

# ELECTRICAL CONDUCTIVITY MAPPING

Correlates the electrical conductivity values and properties that impact yield.

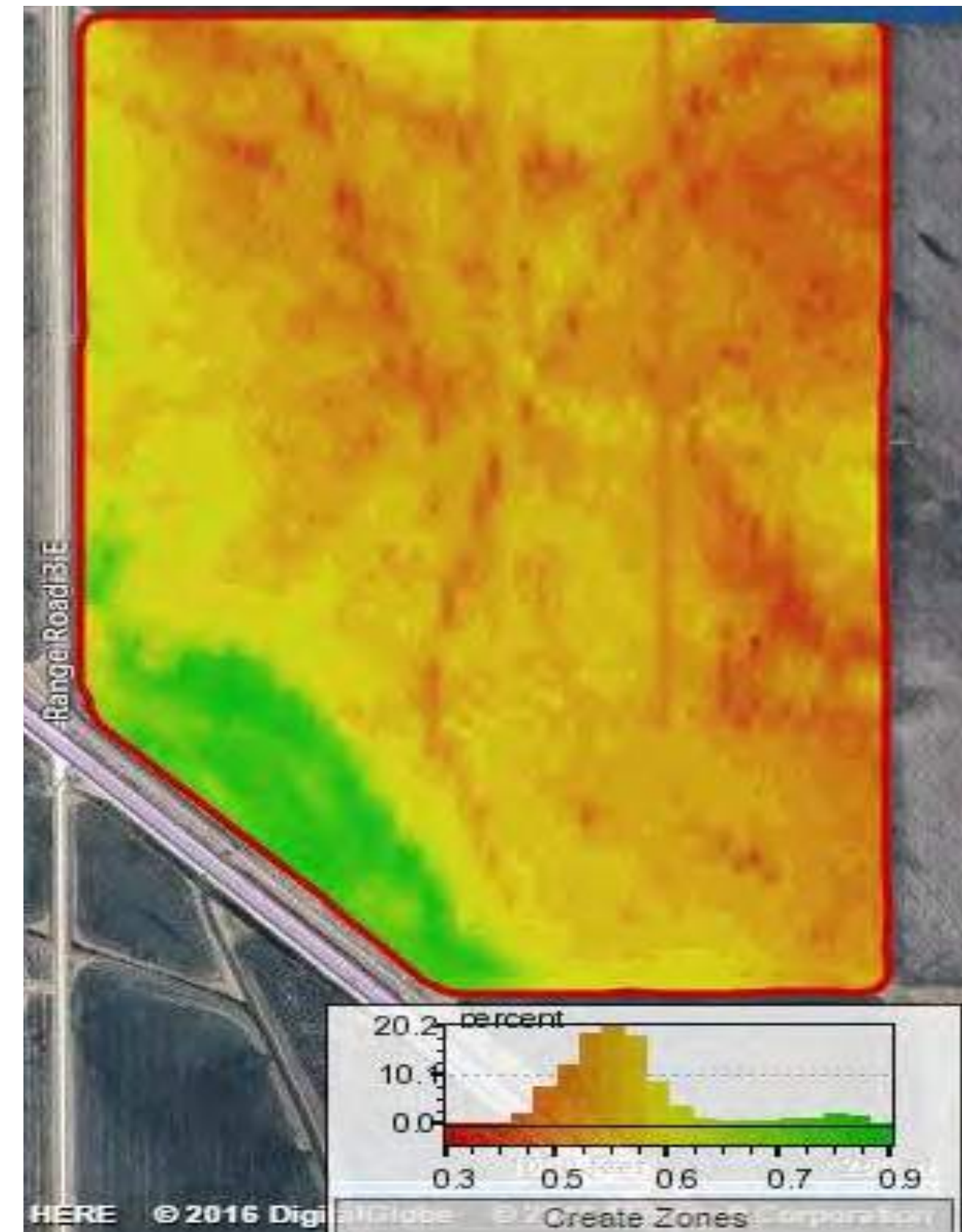
Electrical conductivity (EC) is the ability of a substance to conduct an electrical current. Combined with precision soil sampling, it provides a comprehensive field variability analysis.

## 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

#### Winter Wheat:

- Variety: Gateway
- Average rate: 120lbs/acre

#### Fall Rye:

- Average rate: 71lbs/acre

### Fertilizer Placement

#### Dry Fertilizer:

- 30-30-15 w/ ESN blend in seed row @136lbs/acre
- 7-34-0-0 mid row @65 lbs/acre

#### Liquid Fertilizer:

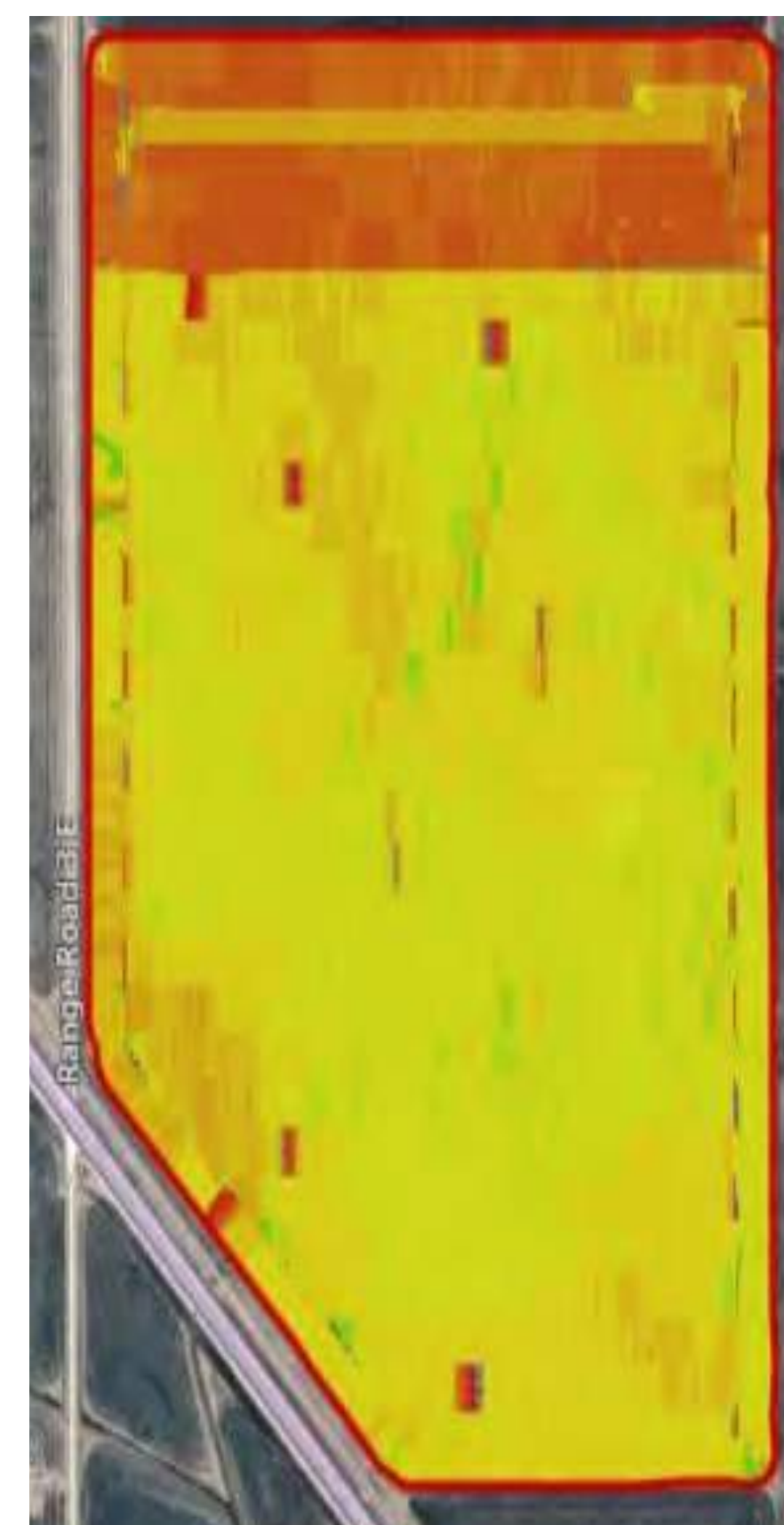
- Variable rate N @31-41 gallons/acre

### Equipment/Technology

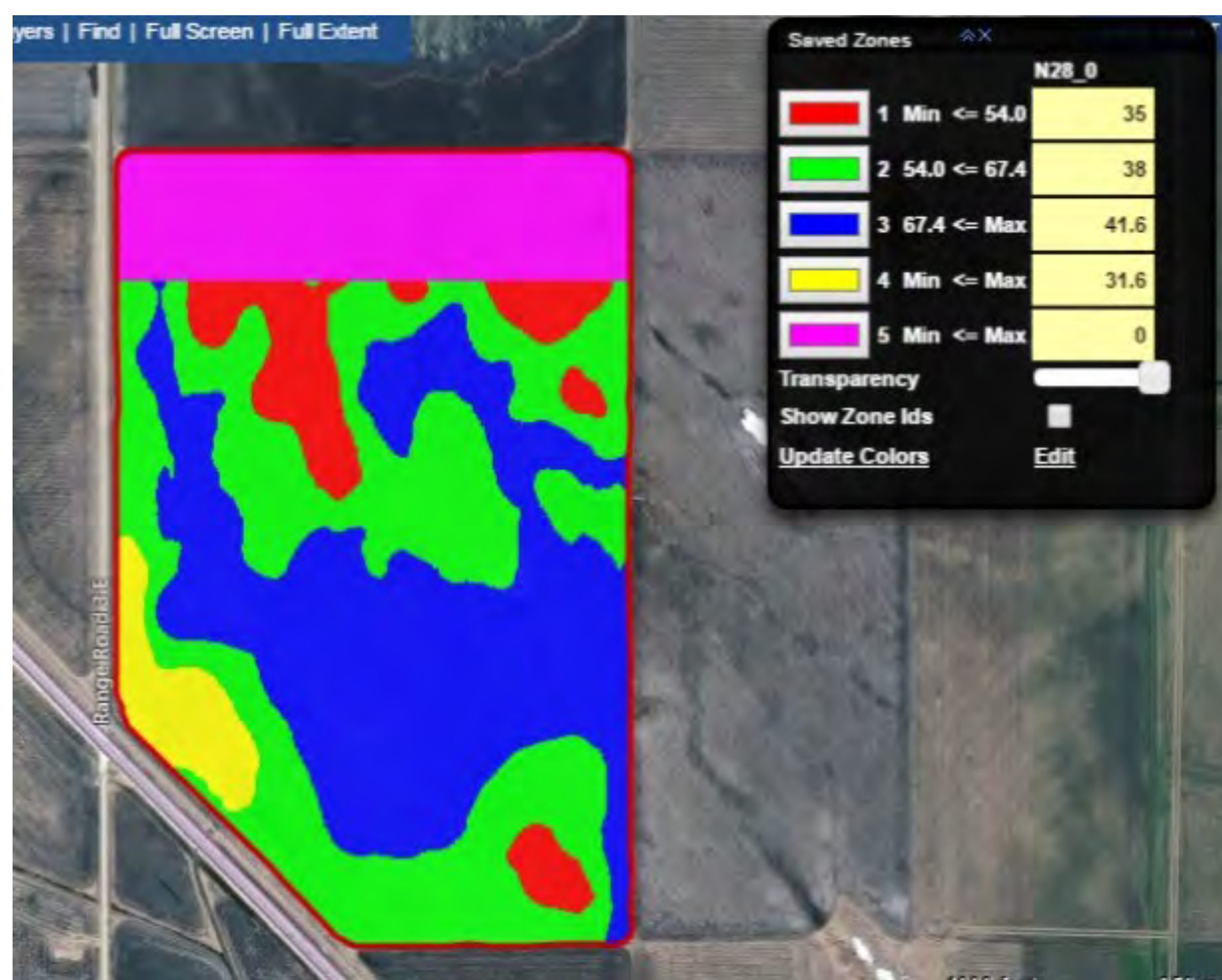
- John Deere 1895/1910 air cart
- John Deere Section Control
- John Deere RTK



As Planted



As Applied



Nitrogen Zone Map



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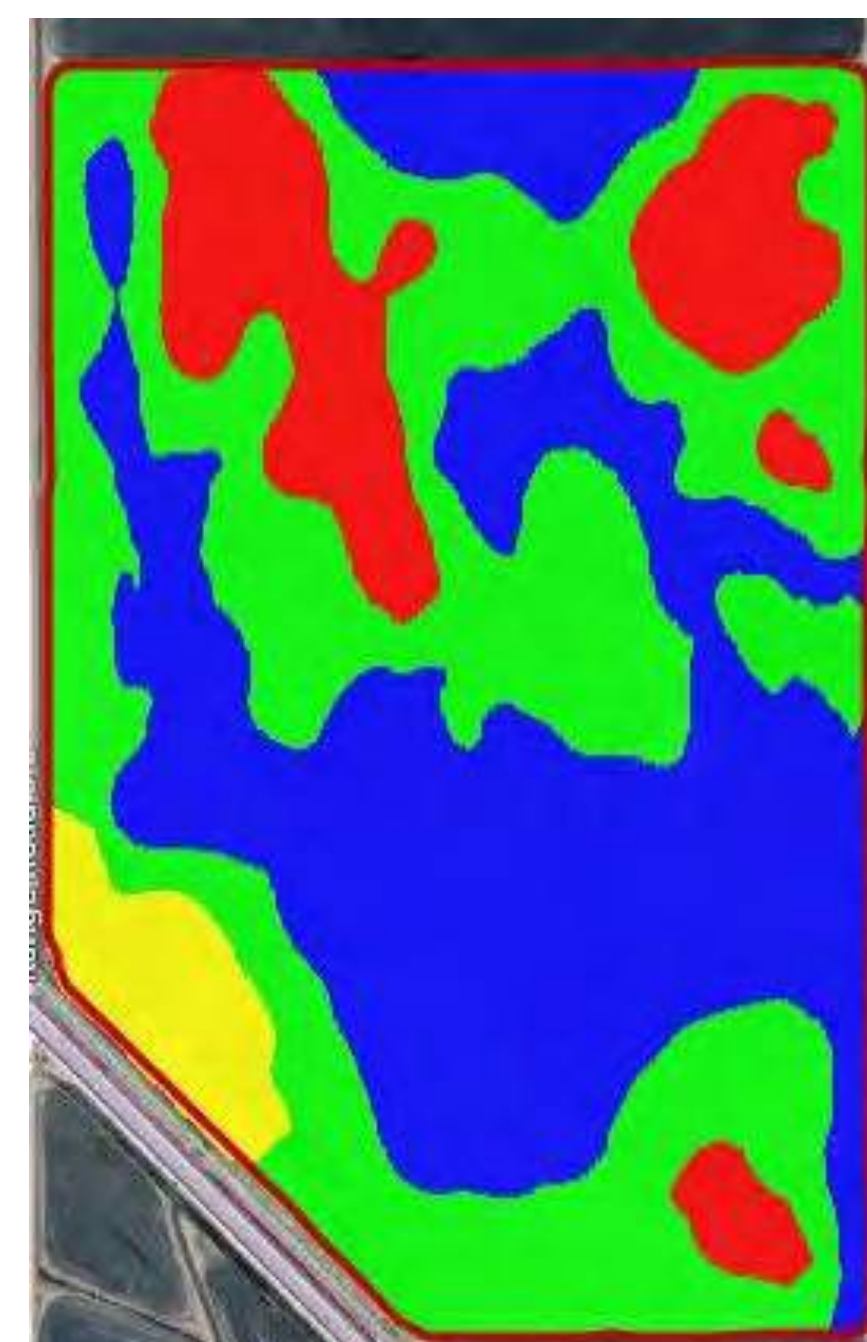


# SMART ZONES

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

Nitrogen			
Zone	0 - 6 "	6 - 24"	Total
1	23 lbs	18 lbs	41 lbs
2	27 lbs	21 lbs	48 lbs
3	22 lbs	27 lbs	49 lbs
4	14 lbs	12 lbs	26 lbs

Phosphorus	
Zone	0-6"
1	8 ppm
2	11 ppm
3	9 ppm
4	24 ppm



Zone Map

Potassium	
Zone	0-24"
1	324 ppm
2	373 ppm
3	392 ppm
4	309 ppm

Sulfur	
Zone	
1	52 lbs
2	376 lbs
3	62 lbs
4	480 lbs

Zone	Soluble Salts		Soil pH		SOM
	0-6"	6-24"	0-6"	6-24"	
1	0.60 mmho/cm	0.46 mmho/cm	7.9	8.5	7.1%
2	0.68 mmho/cm	1.04 mmho/cm	7.8	8.2	7.1%
3	0.71 mmho/cm	0.68 mmho/cm	7.8	8.3	7.1%
4	0.90 mmho/cm	1.70 mmho/cm	8.3	8.4	6.2%

Source: AgVise Laboratories



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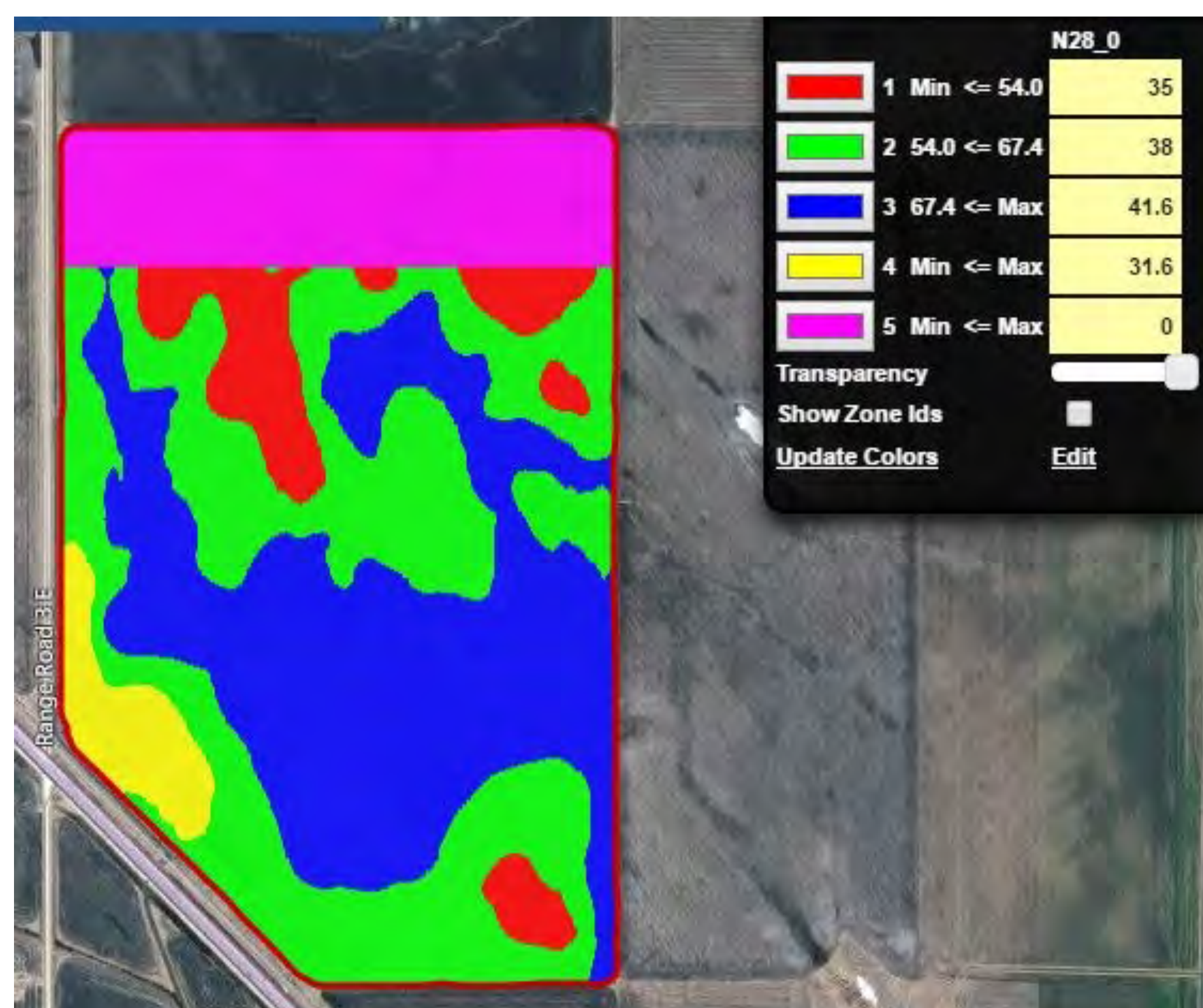


# SMART RX

The diagnosis and treatment designed to maximize zone specific yield potential.

## Smart Zone Management:

- Zones developed utilizing electrical conductivity mapping
- Review previous yield data to identify trends and confirm field variability
- Zones redefined from 3 to 4; allow for transition zone
- Producer defined yield goals
- Utilizing soil test results, nitrogen (N) levels defined
- Goal is to maximize economic returns
- Apply inputs according to zone yield potential
- Risk management tool



Nitrogen Zone Map

## Smart Rx Management:

- Precision soil testing
- Variable rate nitrogen plan based on soil carrying characteristics

## Nitrogen N28-0

Zone	Total
1	105 lbs/ac
2	114 lbs/ac
3	125 lbs/ac
4	95 lbs/ac
5	60 lbs/ac



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# FIELD RESEARCH SUPPORT

Field scale research enablement and support with small plot design, replication and analytics.

## Canola Planting vs Air Seeding Demonstration

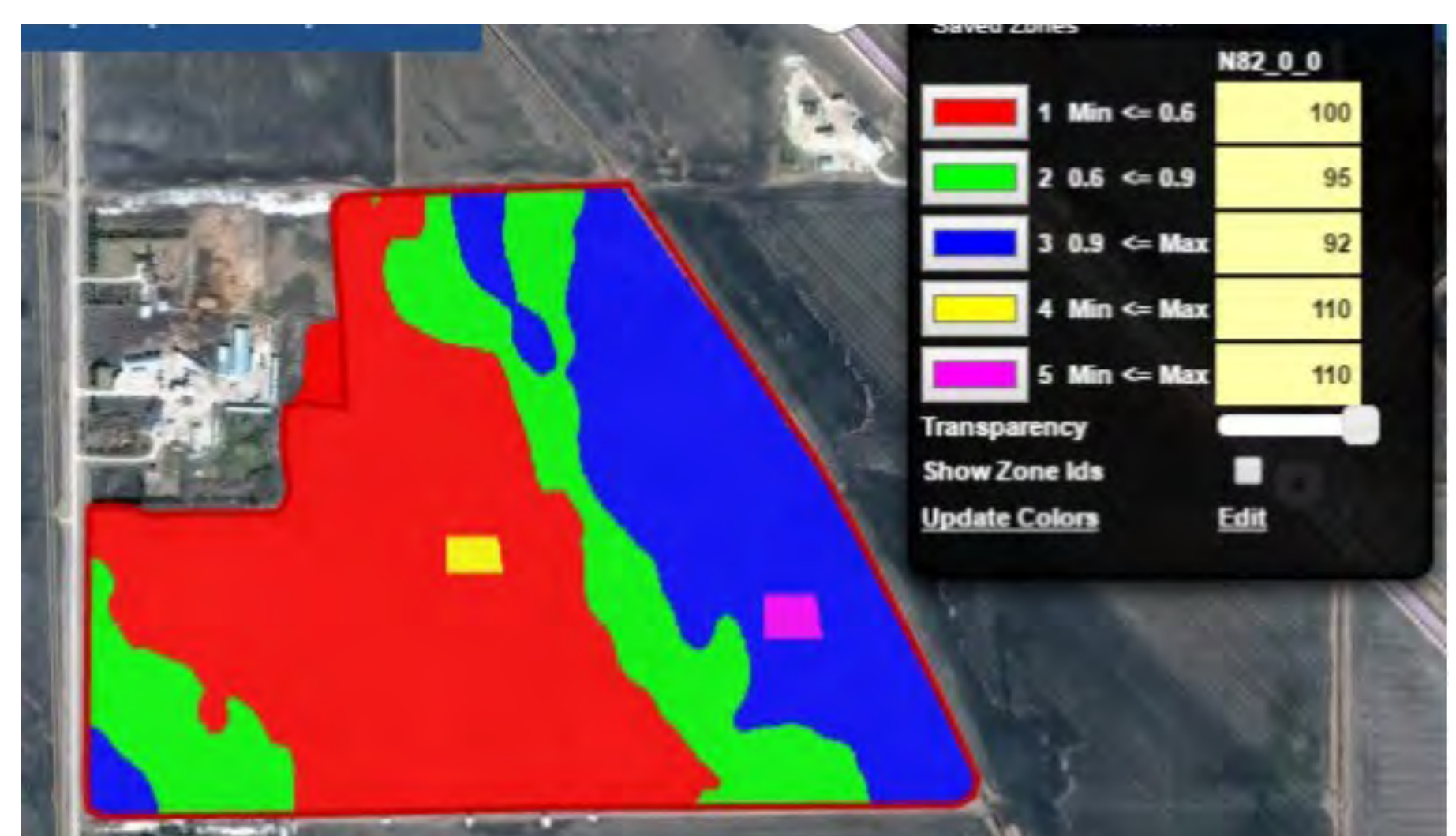
### Planter

#### Equipment:

- John Deere DB 60 planter (20 inch spacing)
- Red River Valley Canola Disks

#### Agronomy:

- Planted: May 16th
- 3 Rates: 1) 225,000 seeds (2.28lbs/acre)  
2) 250,000 seeds (2.53lbs/acre)  
3) 275,000 seeds (2.78lbs/acre)
- Emergence date: May 23rd at 8am



Management Zones

### Air Seeder

#### Equipment:

- John Deere 1895 disk drill

#### Agronomy:

- Seeded: May 15th
- Rate: 4.32 lbs/acre
- Emergence date: May 23rd at noon

#### Field Fertilizer Rates:

- Variable rate NH3 @ 92lbs-110lbs
- 30-60-0-20 seed row @79lbs/acre
- 30-60-0-20 mid row @117lbs/acre

Plant Population				
	Seeded	Planted Seeds/Acre		
Sample	4.32 lbs/acre	225,000	250,000	275,000
Average Plants/ft2	6.4	4	4.9	5.1
Emergence	65%	77%	84%	81.5%



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# OPTIMIZEPRO

Capitalize on your investment in equipment, technology and precision agriculture.

## John Deere DB60 Planter:

- 20 inch row spacing
- John Deere Section Control
- John Deere RTK

## On Farm Utilization:

- Soybeans
- Corn
- Canola (trial)



John Deere DB60

## John Deere 1895 drill/ JD 1910 air cart:

- 430 bushel tank
- John Deere Section Control
- John Deere RTK

## On Farm Utilization:

- Wheat
- Oats
- Barley
- Peas
- Canola
- Winter wheat
- Fall rye



John Deere 1895 Drill



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## John Deere Section Control

### Procedure:

- Analyzed a 4000 acre farm that switched to section control in the 2016 crop year
- Analysis looked at seeding and solid fertilizing operations
- Compared previous years' data to the 2016 seeding and fertilizing operations

### Results:

- 5% decrease in 2016 overlap
- Translated into \$18,247 in savings (assuming \$90/acre average cost seed and starter fertilizer)



John Deere Section Control Row Ends



John Deere Section Control Headlands



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