

# ELECTRICAL CONDUCTIVITY MAPPING

Correlates the electrical conductivity values and properties that impact yield.

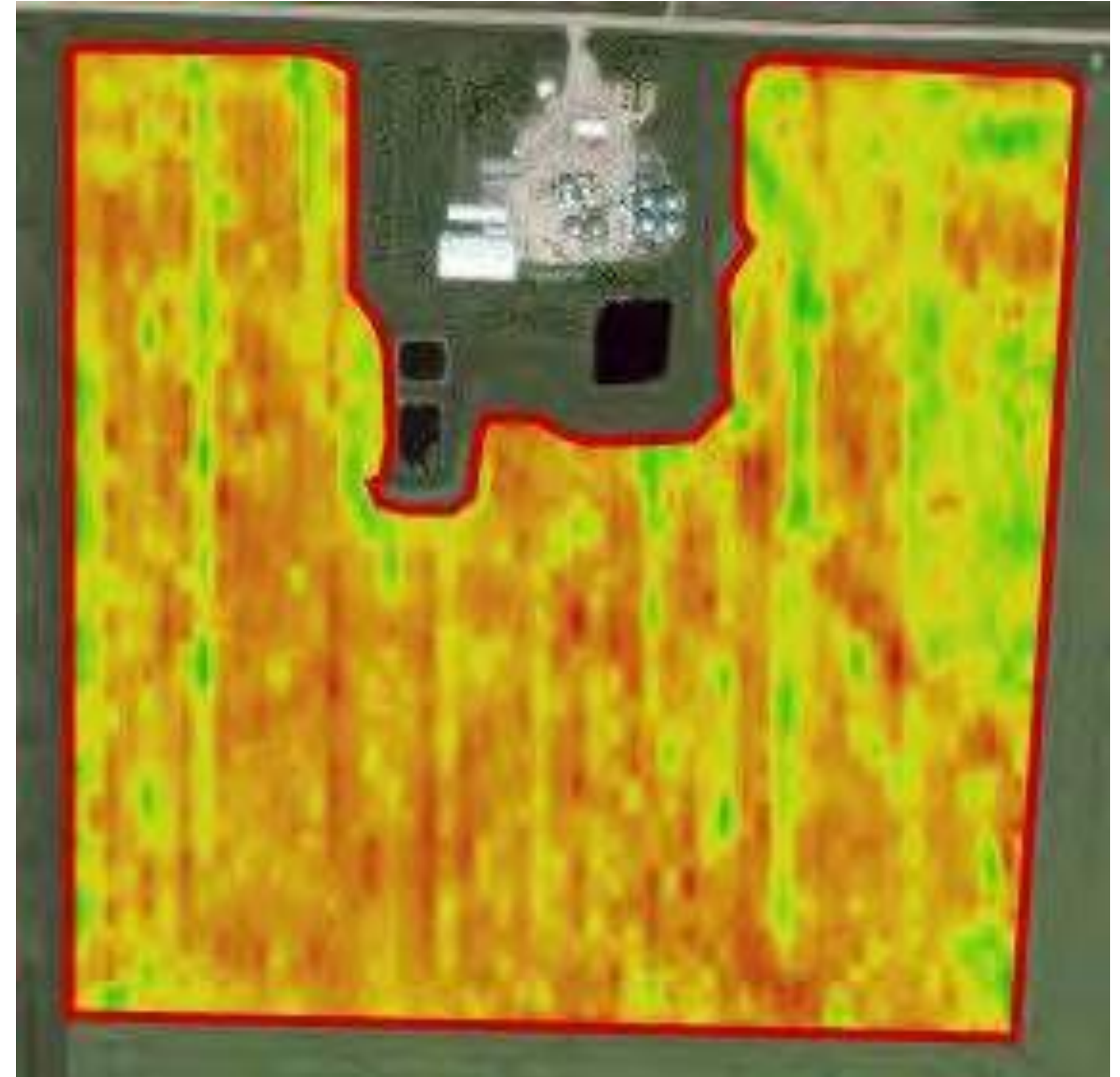
Electrical conductivity (EC) is the ability of a substance to conduct an electrical current. Combined with precision soil sampling, it provides a comprehensive field variability analysis.

## Soil properties correlating to EC value:

- Soil texture
- Salinity
- Cation exchange capacity (CEC)
- Soil organic matter (SOM)
- Water holding capacity
- Drainage conditions
- Topsoil depth

## EC map to create management zones:

- Directed soil sampling
- Variable rate seeding, fertilizer
- Yield map interpretation
- Better placement of field trials
- Soil salinity management



EC Map



Geonics EM 38



Electrical Conductivity / Elevation Mapping



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# SMART DATA

The most advanced program of collecting, storing and accessing farm collected data.

## Equipment, Technology & Agronomy

### Seed Placement:

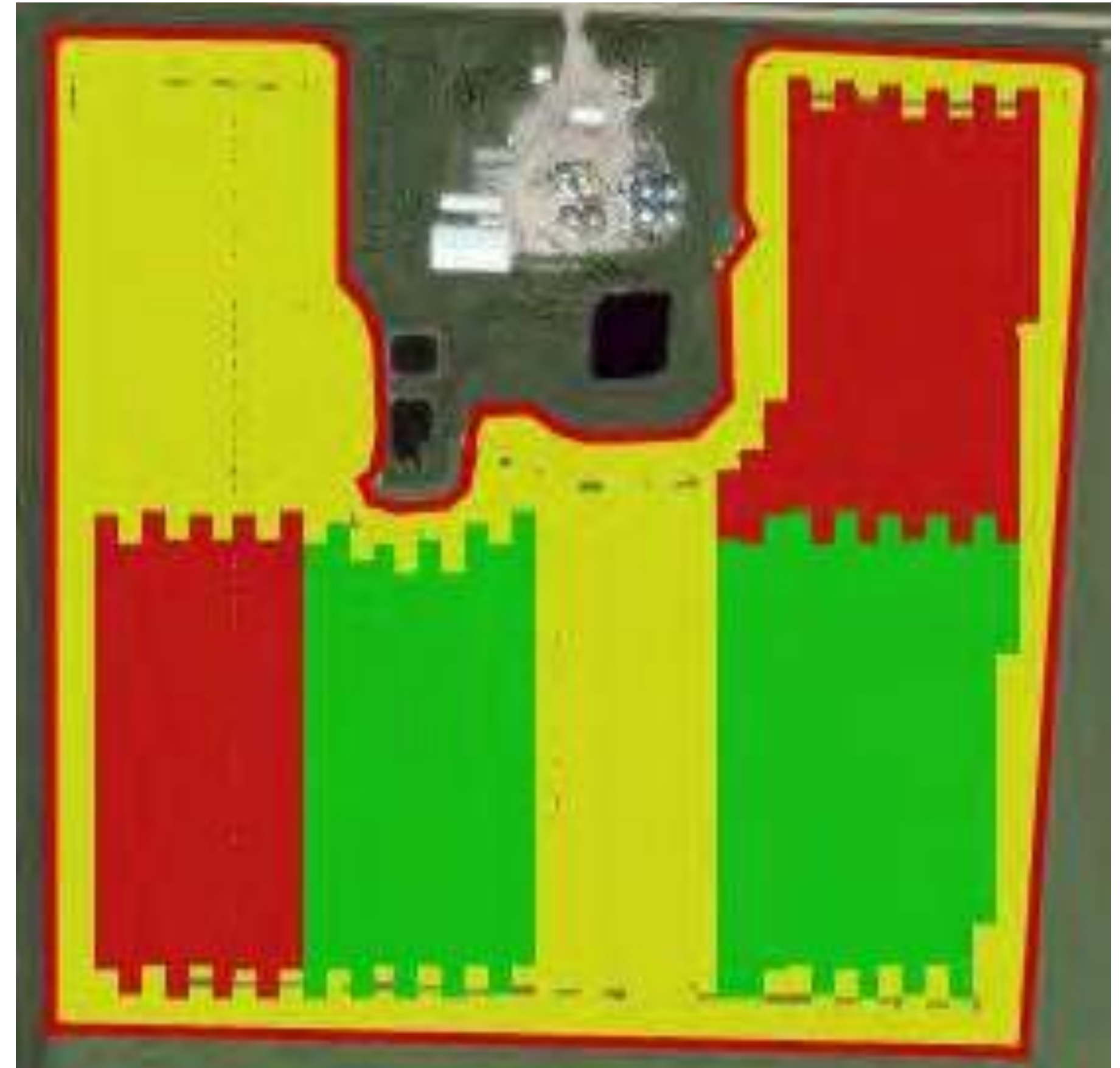
- Wheat
- Variety: Cardale
- Average rate: 89.6 lbs / acre
- 3 seeding rates, 75, 90, 105 lbs / acre

### Fertilizer Placement:

- Fall applied  $\text{NH}_3$  @ 115lbs / ac
- 11-52-0 @ 50 lbs / ac
- Top dressed 28-0-0 @ 30 lbs / ac

### Equipment/Technology:

- Bourgault 60" hoe drill
- John Deere 1910 air cart
- John Deere RTK



Target Rate Map



As Planted Map



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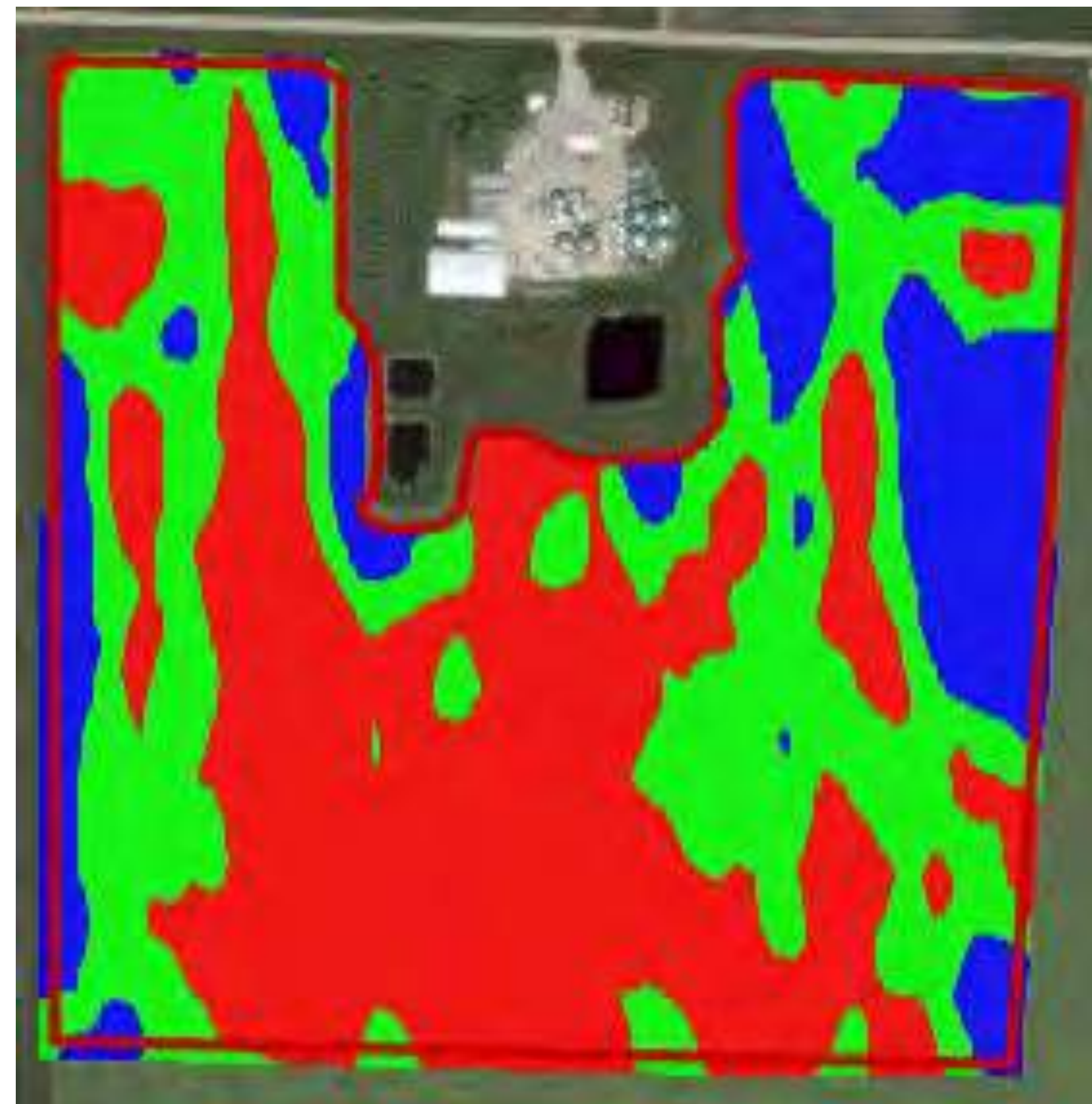


# SMART ZONES

Understanding the carrying characteristics of your soil enables you to maximize your land's potential.

Nitrogen			
Zone	0 - 6 "	6 - 24"	Total
1	10 lbs	9 lbs	19 lbs
2	12 lbs	9 lbs	21 lbs
3	12 lbs	9 lbs	21 lbs

Potassium	
Zone	0-24"
1	760 ppm
2	750 ppm
3	766 ppm



Zone Map

Sulfur	
Zone	
1	186 lbs/ ac
2	54 lbs/ac
3	94 lbs/ ac

Phosphorus	
Zone	0-6"
1	47 ppm
2	38 ppm
3	24 ppm

Zone	Soluble Salts		Soil pH		SOM	CEC
	0-6"	6-24"	0-6"	6-24"		
1	0.67 mmho/cm	0.76 mmho/cm	7.5	8.3	5.9%	44.8
2	0.72 mmho/cm	0.74 mmho/cm	7.3	8.0	5.8%	41.3
3	0.50 mmho/cm	0.66 mmho/cm	7.6	8.3	5.6%	43.6



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## 2015 Data

Machine Utilization	Idle	Working	Transport
Machine Utilization	49.9 min	160.1 min	2.8 min
Fuel Consumption	1.4 gal	40.6 gal	0.8 gal
Avg. Engine Speed	942 rpm	1927.8 rpm	1967.1 rpm
Avg. Engine Load factor	19.6 %	83.1 %	84.7 %
Avg. Fuel rate	1.7 gal/hr	15.2 gal / hr	15.1 gal / hr
Avg. Ground Speed	0 mph	9.3 mph	13.5 mph

**Start Date** - May 27, 2015

**Product** - soybeans

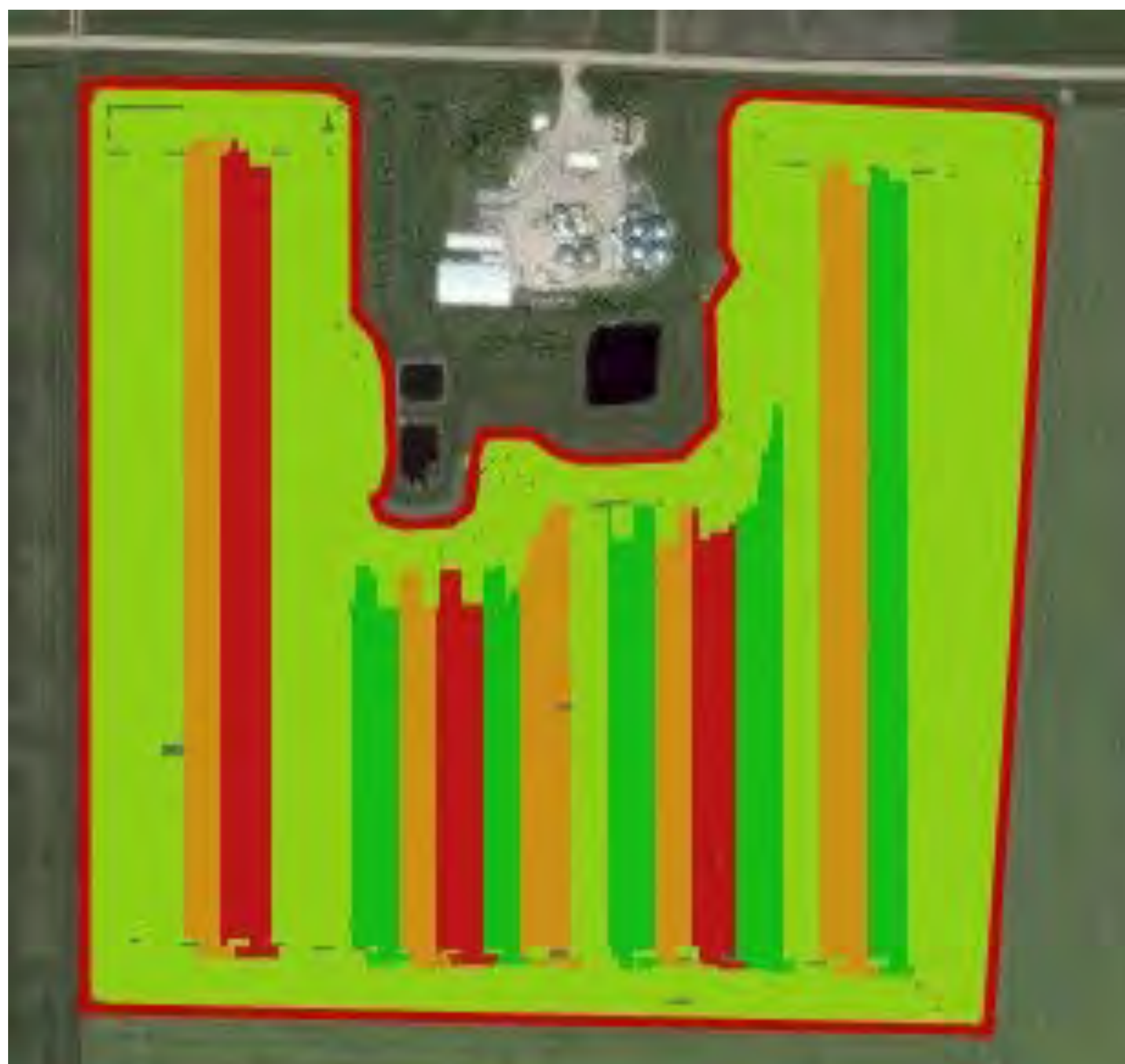
**Elapsed Time** - 1.98 hrs.

**Area** - 132.63 acres

**Avg. Rate** - 176,908 seeds / ac

**Total Applied** - 23,463,401 seeds

**Productivity** - 66.7 ac / hr



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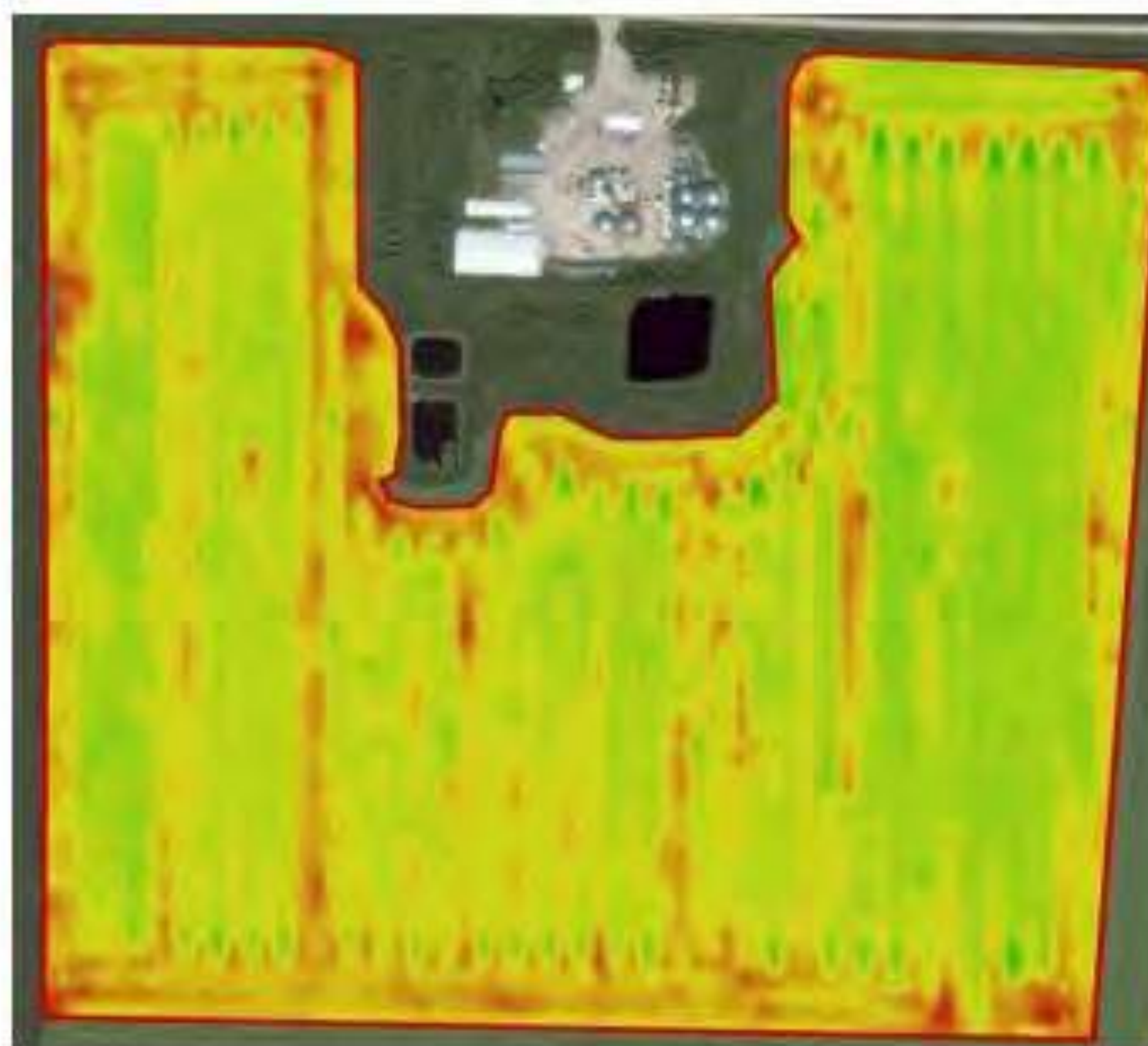
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## 2015 Plant Count and Mortality Rate

Planted Rate	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Avg Plant Count	% Mortality	Germ 93%
160,000	144,000	141,600	140,700			142,100	12.60%	5.60%
170,000	155,000	159,700	153,300	154,500	155,000	156,000	8.97%	1.97%
180,000	177,700	162,00	156,000			165,233	8.94%	1.94%
190,000	172,500	177,700	177,000			175,733	8.12%	1.12%

## 2015 Yield by Replicated Strip

Seeding Rate	Yield 1	Yield 2	Yield 3	Yield 4	Yield 5
160,000	42.61 bu/ac	40.26 bu/ac	35.44 bu/ac		
170,000	43.37 bu/ac	41.16 bu/ac	39.85 bu/ac	38.65 bu/ac	37.18 bu/ac
180,000	42.18 bu/ac	42.02 bu/ac	35.62 bu/ac		
190,000	37.40 bu/ac	38.44 bu/ac	39.08 bu/ac	39.86 bu/ac	44.75 bu/ac



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2015 ROI With Cost of Rx and FieldSmart

	160,000	170,000	180,000	190,000
<b>Yield</b>	39.44	40.04	39.94	39.90
<b>Price</b>	\$10.00	\$10.00	\$10.00	\$10.00
<b>Acres</b>	132	132	132	132
<b>Revenues</b>	\$394.44	\$400.40	\$399.40	\$399.00
<b>Input costs</b>				
Seed & Treatment	\$69.54	\$74.05	\$78.08	\$82.35
Inoculants	\$4.28	\$4.55	\$4.80	\$5.06
In Row Inoculants	\$5.50	\$5.50	\$5.50	\$5.50
Herbicide	\$15.00	\$15.00	\$15.00	\$15.00
FieldSmart	\$3.50	\$3.50	\$3.50	\$3.50
<b>Total Input Costs</b>	\$97.82	\$102.60	\$104.88	\$111.41
<b>Revenue Per Acre</b>	\$296.62	\$297.80	\$294.52	\$287.59
<b>Revenue Grain</b>	\$2.10	\$3.28	\$0.00	(6.93)
<b>Potential Revenue Gain For Field</b>	\$277.20	\$432.96	\$0.00	(914.76)



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