PRECISION FERTILISER DECISIONS

TIM NEALE - DATAFARMING

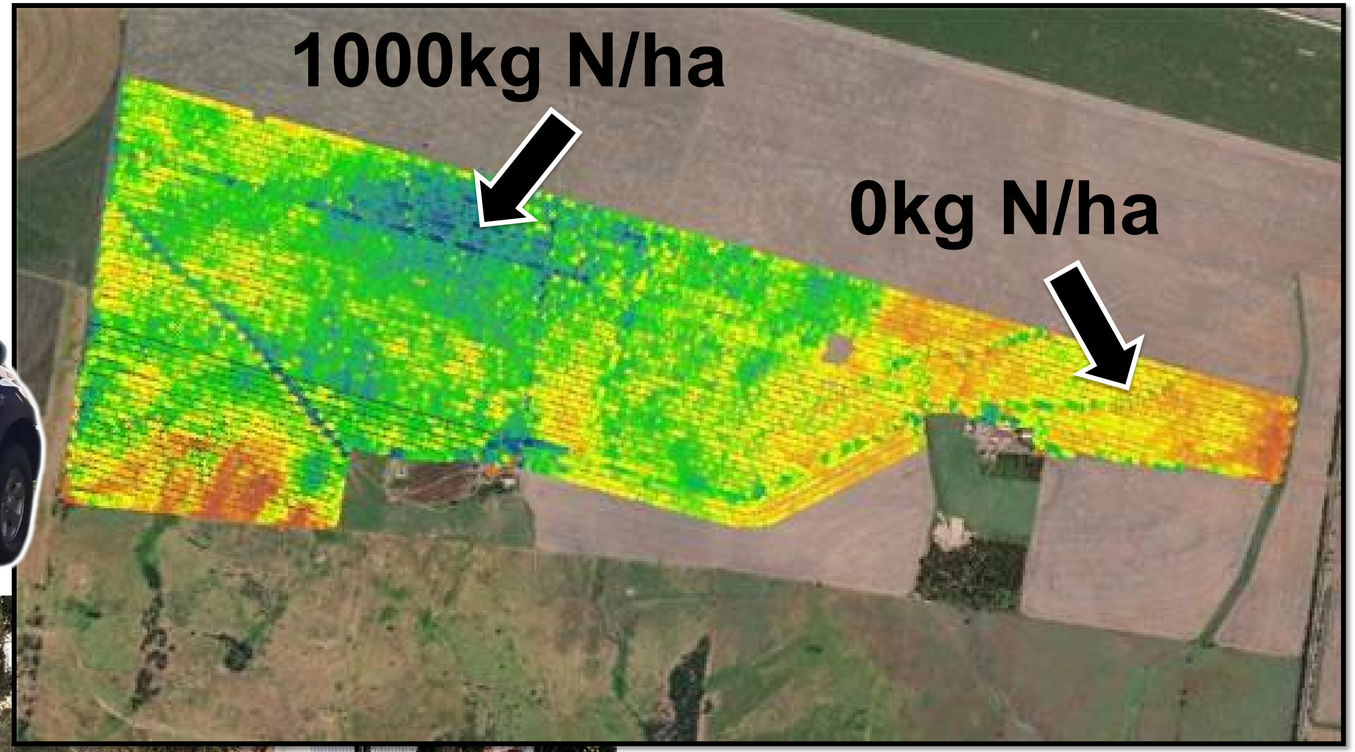
GRDC™
GRAINS RESEARCH & DEVELOPMENT CORPORATION

5 simple tools to manage nutrient variability

1. EM (Electromagnetics) mapping to determine different soils across the paddock
2. Satellite imagery: over time STACK'd together, or single image
3. Protein data is the best tool for N management
4. Yield data is the final measure of performance
5. Strip trials to test responses to nutrients

Rapid-EM™ soil mapping

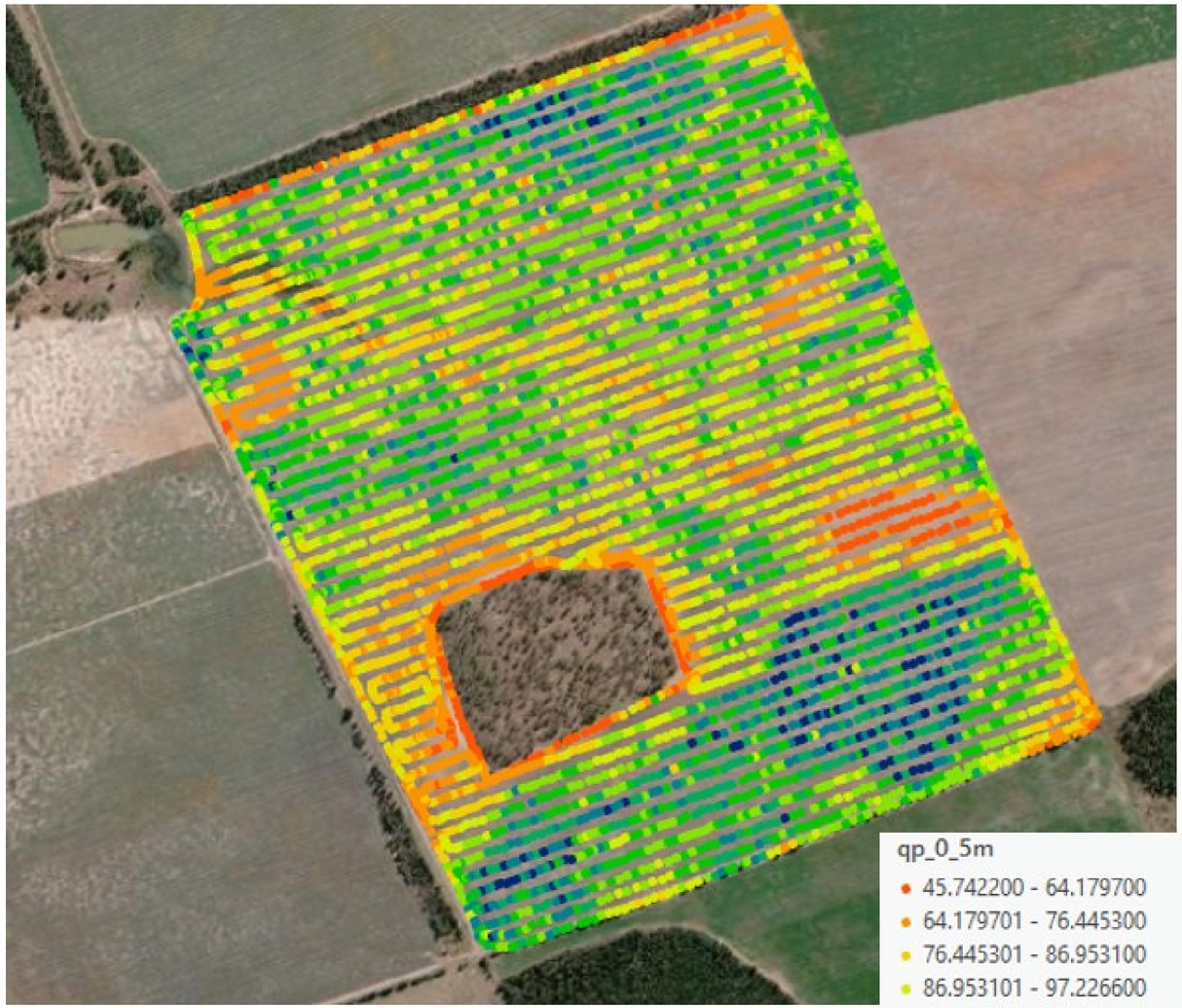
- VR Urea
- VR Gypsum

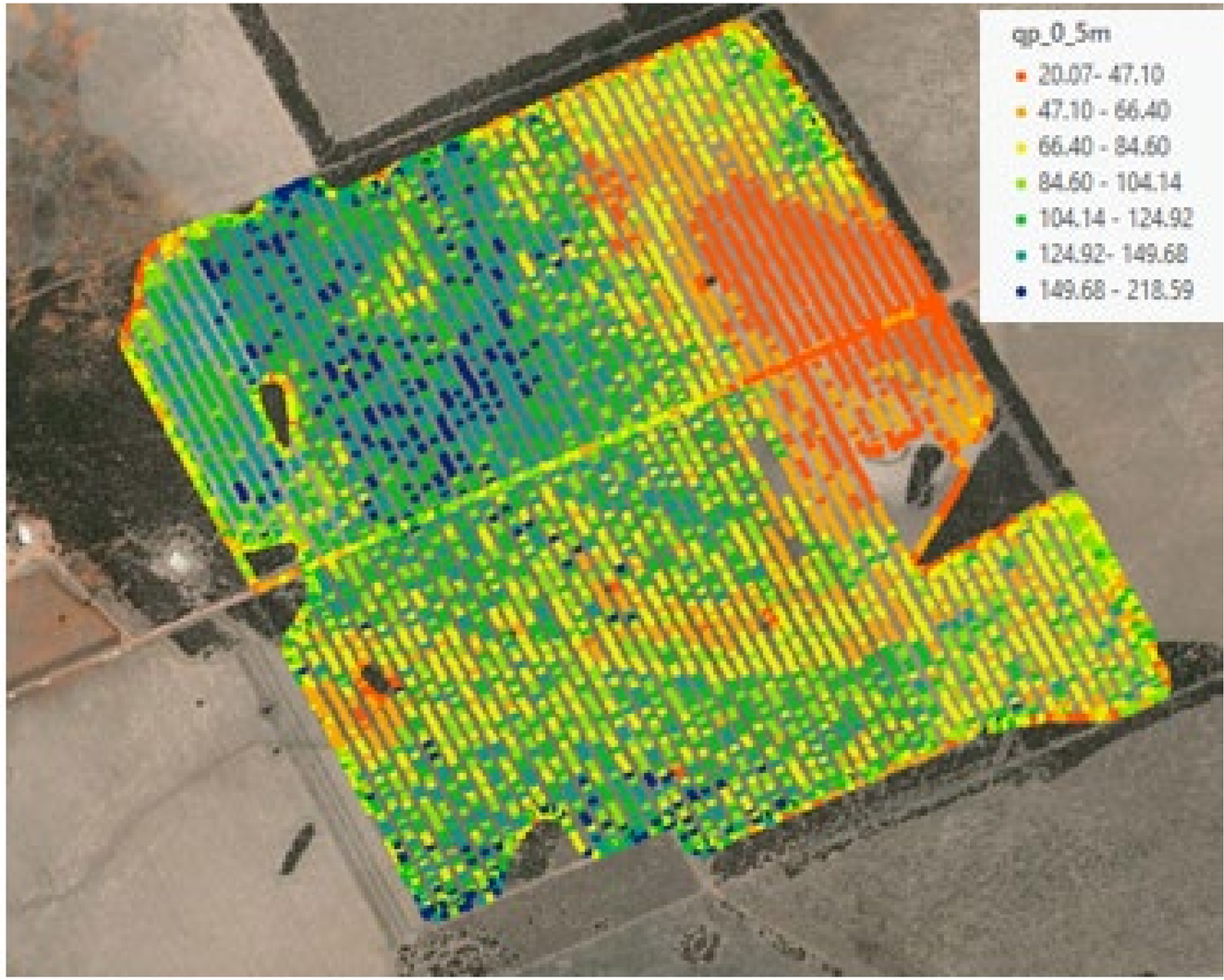


DATA FARMING

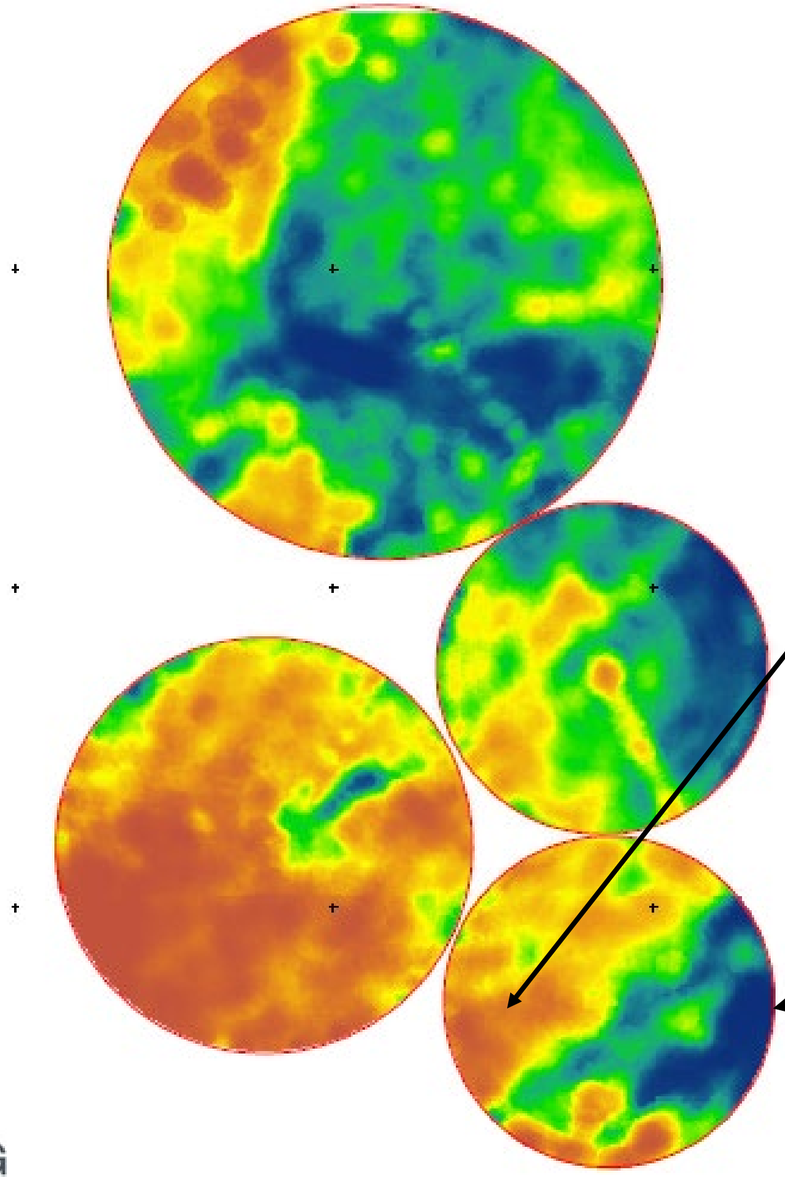
Rapid-EM™ soil mapping

DATA FARMING

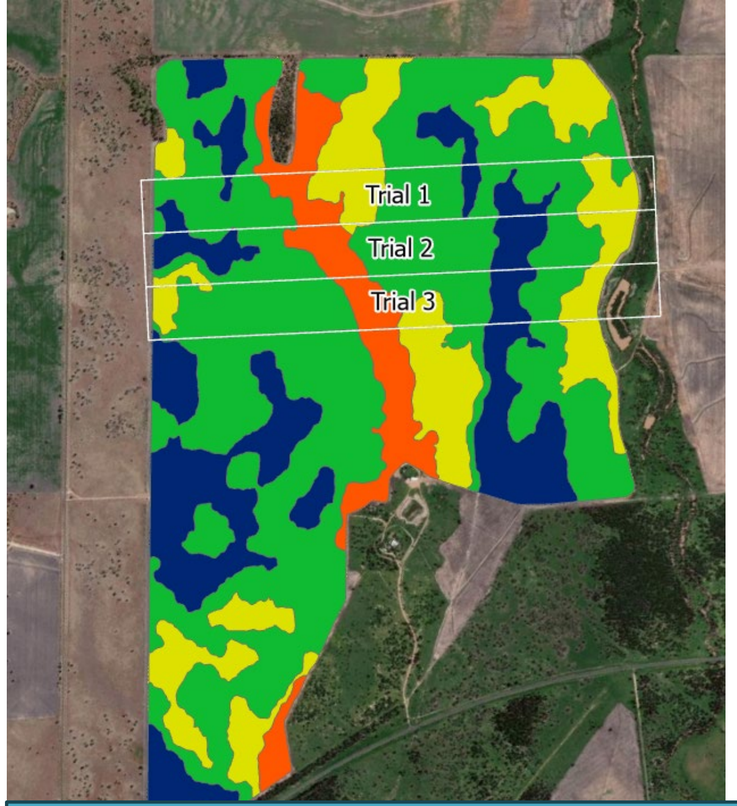




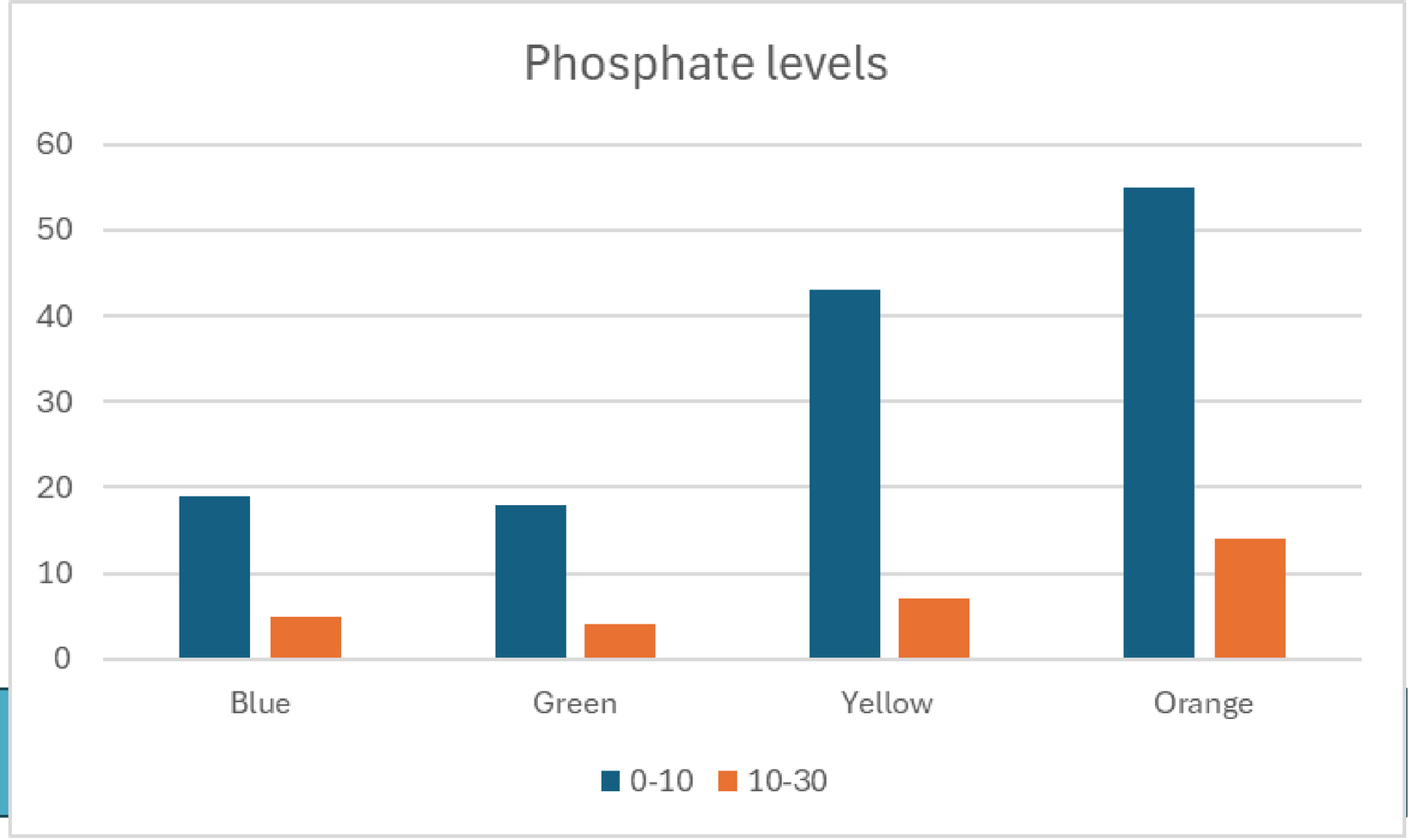
EM soil mapping



DATA FARMING



EM soil zones

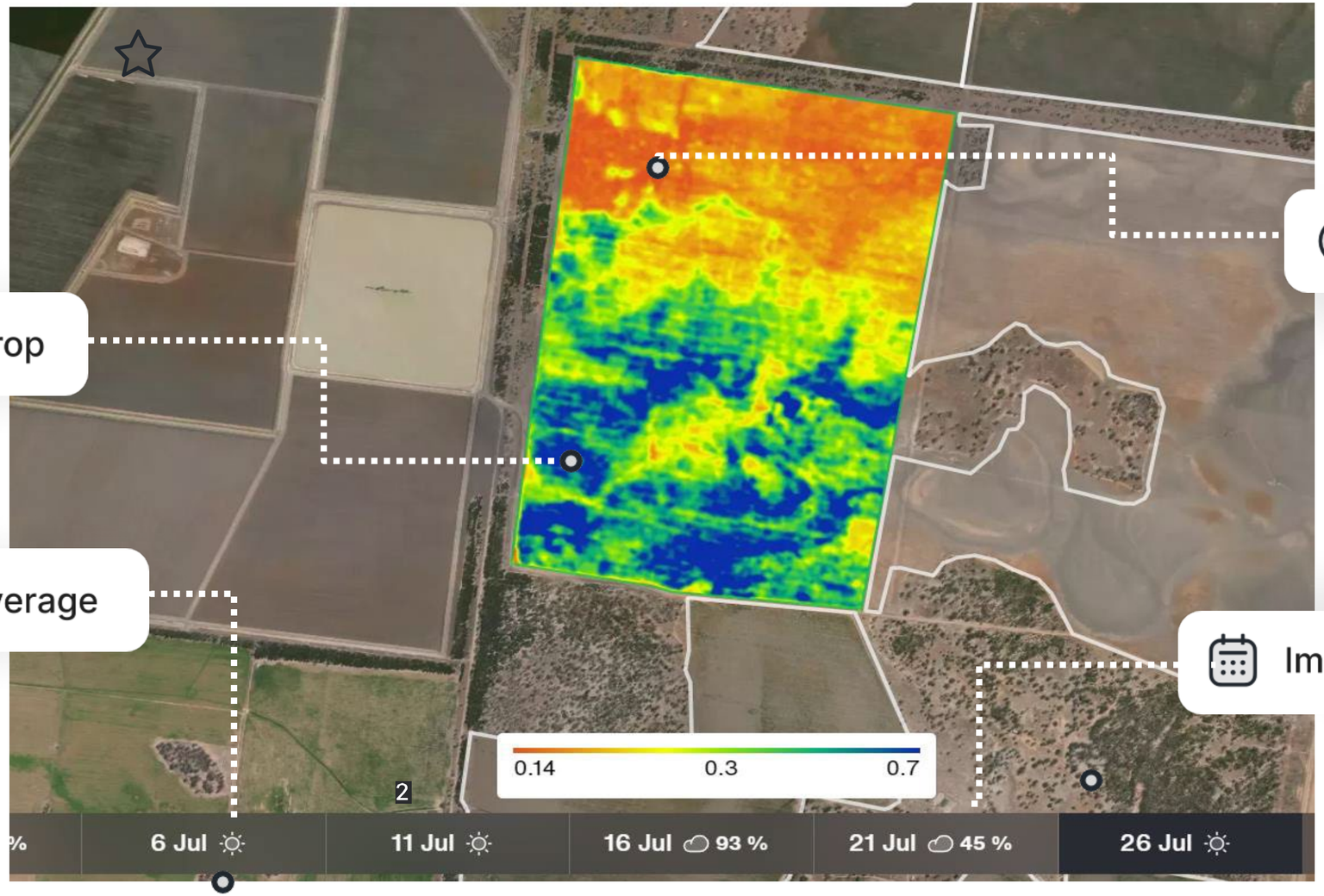


- Soil zones from EM and testing
- Colwell P showed differences – Surface and deep P response likely
- Lighter soils need higher seed rate?
- Easy trials to measure response

Managing the massive variability

maps.datafarming.com

DATA FARMING



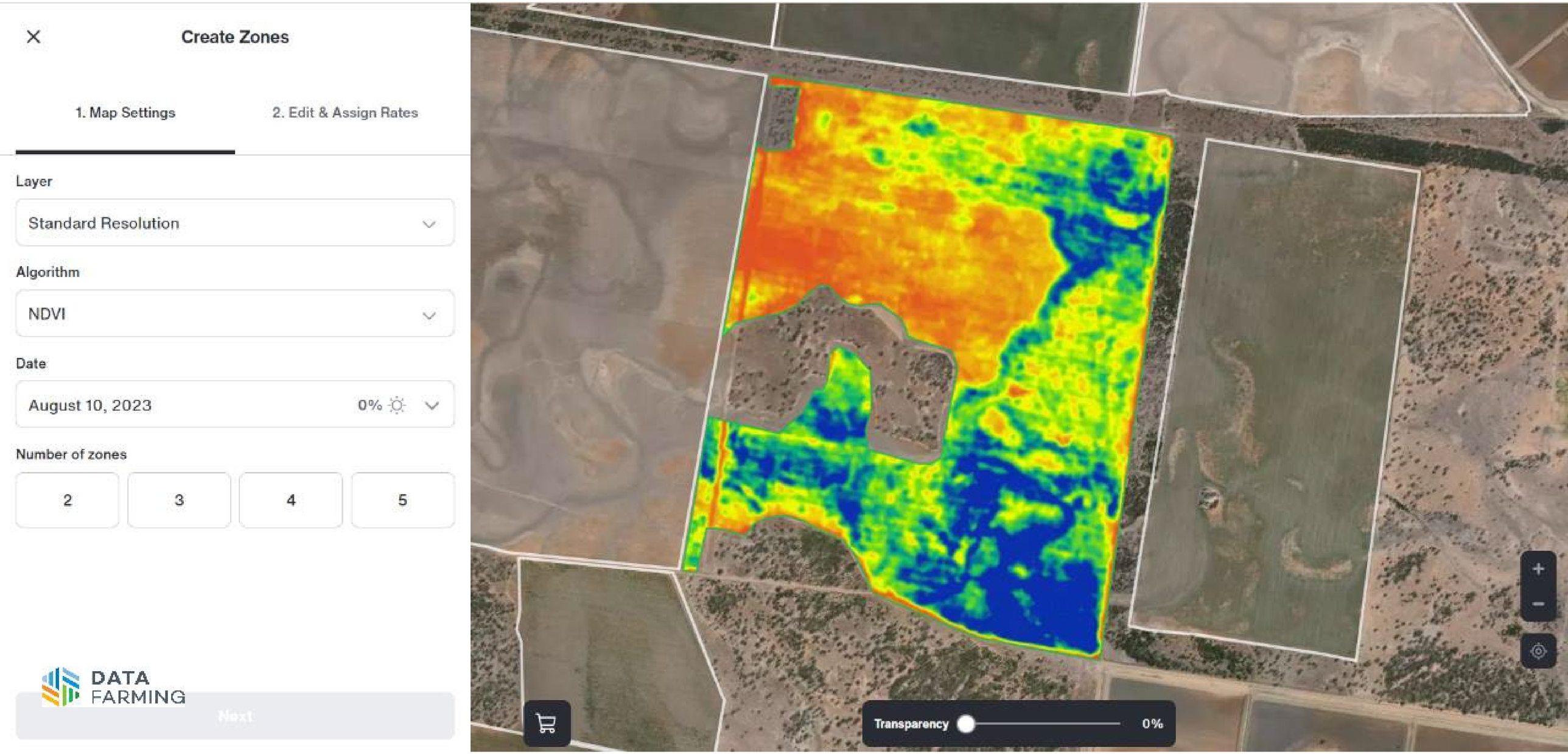
Healthy crop

Unhealthy crop

Cloud coverage

Images every 5-days

Instant zoning tool (1) find suitable image



(2) Number of zones and application level

DATA FARMING

Create Zones

1. Map Settings | 2. Edit & Assign Rates

Layer

Standard Resolution

Algorithm

NDVI

Date

August 10, 2023 0%

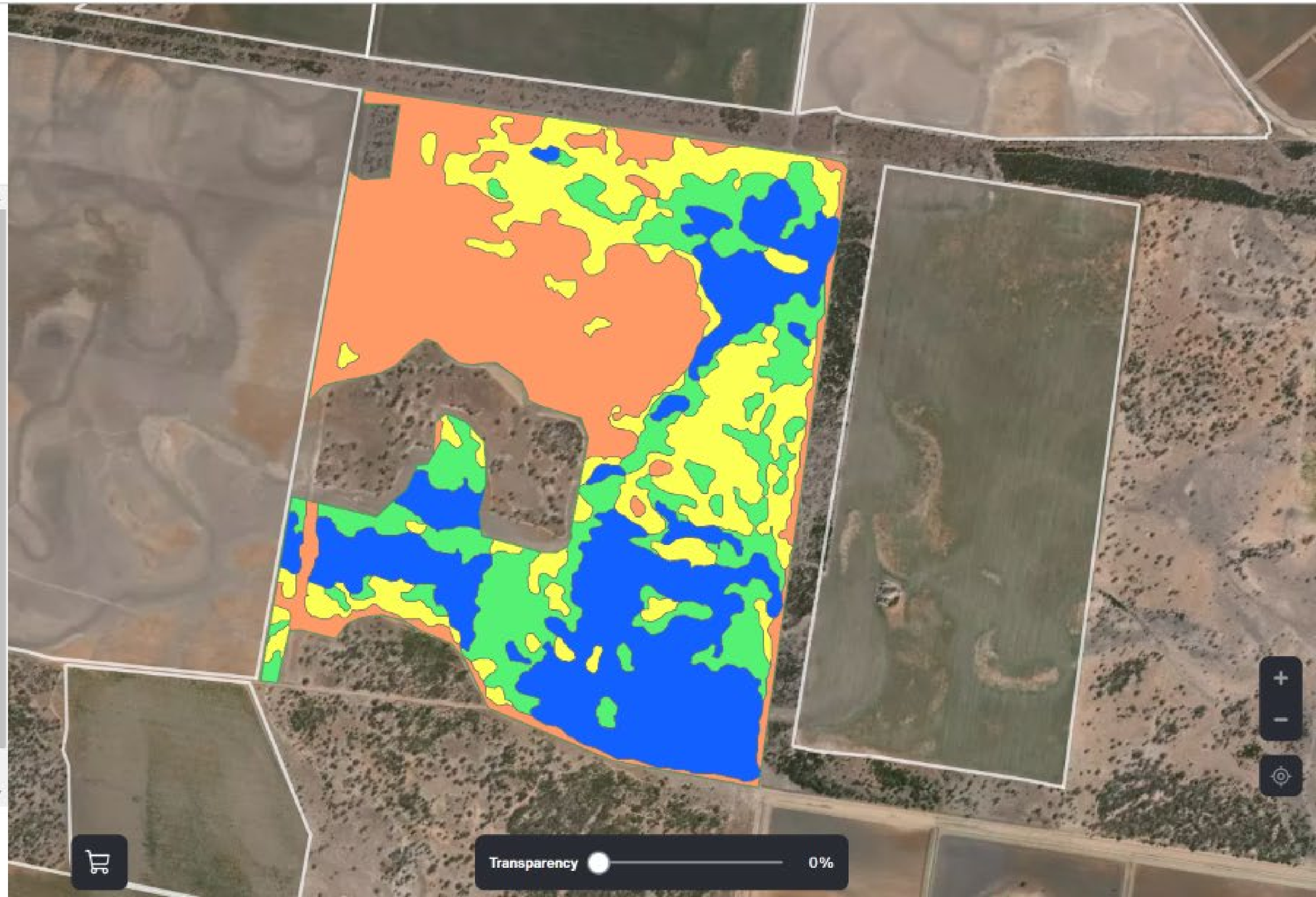
Number of zones

2 | 3 | 4 | 5

Resolution Level

5m | 25m | 50m | 100m

Next



(3) Add the rates, and change per polygon

DATA FARMING

Create Zones

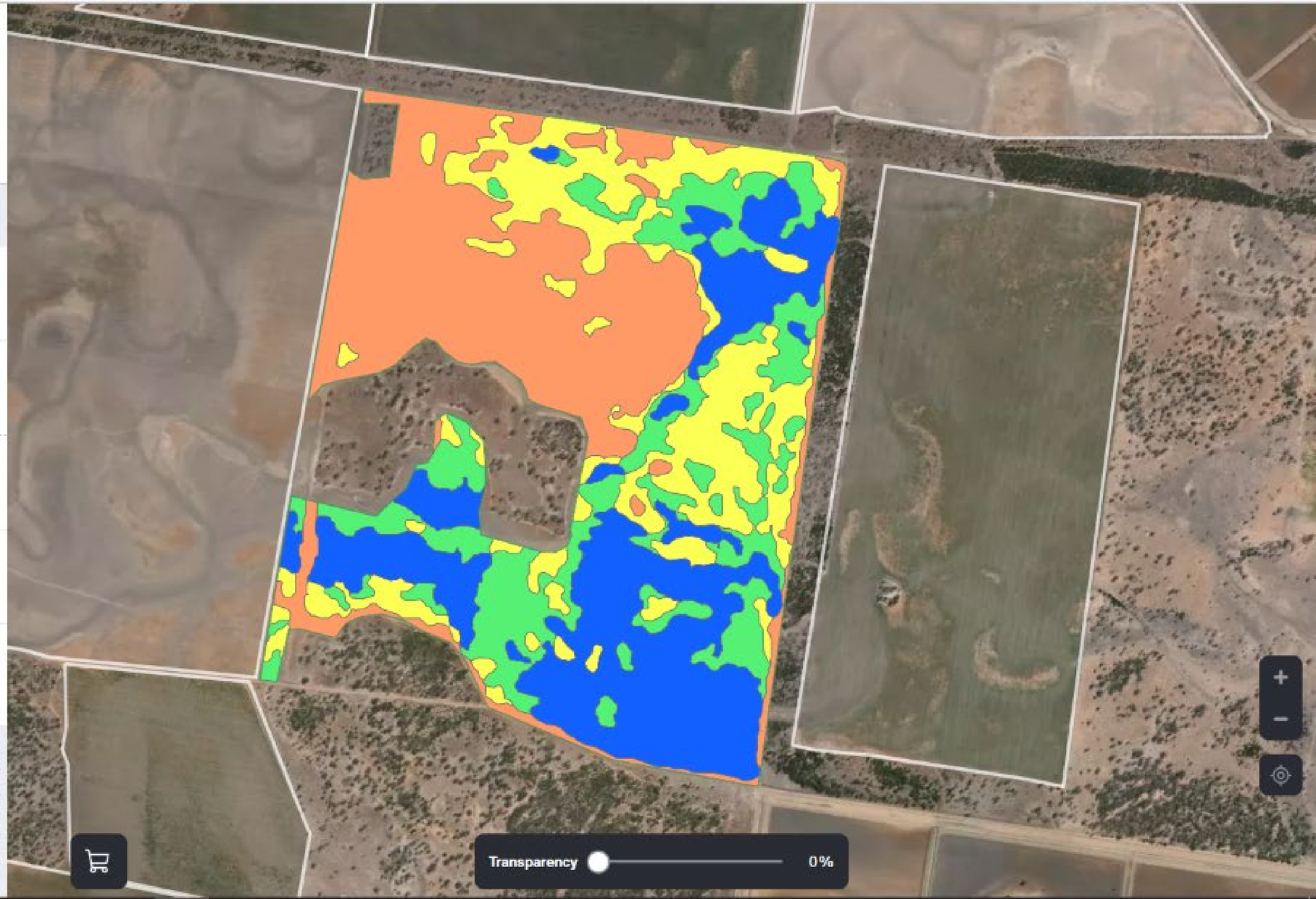
1. Map Settings | 2. Edit & Assign Rates

Zone	Area (Ha)	Rate
Zone 1	105.7	100
Zone 2	69.0	80
Zone 3	61.6	60
Zone 4	87.5	40

23286

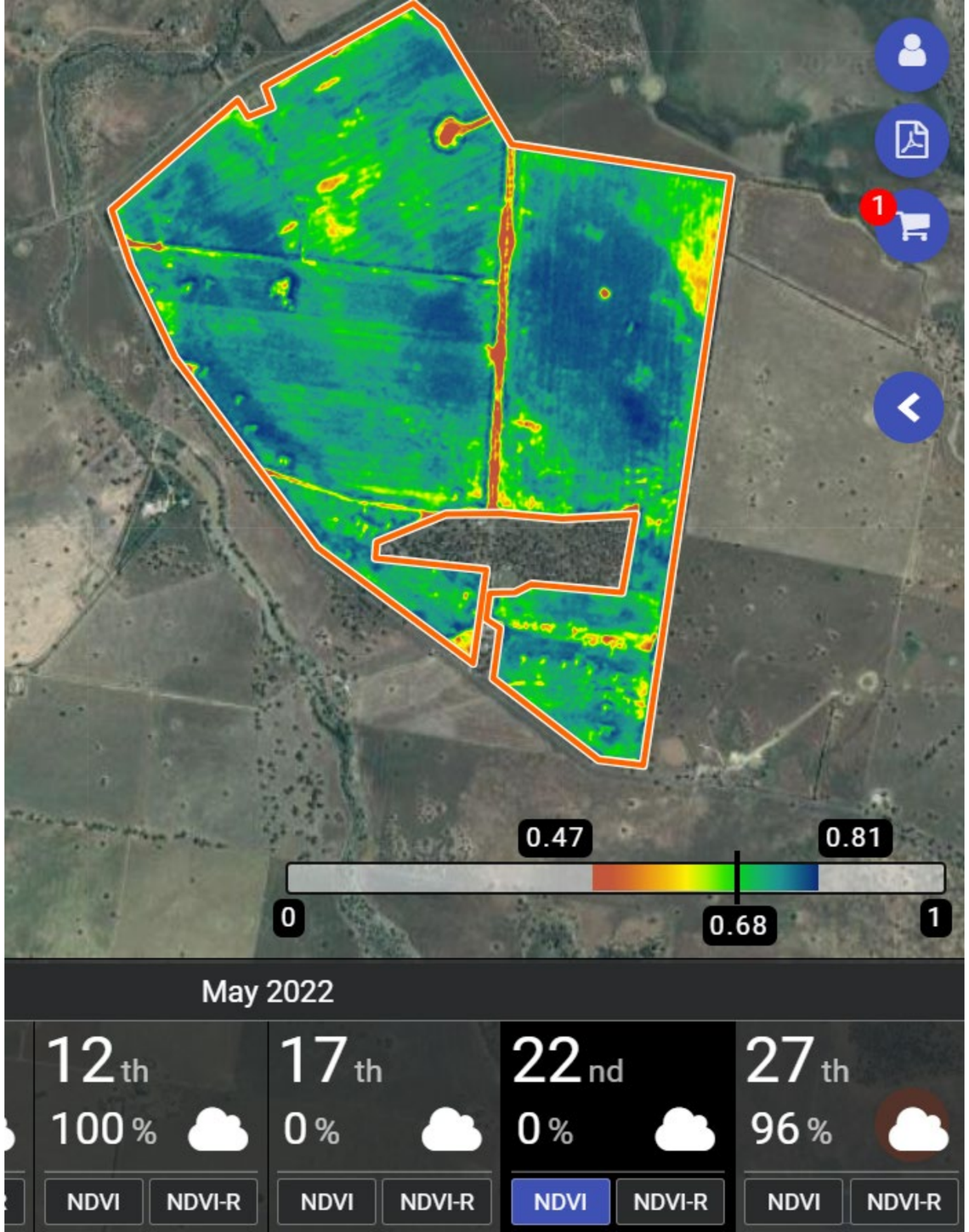
Total product needed

Add to cart



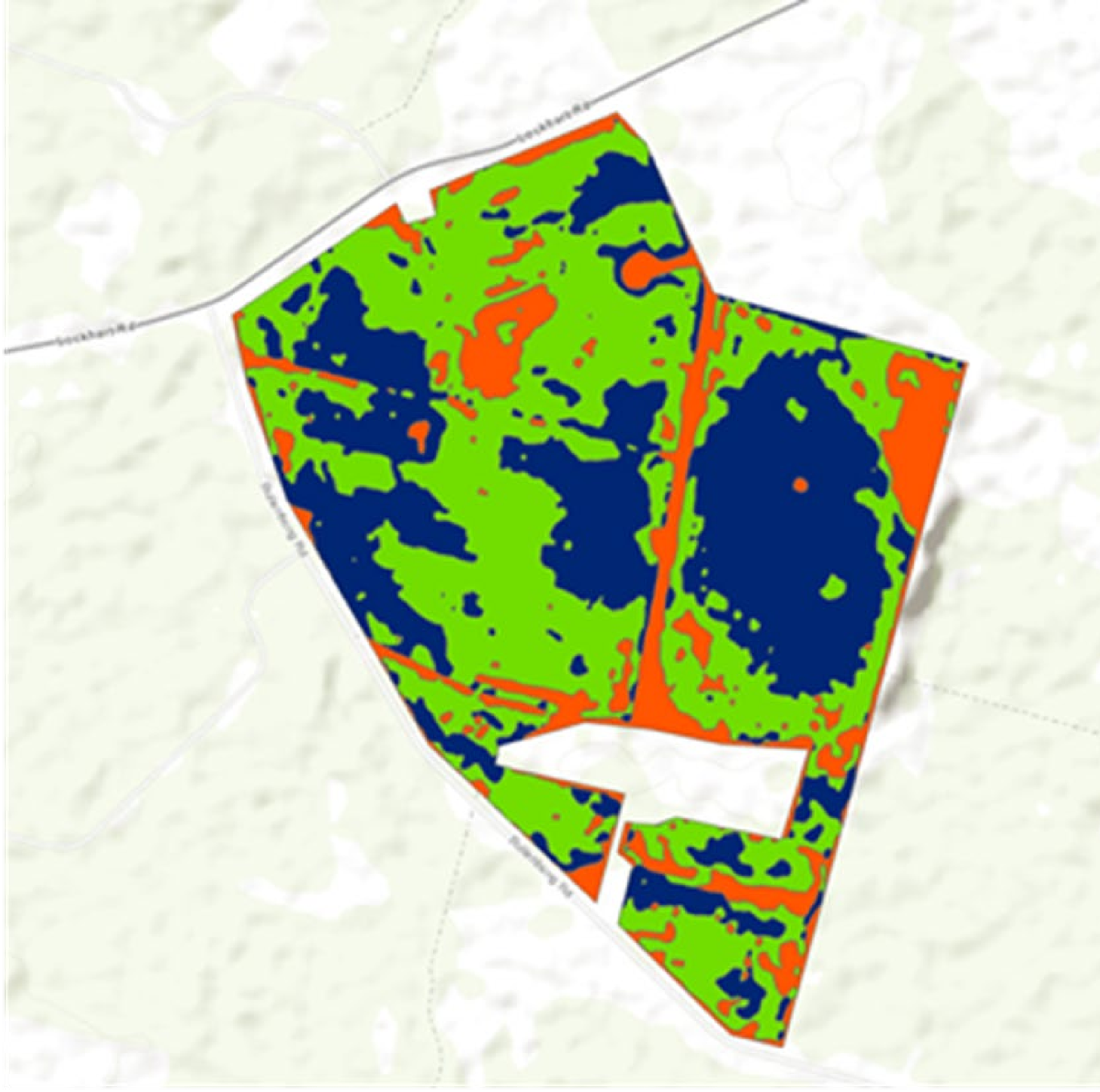
Variable rate off single satellite image

- 45t Urea available
- 450ha paddock
- Satellite image available immediately prior to application

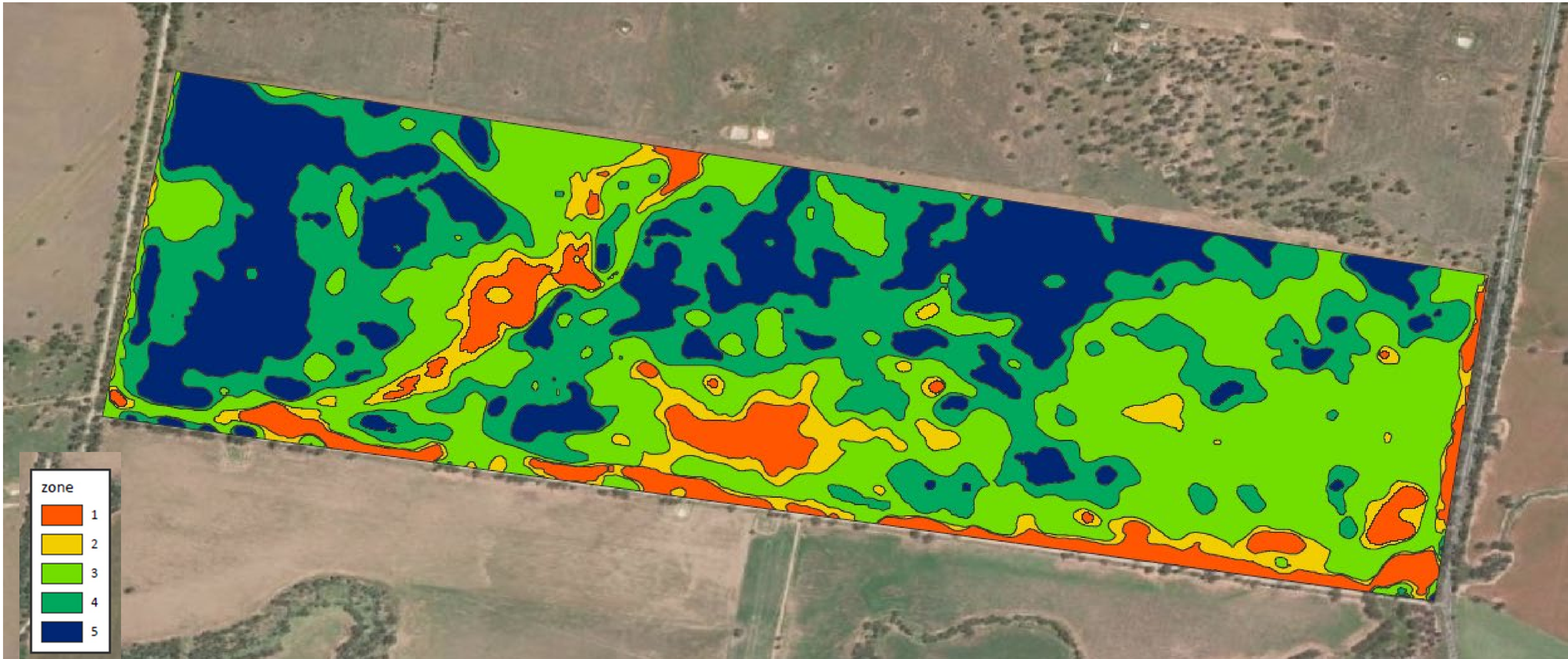


Outcome

- Poorer zone = 140kg/ha
- Av. Zone = 100kg/ha
- Good zone = 80kg/ha
- 44.5t total required

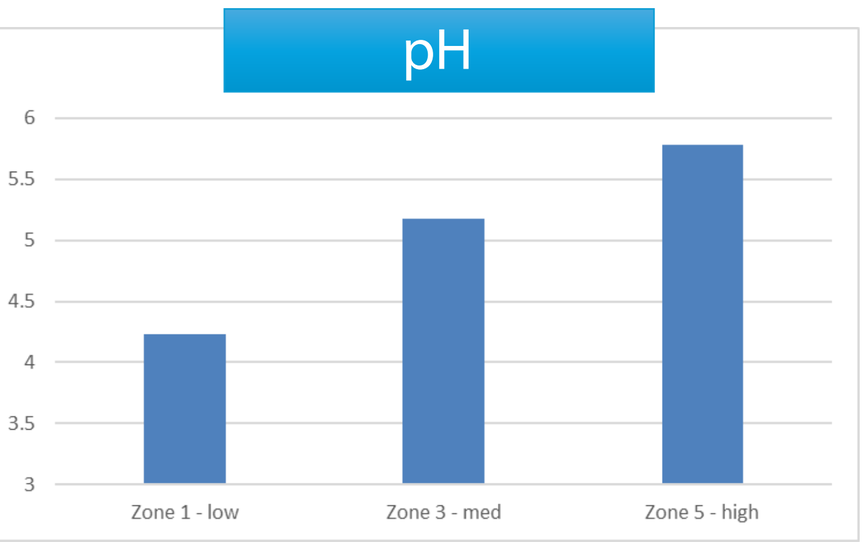


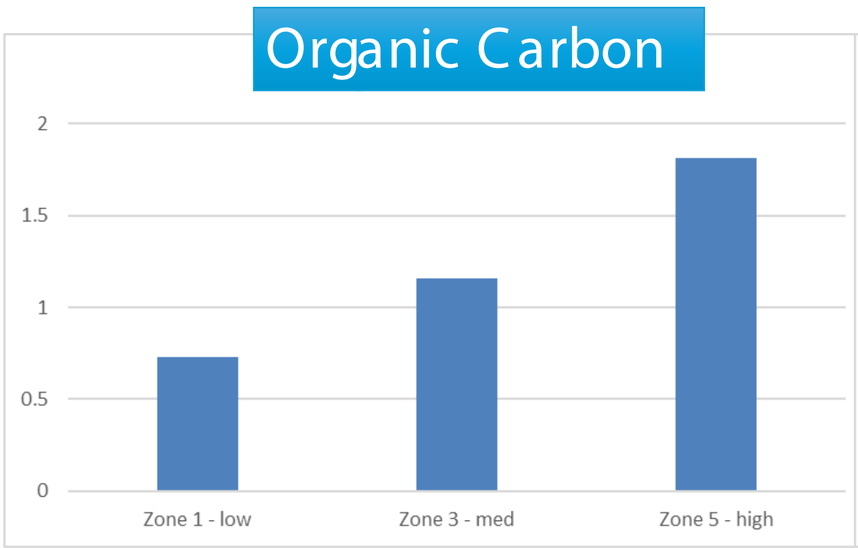
7 year ‘STACK’ of imagery

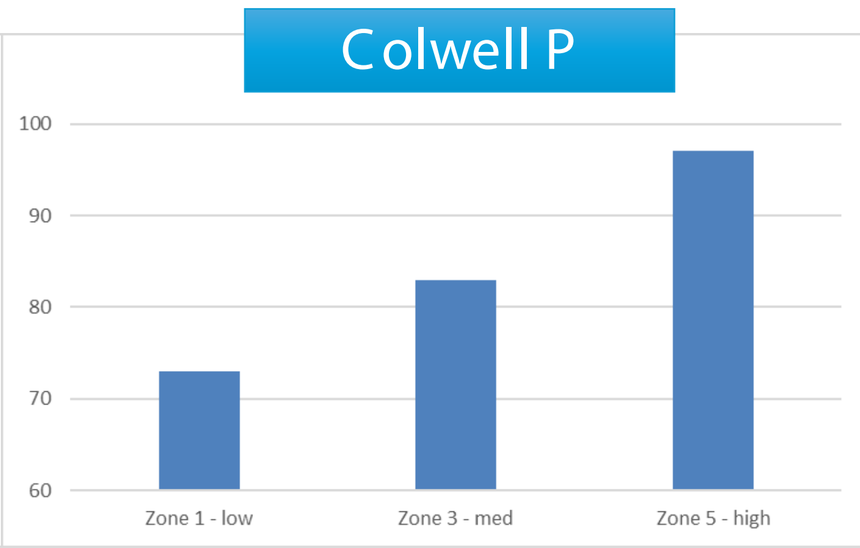


Soil testing from STACK zones

- Acidity causing lower productivity – VR lime next season only on Zones 1 and maybe 2
- Organic Carbon has 250% variation between high and low zones
- Colwell P high across the board but still lowest in zone 1 (low)

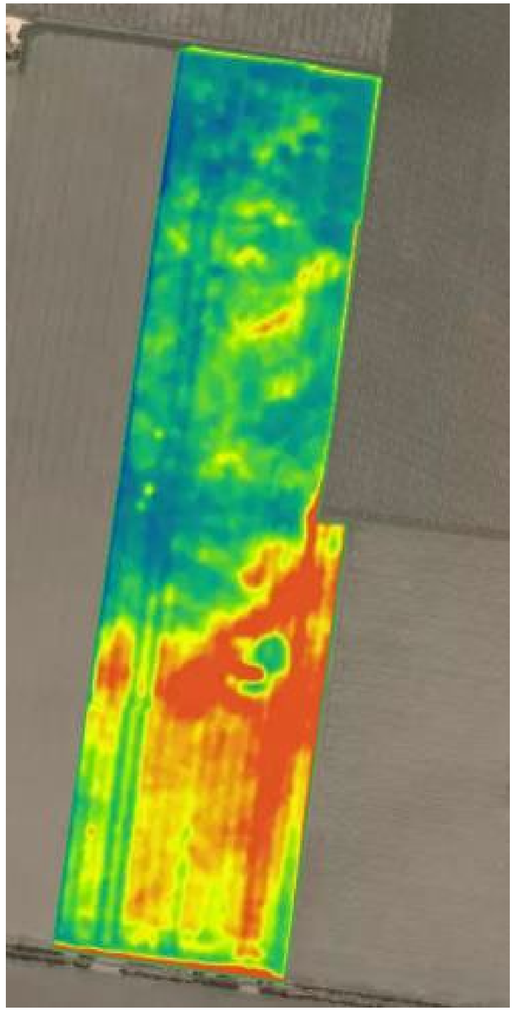




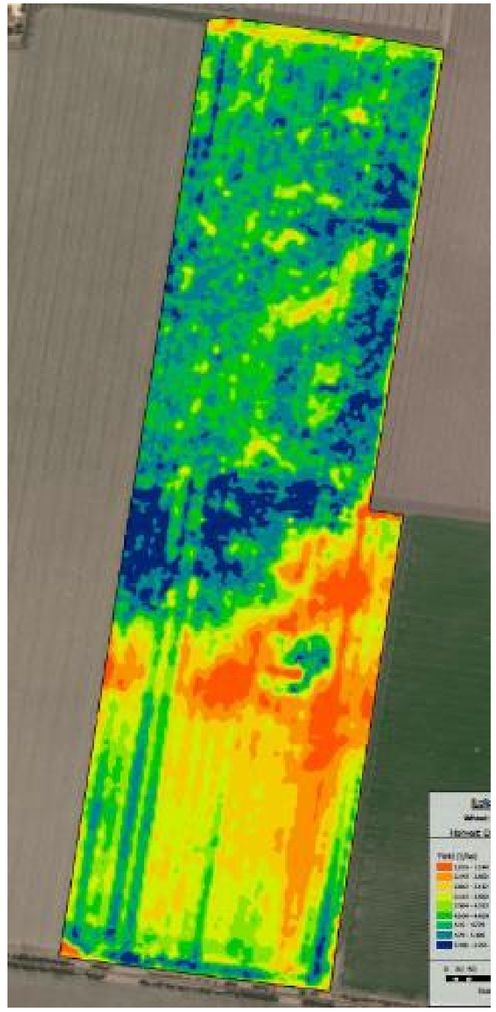


Z1 Z3 Z5 Z1 Z3 Z5 Z1 Z3 Z5

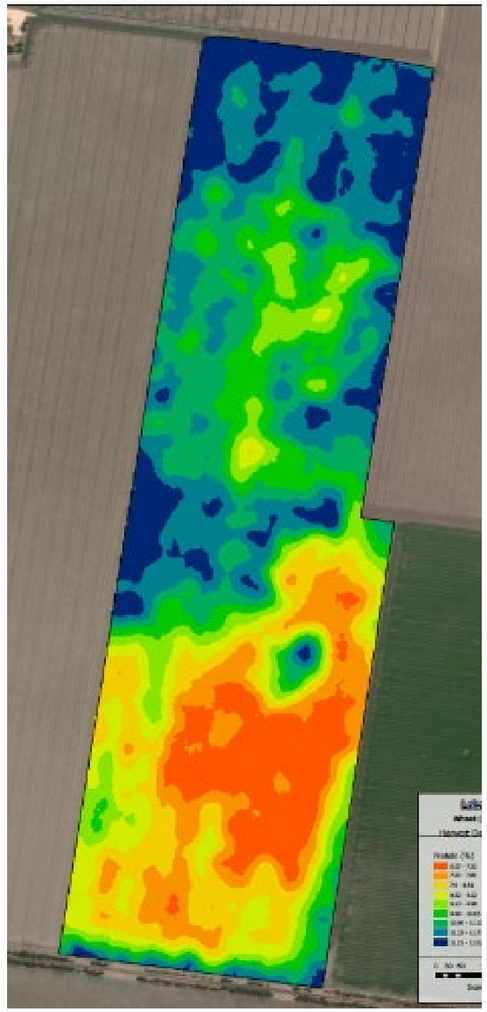
VR Nitrogen – winter 2022 data (5t/ha & 6% protein variation)



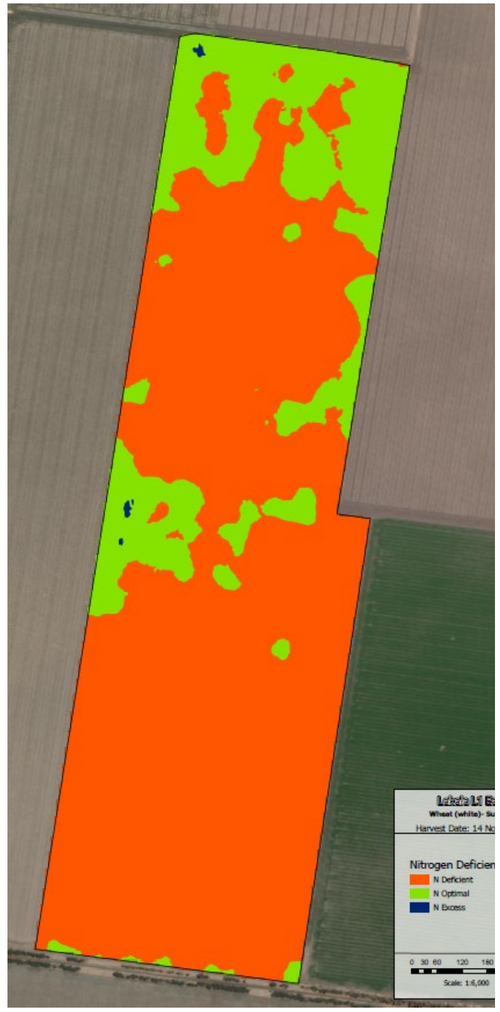
Imagery



Yield

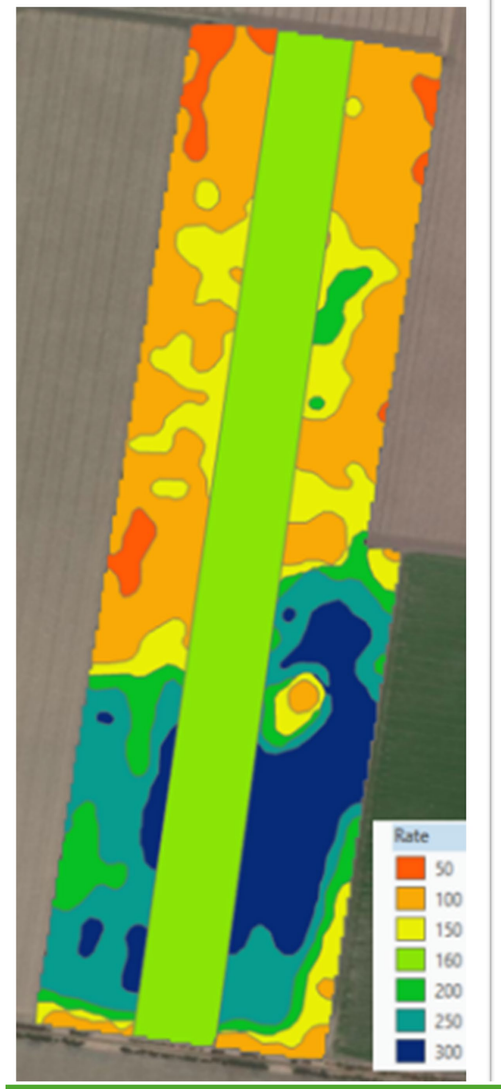


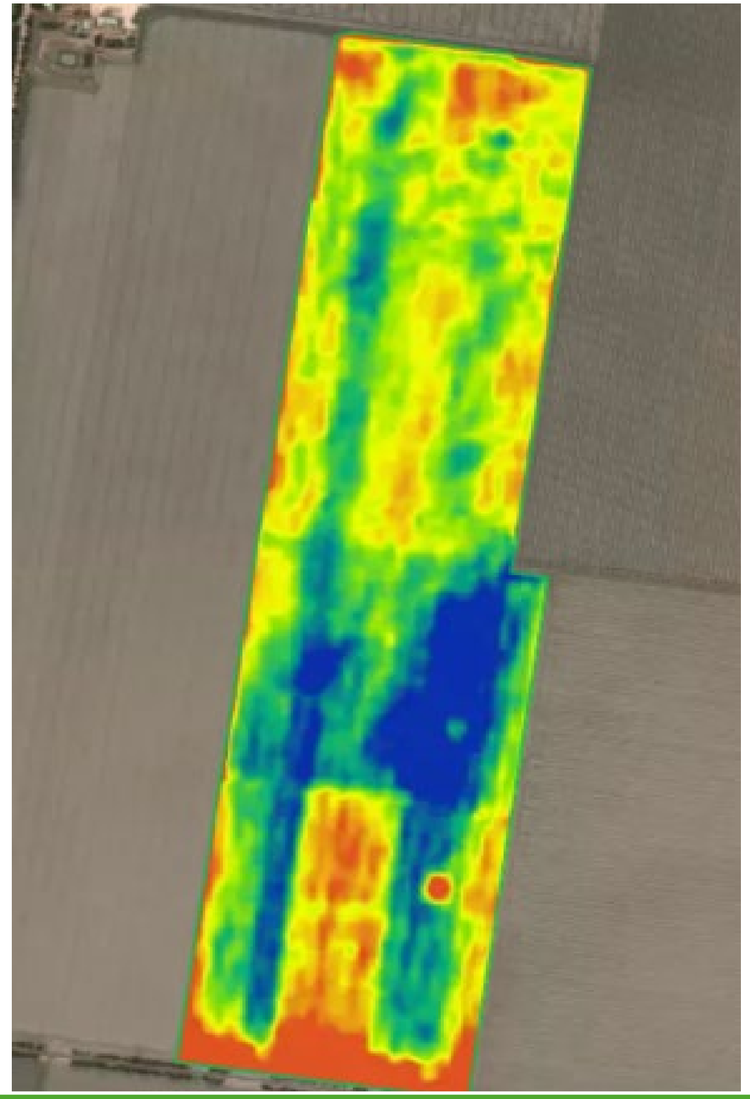
Protein

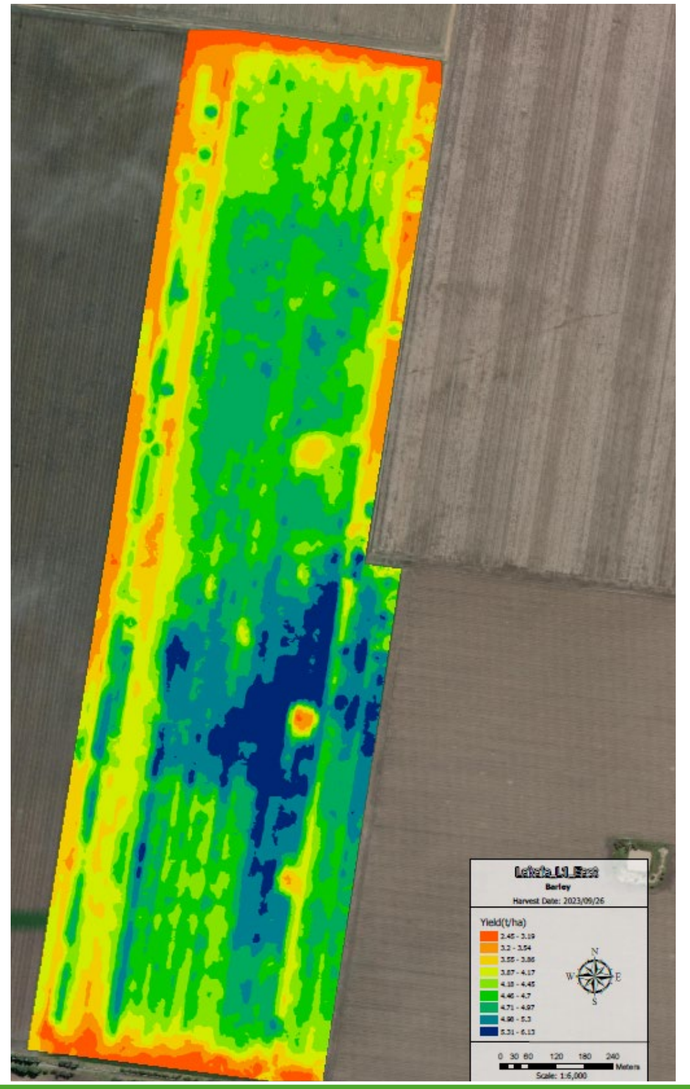


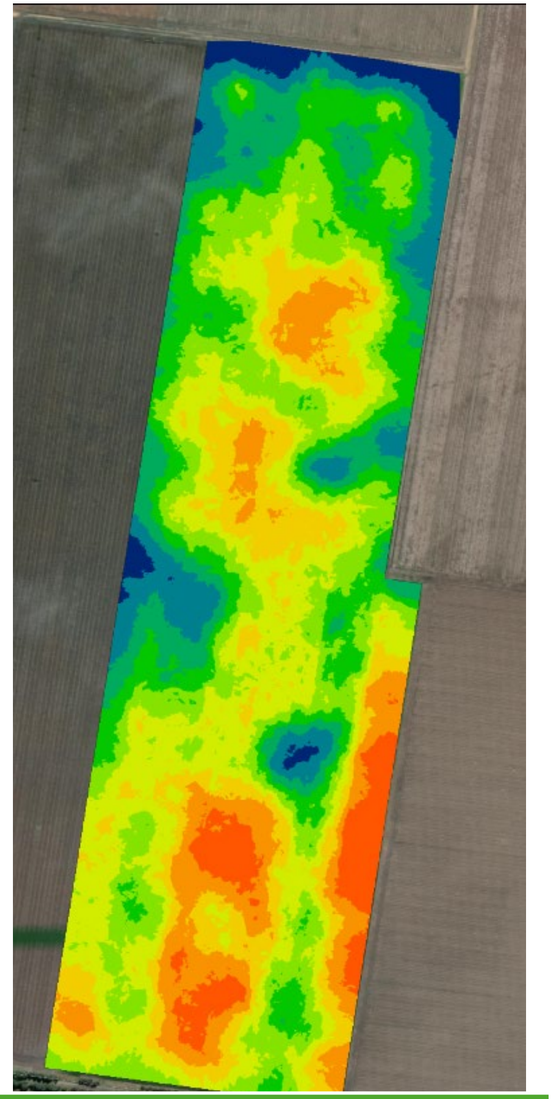
Yield limited

Winter 2023 results (2.5t + 2.5% protein)



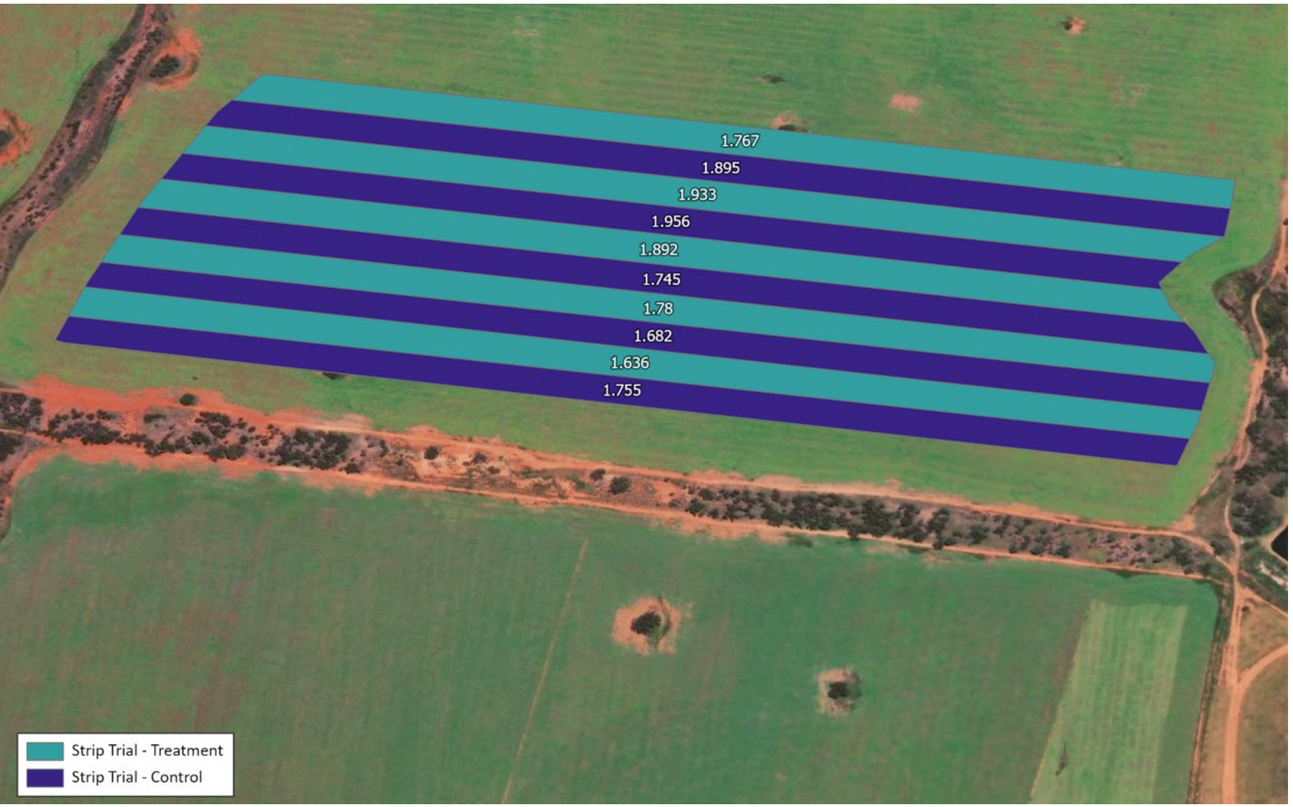


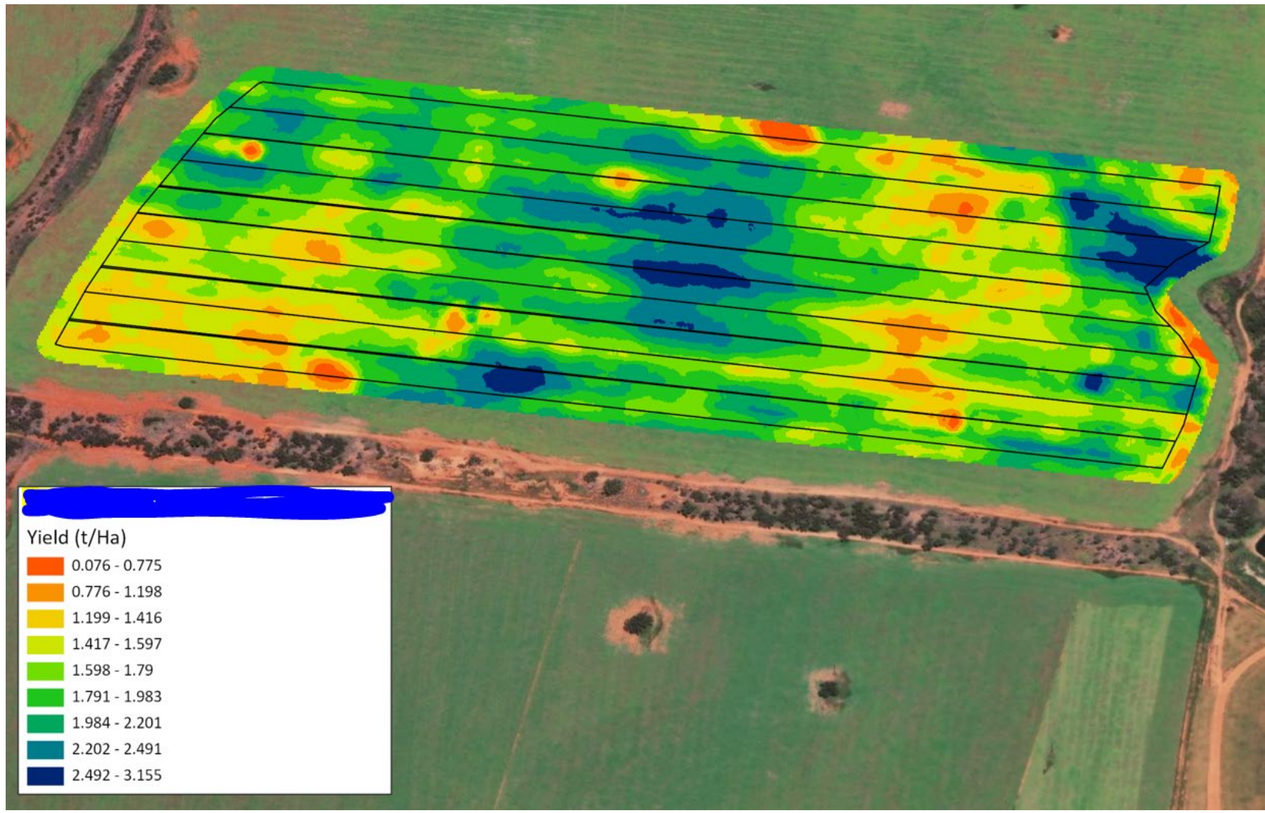




VR Urea | Imagery | Yield | Protein

Strip trials





New soil water mapping to 50cm+ deep

Want to get involved?

tim@datafarming.com.au
0409634006

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