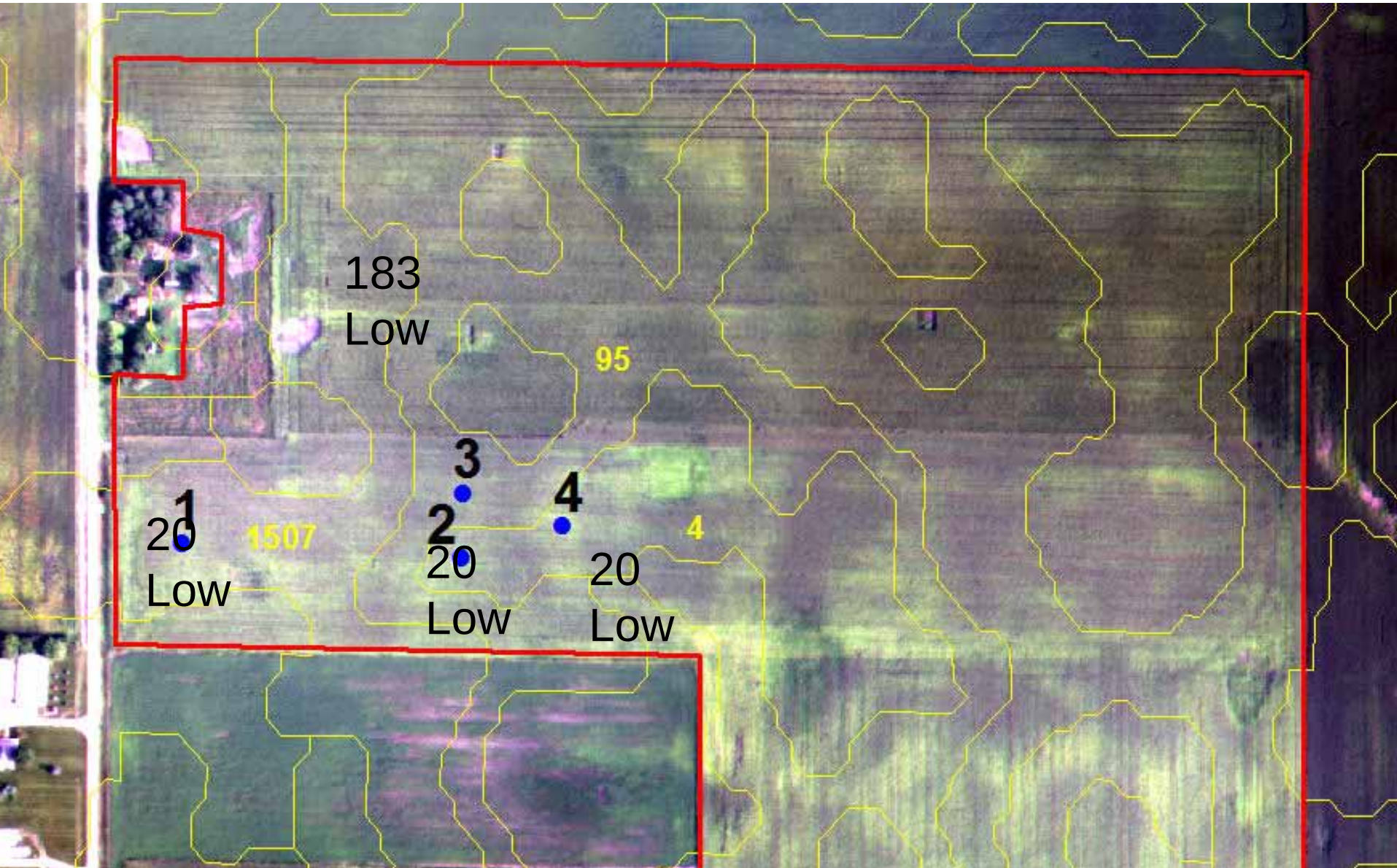
		Fertilizer N		Grain Yield		
Year	Rotation	Low Rate	High Rate	Low Rate	High Rate	Diff.
		--------lb N/acre--------		----------bu/acre----------		
2001	C-SB	80	130	176.8	175.6	-1.2
2002	C-SB	70	120	192.5	195.4	2.9
2003	C-C	130	180	166.6	166.2	-0.4
2004	C-SB	60	110	199.7	206.1	6.4
	C-C	110	160	172.0	178.3	6.3
2005	C-SB	60	110	191.8	197.6	5.8
	C-C	110	160	182.1	193.9	11.9
2006	C-C	120	150	188.4	192.5	4.1


United States Department of Agriculture
NRCS
USDA
NRCS Natural Resources Conservation Service
Date September 15, 2004
Iowa Soybean Association
$ 1,000,000.00
One million and 00/100 DOLLARS
Conservation Innovation Grant

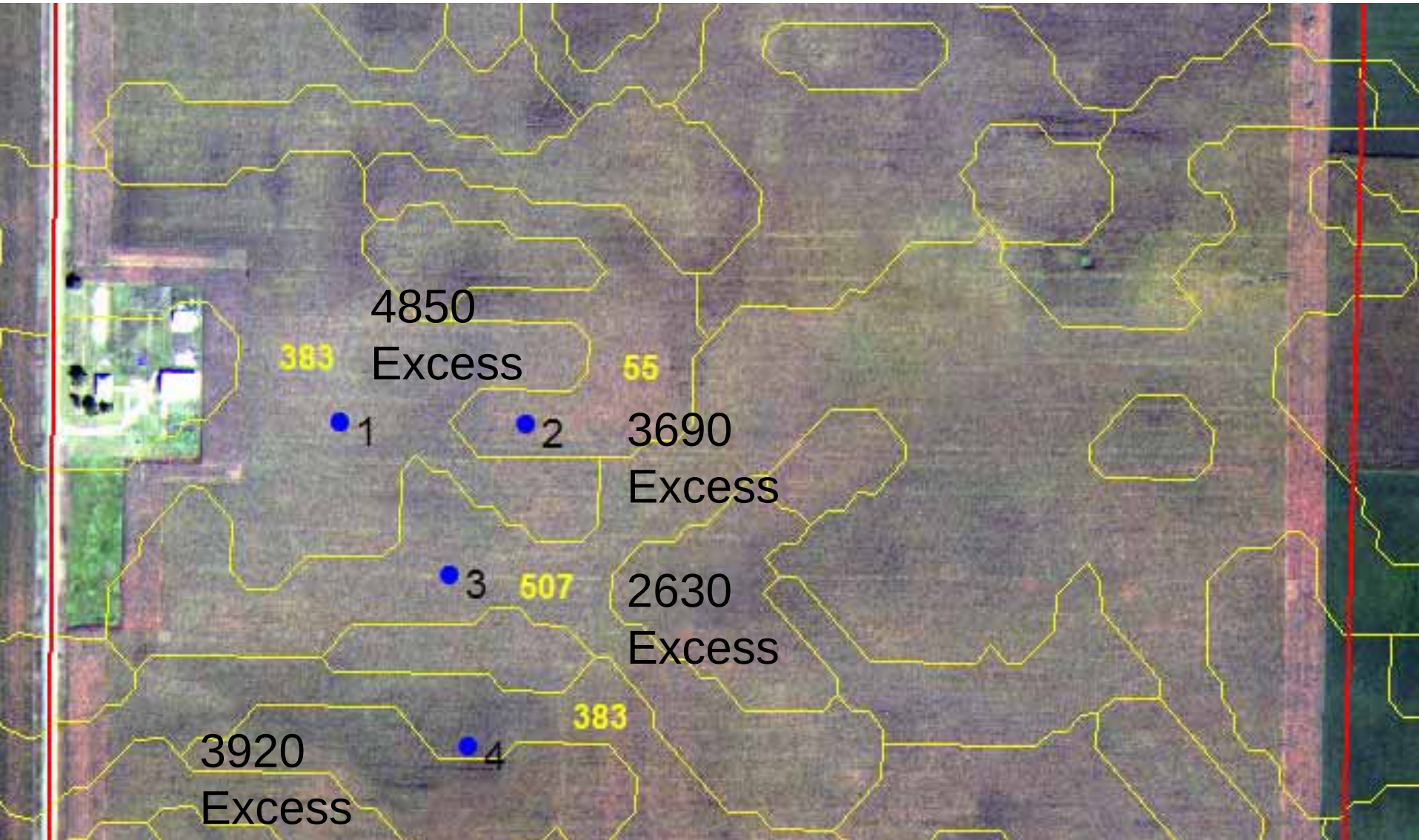
Guided Stalk Sampling



Guided Stalk Sampling



Guided Stalk Sampling



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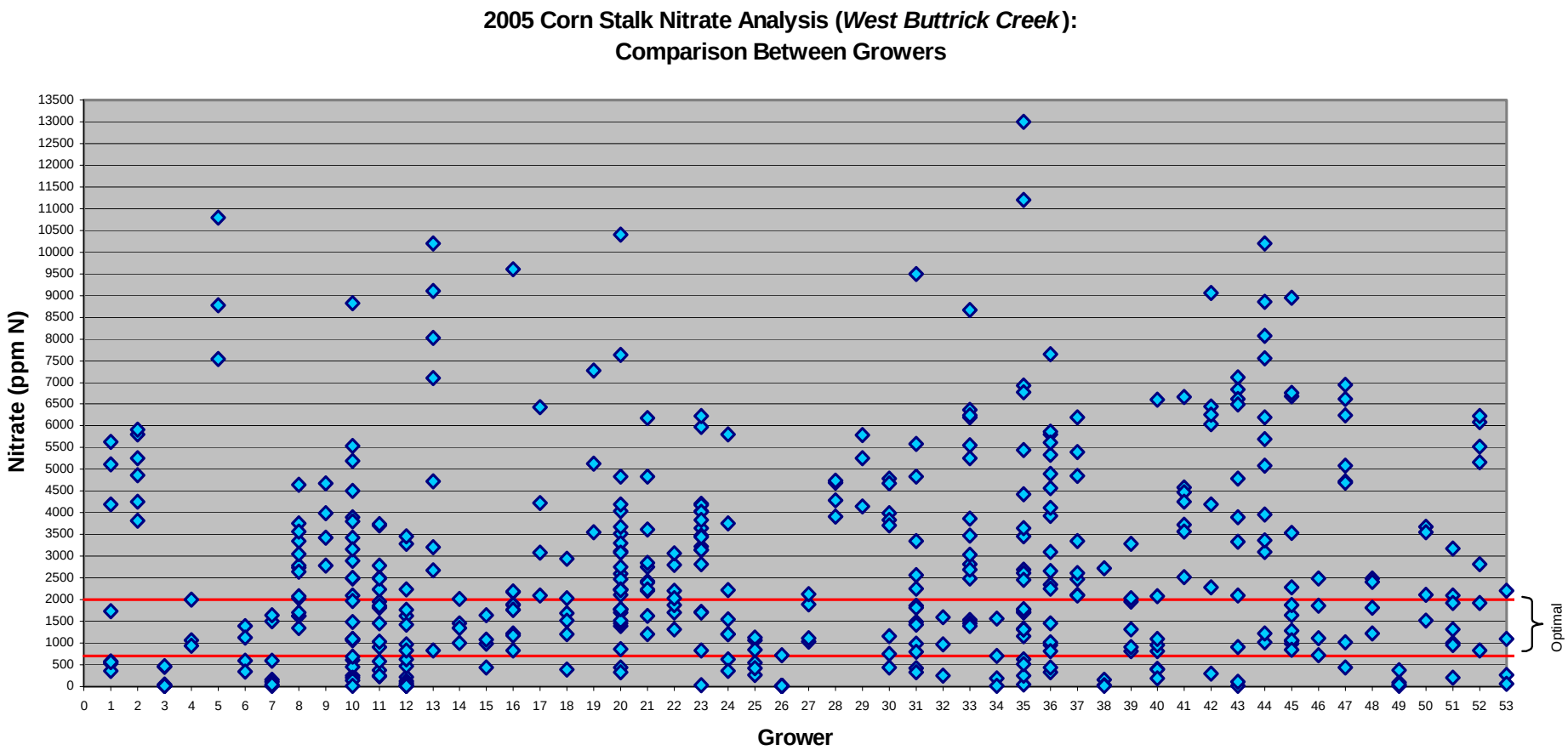

Energy in crop production

Energy Gain = Biofuel energy (Ethanol/biodiesel) − Energy to Produce crop − Energy to process grain into biofuel + Energy in coproducts (DDGs / soymeal)

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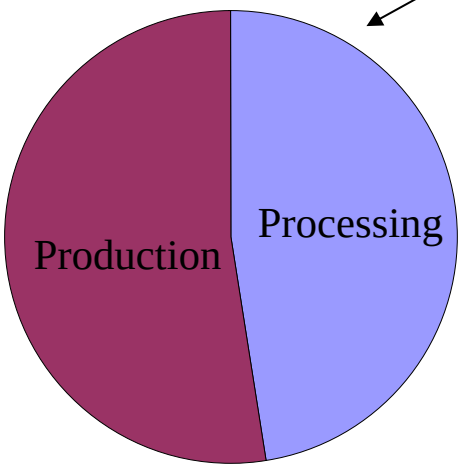
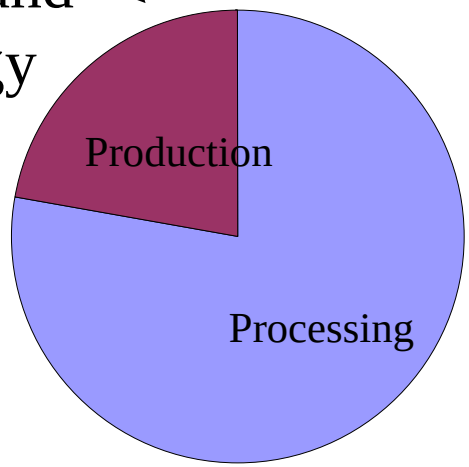
The production and processing energy estimates



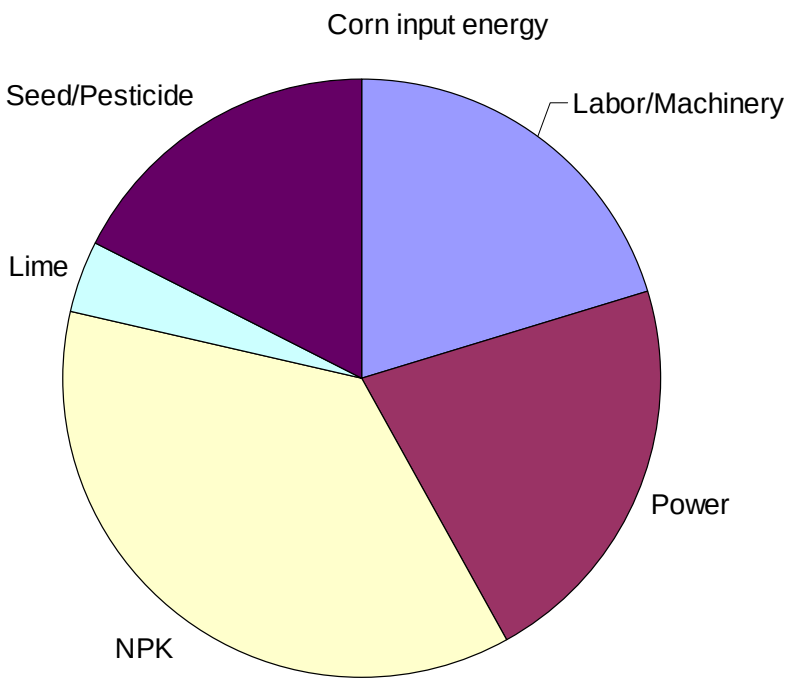
Corn



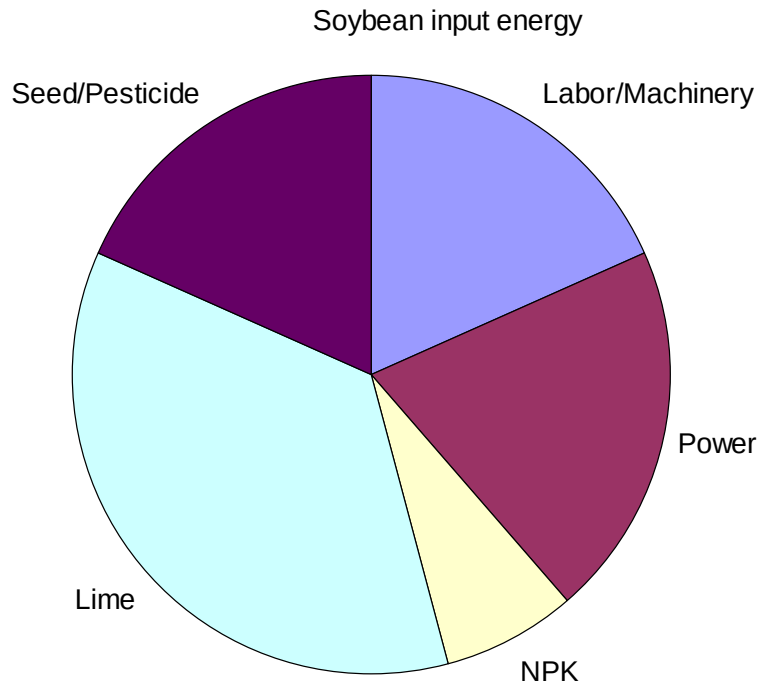
Soybeans

Energy in producing crop

Corn



Soybean



Quantifying Agronomic Performance

The energy to produce N fertilizer is a major part of the input costs

50 lb N * 35,000 BTU/lb N = 1,750,000 BTU

This is roughly equivalent to BTUs in 13.6 gallons of petroleum diesel.

State average rate applied is around 150 lb N/a ~ 40.8 gallons DFE

The rotation credit is often assumed to be 50 lb N/a

Using animal manure as a fertilizer

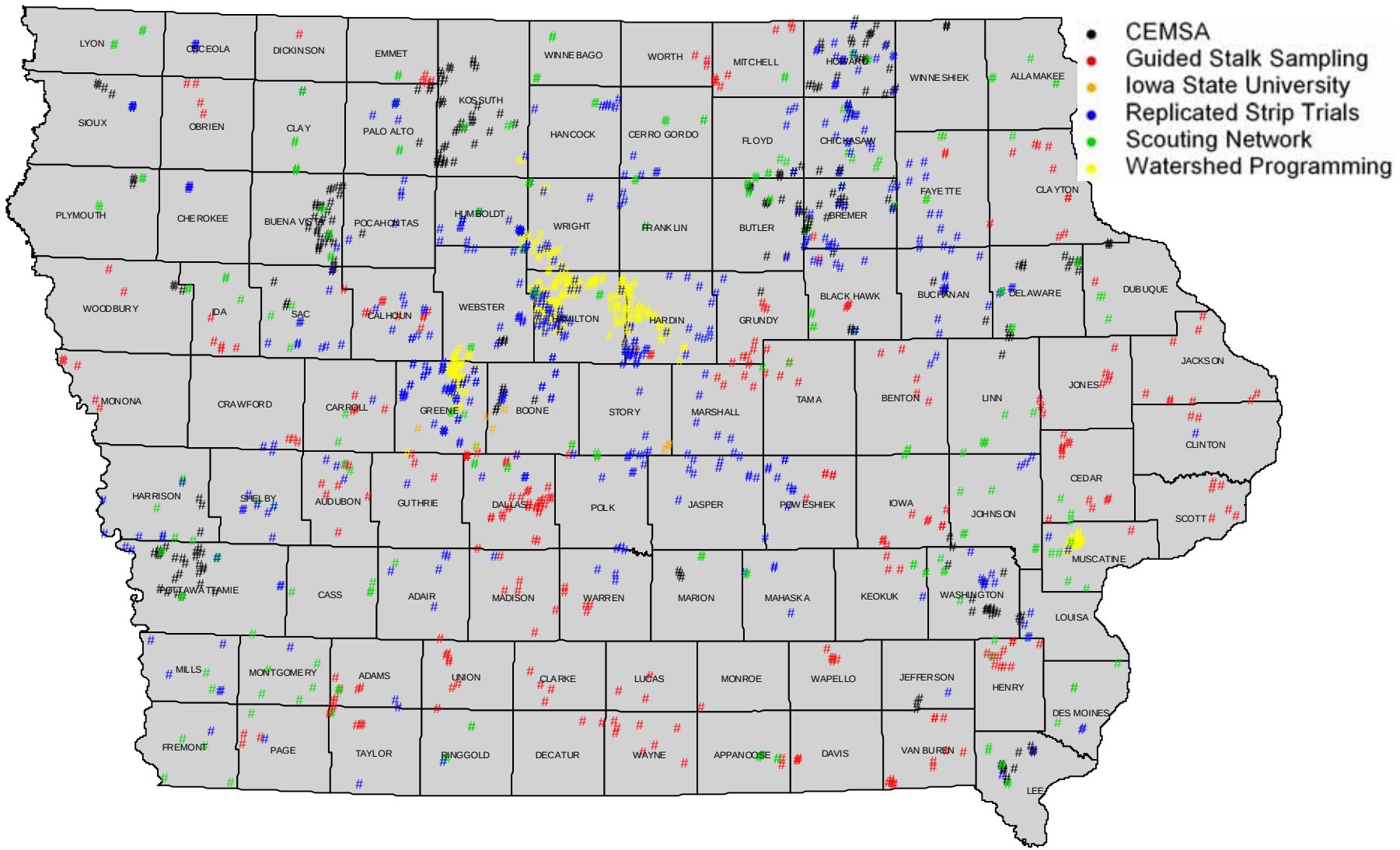
Quantifying Agronomic Performance

A benefit of manure is the nutrient value and the energy is saves by not having to manufacture the N, P, and K.

The N, P, and K in manure can be credited with 40.8 gallons DFE for 150 lb N and 6.7 DFE for P and K = 47.5 gallons DFE

-The manure application has been reported at less than 2 gallons/a of fuel based upon a local contractors records.

Quantifying Agronomic Performance



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