RESPOND FASTER, MAKE BETTER DECISIONS

AirborneLogic
Vigormetrics™

WINE INDUSTRY IMPACT AWARDS WINNER
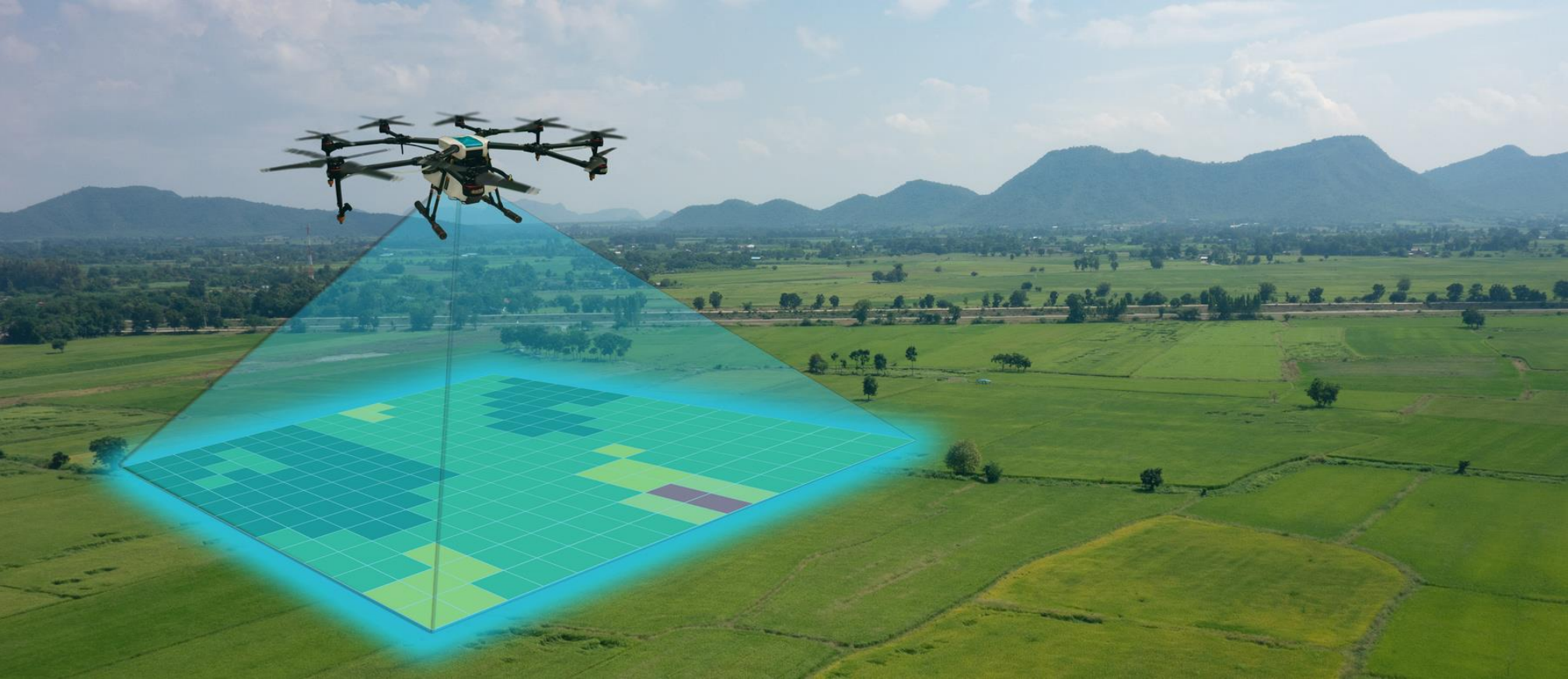
BUSINESS & INDUSTRY SOLUTION
AIRBORNE LOGIC
VIGORMETRICS™ PLANT BASED STATISTICS FOR BETTER FARMING
iAWARDS 2021 SA/NT WINNER

ABOUT AirborneLogic

OUR MISSION

Helping growers effectively use time, money and resources to grow better crops and adapt and respond to climate change
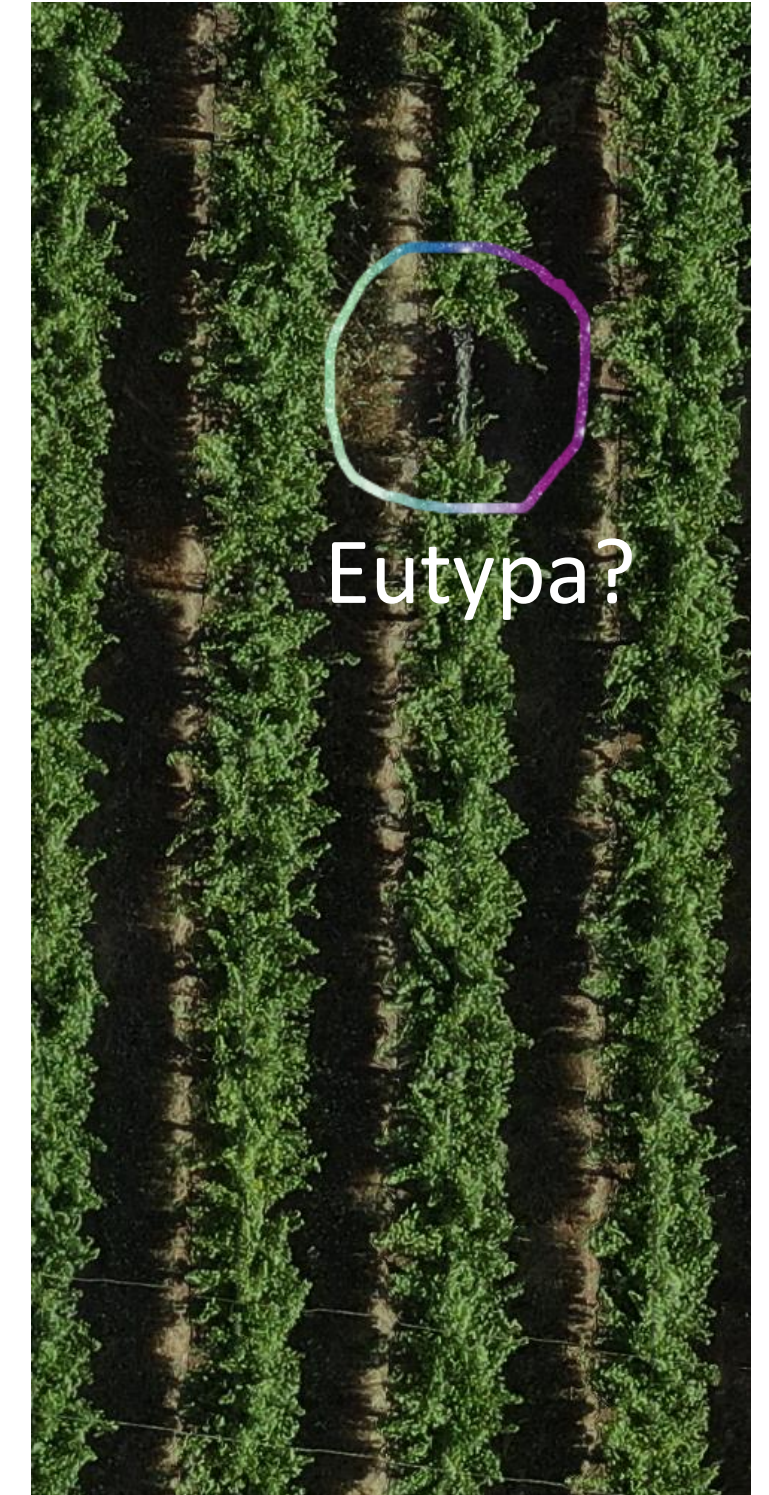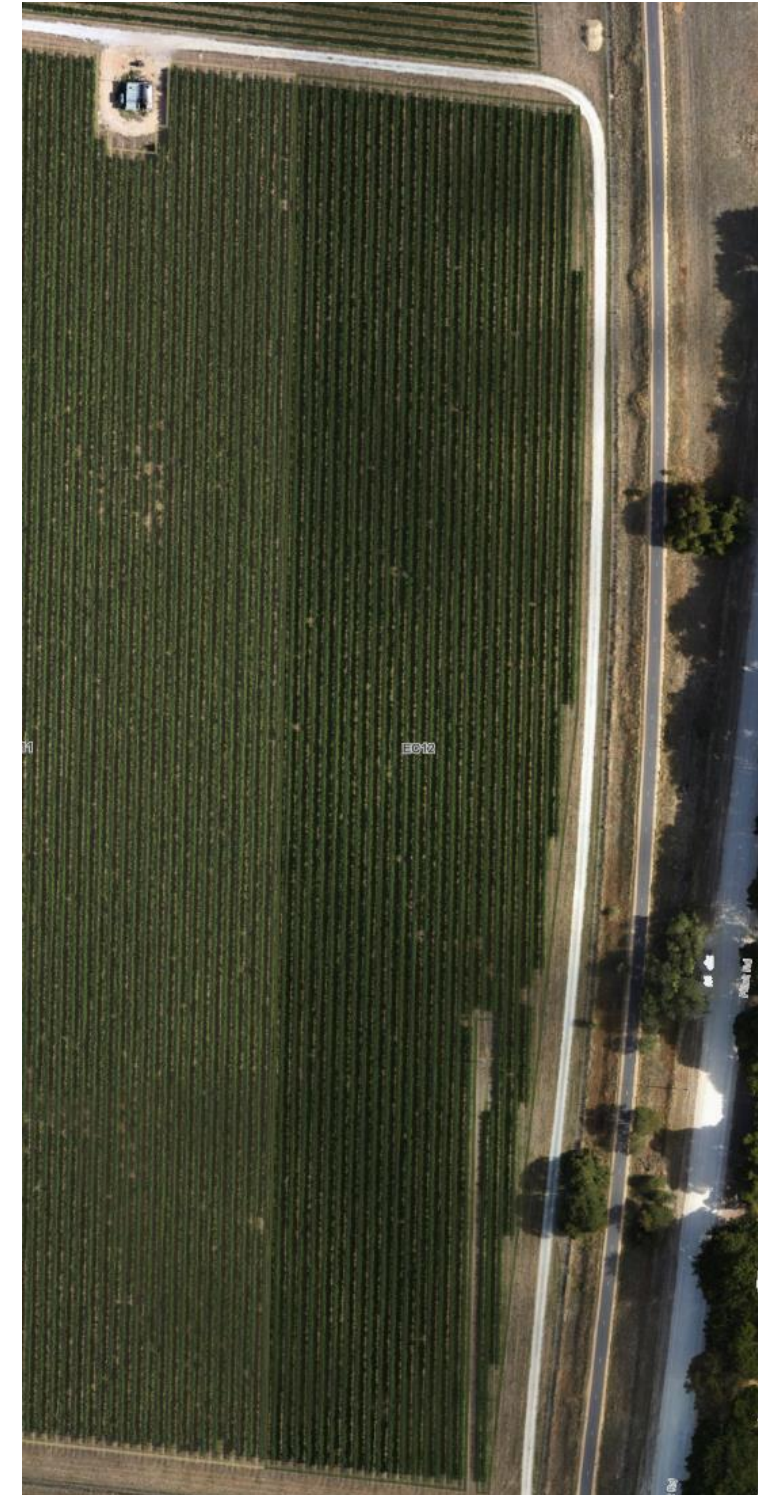
OUR FOCUS

- DETAIL (helping you locate/count whats hard to see)
- SERVICE (+30 years working with agriculture)
- EXPERTISE (helping you get to most from your data)

Eutypa?

AirborneLogic
Vigormetrics™

Drones/planes can collect high detail imagery and remote sensed data on demand that can …

- Detect and display things that are hard to see
- Accurately locate/measure/count/analyse/report........ objects/detail/change over time
- Help you navigate straight to problem areas or points of interest (ala Google maps)

RGB - Asset labelling, location and stock take (desktop and handheld)

RGB - Map land features & infrastructure
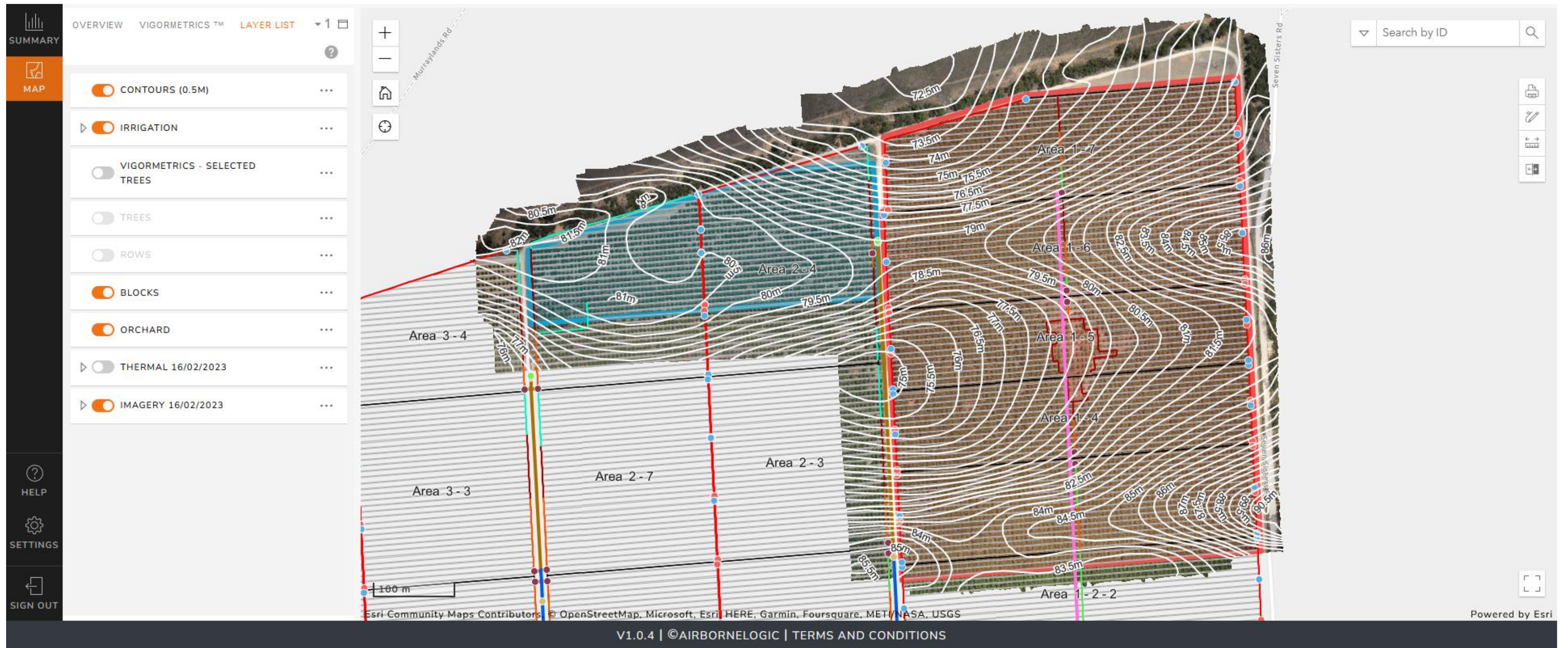
GROWER PORTAL, DETECT PROBLEM AREAS, EASY ACTION

AirborneLogic
Vigormetrics™

RGB Sensors - PLANT COUNTS, CANOPY UNIFORMITY, GAPS, "Change over Time"

Tree Count	
Vine Count	2,544
Total (m²)	11,755
Min (m²)	0
Max (m²)	8.08
Average (m²)	4.62
Standard Deviation (...	1.09

Block Distribution ⓘ ⌄
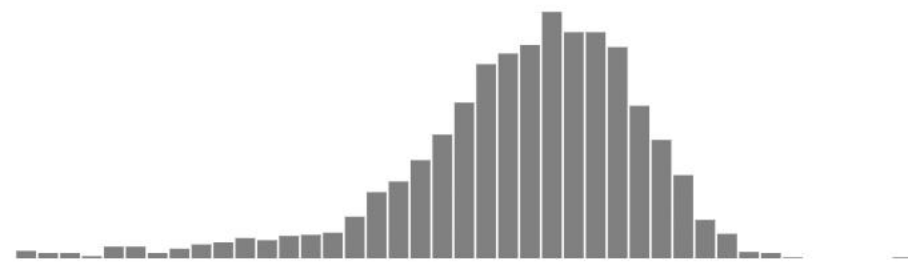
Range Selection ⓘ ⌄
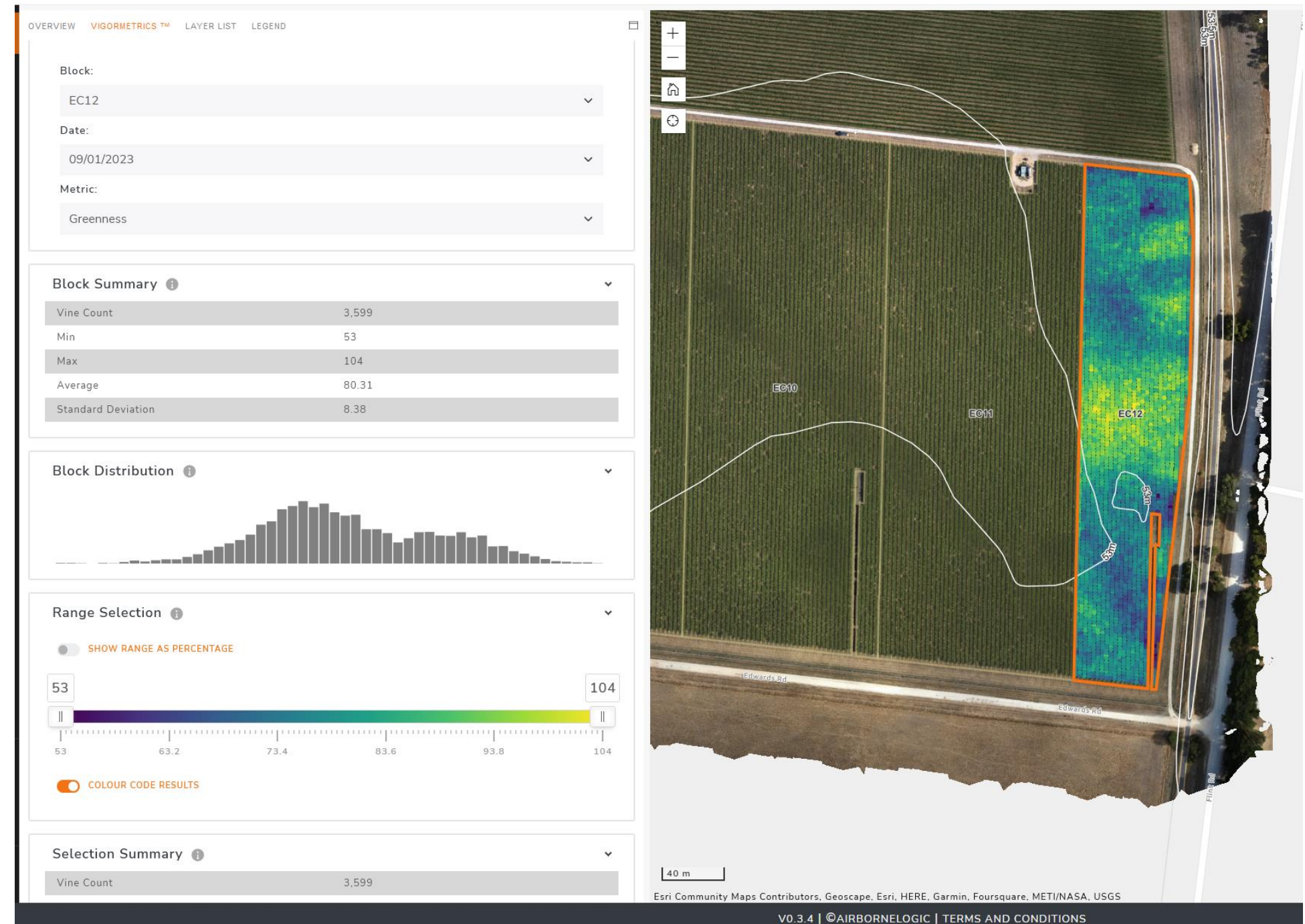
⬤ SHOW RANGE AS PERCENTAGE

0%   100%

Tree/missing count, uniformity (height/volume/area), disease (visual/spectral)

Multispectral sensors– Plant health, nutrition and disease

- Grading quality

- NDVI/Greeness used to assess variability

- Confirmed via spot sampling
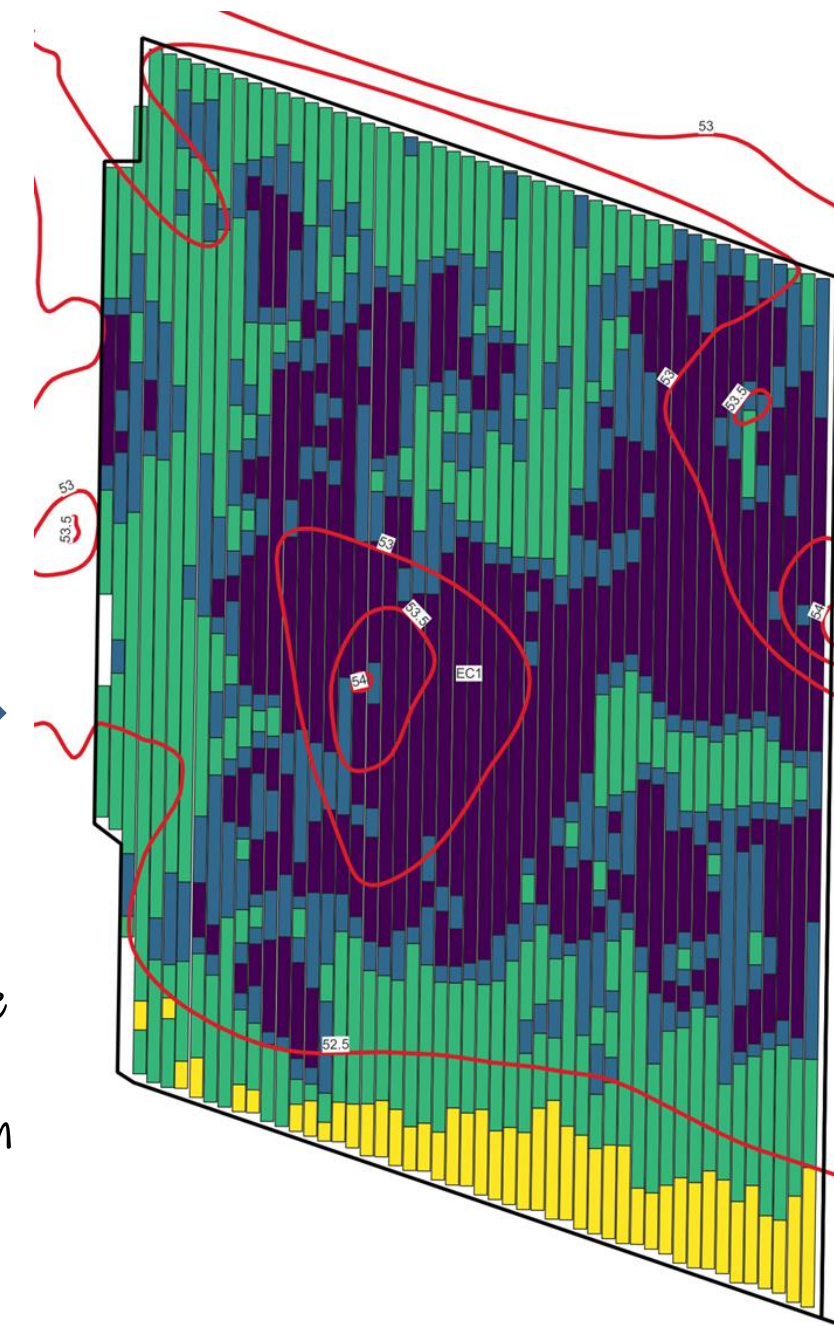
- Records kept to evaluate impact/compare next season

AirborneLogic
Vigormetrics™

ACTIONABLE INSIGHTS

➤ Automated variable rate

applications maps for

mulch/compost
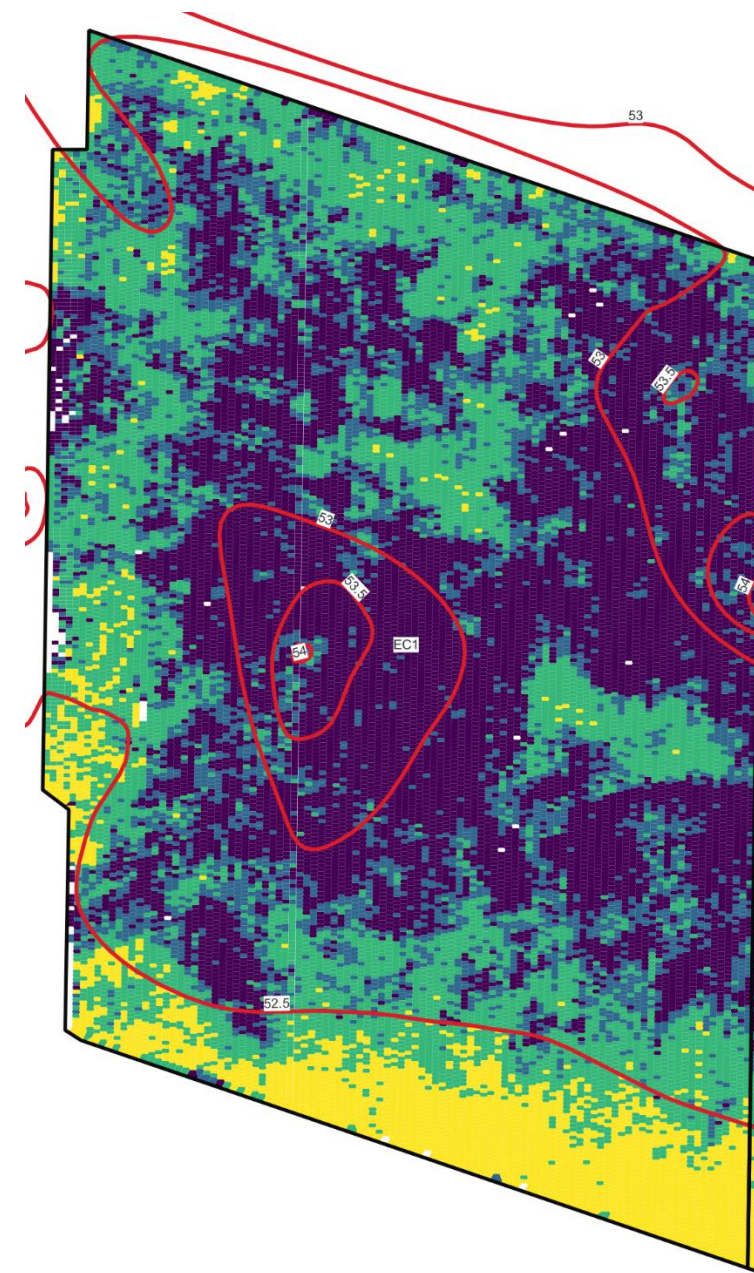
Vigour
maps
converted
to Variable
Rate
Application
Programs

- Records kept to evaluate impact/compare next season
- Block boundaries can be used to turn on/off spray units etc

ACTIONABLE INSIGHTS – Targeting leaks

- Self flown mission

- 26 leaks and blown risers located/fixed

- Workload reduced from 16 to 5 hours (more optimization possible)

- + variability assessments/counts etc
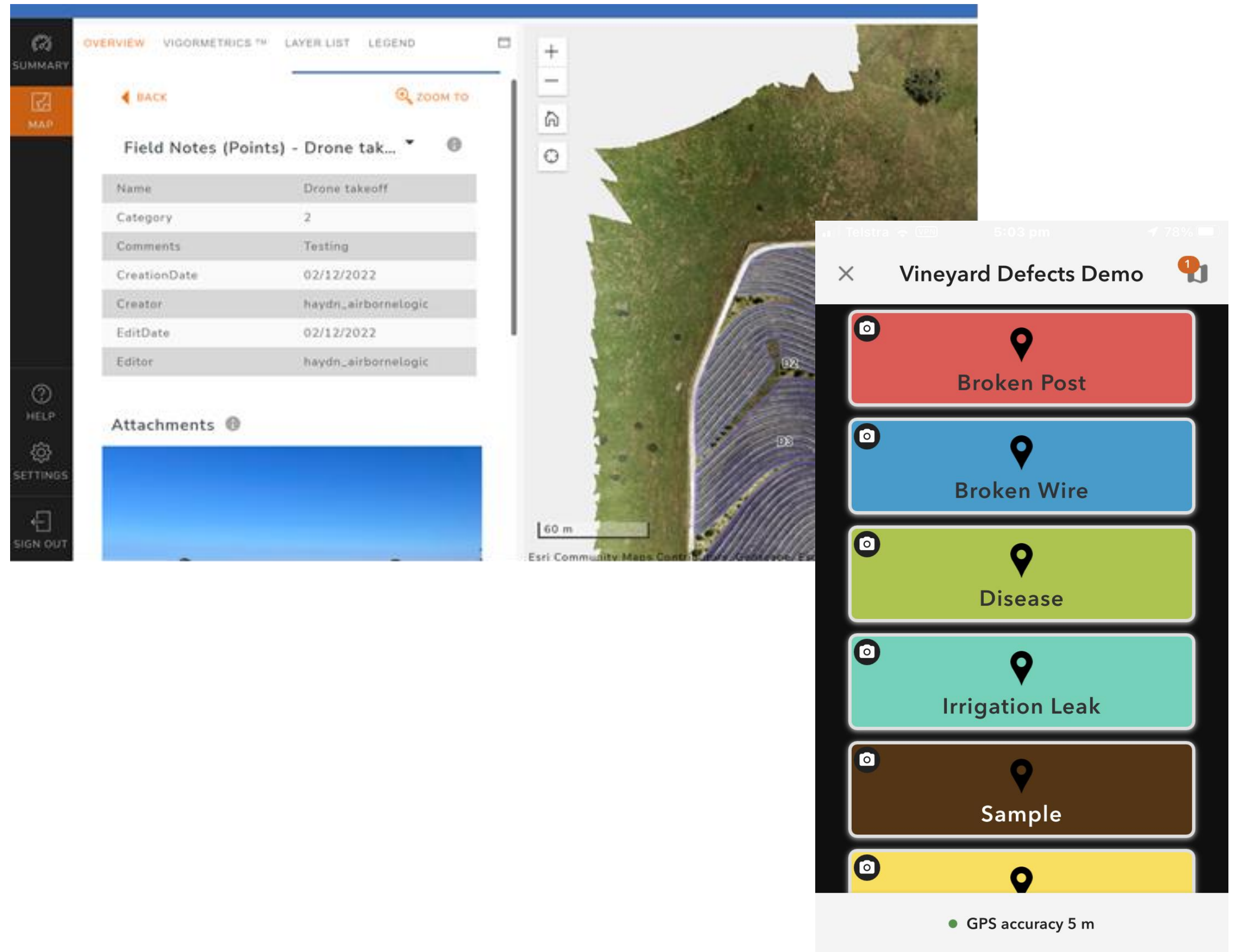
AirborneLogic
Vigormetrics™

Hi Dan and Mike. I have ground truth the map with Avenza on a large and small leak. Large being a blown riser and the small being a missing dripper.
Both took me within 3m of the leaks.
Cheers Chris
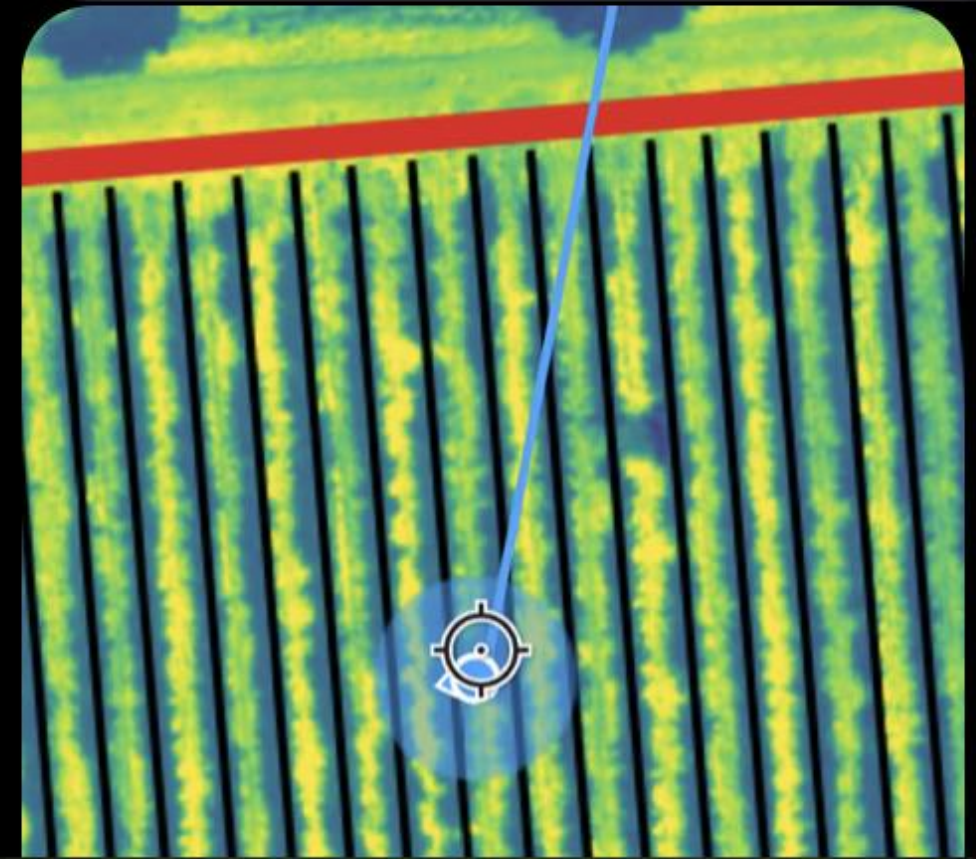
FAST SCOUTING + ACCURATE RECORD KEEPING

- Portable maps (ala Google Maps)

- Add-on Apps

- Digitized record keeping

PLANT ID, USING HYPERSPECTRAL IMAGING
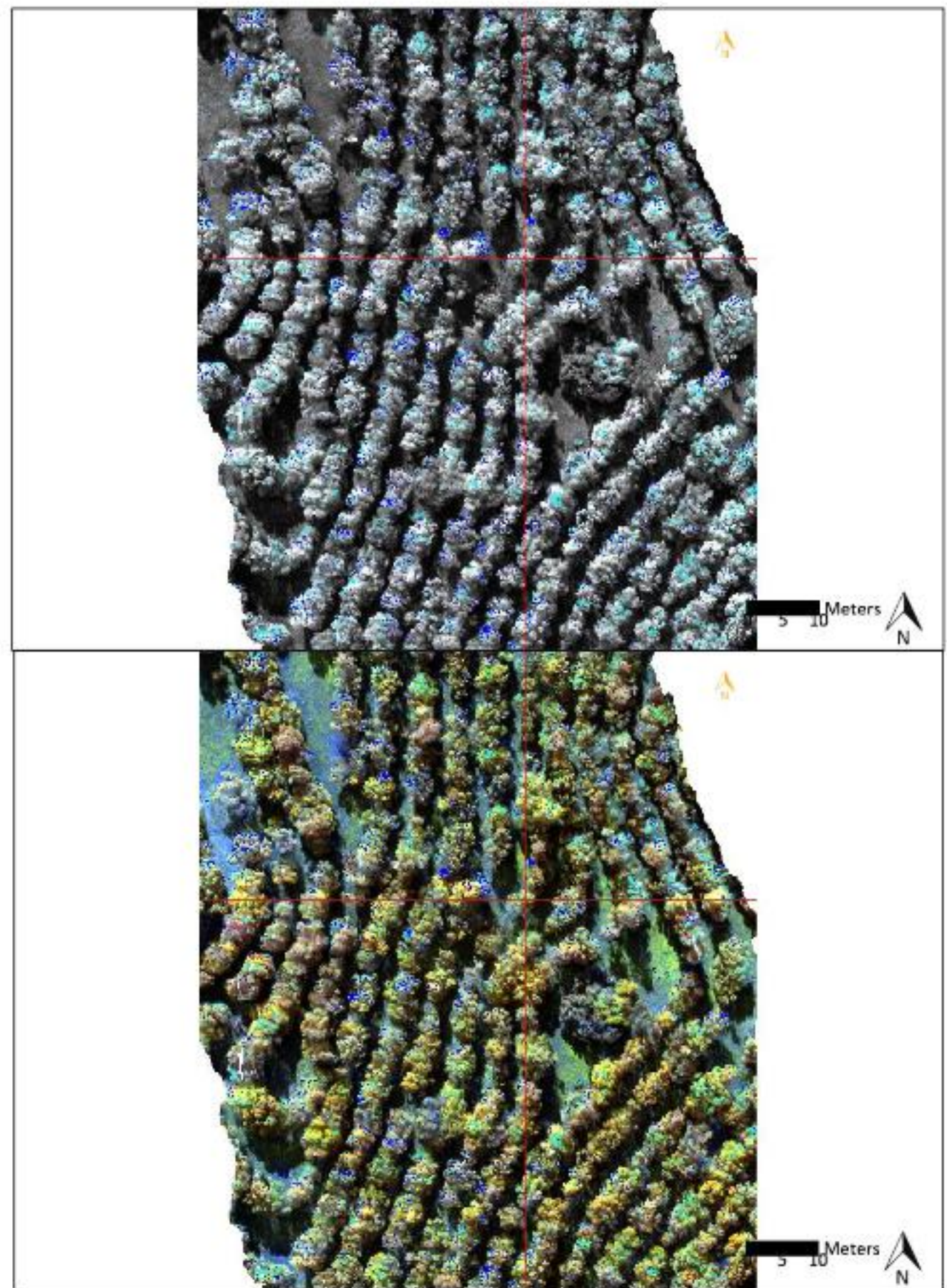
SPECIES DETECTION, SPECTRAL SIGNATURE

Figure 14 - ACE classified tree species discrimination: cyan areas: Eucalyptus diversifolia; Blue areas: Eucalyptus leucoxylon. Top: greyscale backdrop image of band 834nm, Bottom: false colour composite wavebands (446nm, 716nm, and 834nm).

AirborneLogic
Vigormetrics™

OPTIONS

- We Fly
  - Large selection of High precision instruments (cameras, thermal, hyper and multi-spec sensors)

- You Fly
  - Share a drone
  - Fly when you want
  - Reduced cost over time
  - Use for other purposes

- Quick turn-around

AirborneLogic
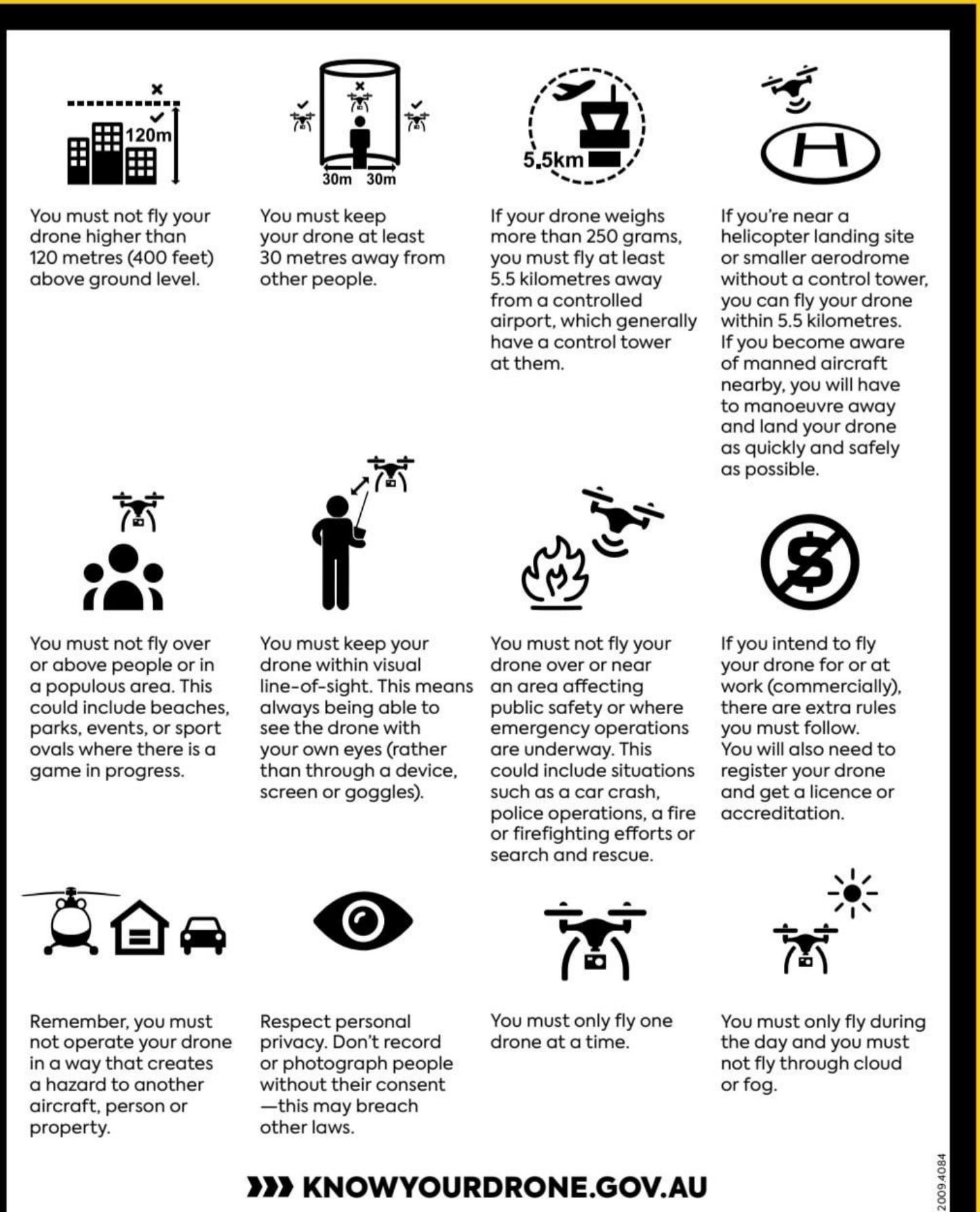Vigormetrics™

COST OPTIONS

Processing packages include:

- Set-up support

- Bulk discount

- RGB with thermal or multi

- Assistance with file conversion for other use

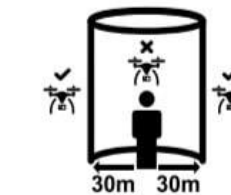 (e.g. GIS, Tracmaps, spray units, self-drive

  machinery etc)

AirborneLogic
Vigormetrics™

Pricing List and Options

Service	Description	Cost (Excl GST)
Assistance with drone purchase	Provide advice and assist with selection of drone/s – assist securing discount from suppliers	$500
Grower portal licence	12 months subscription (+ support) annual	$1,600
Field Maps App	12 months subscription (+ support) annual	$550
AirborneLogic property base mapping set up	Base map set up and load to portal ready for repeat flights by either AirborneLogic or "Fly your own"	$35/HA
Fly Your Own (RGB+Thermal)	Process RGB and Thermal image data, load to portal and provide analytics • Single flight • 2-4 flights • 5+ flights	• $15/HA • $13/HA • $11.50/HA
Fly Your Own (RGB+Multi)	Process RGB and multispectral image data, load to portal and provide analytics • Single flight • 2-4 flights • 5+ flights	• $18/HA • $15/HA • $13.50/HA
Repeat flights by AirborneLogic	RGB and Thermal, flown + loaded to portal	$24/ha
Repeat flights by AirborneLogic	RGB and Multispectral, flown + loaded to portal	$27/ha

PLANT COUNTS, CANOPY UNIFORMITY, DISEASE

ACTIONABLE INSIGHTS – Targeting variability
- Grading quality
- NDVI/Greeness used to assess variability
- Confirmed via spot sampling

CONSIDERATIONS

- Drone types and sensors (what fits your needs?)

- Get trained (RePL) ~ 4 days (+$1800)

- Talk to CASA (When a ReOC is required)

- Ethics – consult with your neighbors to avoid any

  issues

AirborneLogic
Vigormetrics™

OUR EXPEREINCE

- Flying since 2019
- \>100 missions
- Tested many variables, sensors, processing methods

TIPS
- Check local air traffic
- Draw flight plans before onsite
- Make sure you use RTK (do your research on service and correction streams - STARLINK)
- Watch out for birds!!

AirborneLogic
Vigormetrics™

CASE STUDY - AMADIO

ACCURATE VINE COUNTS PROVIDE 80% ROI ON COST OF DATA CAPTURE ALONE

- Ability to separate out individual vines used to update area under production statistics
- New vine counts amount to +7000 less than originally recorded
- Results ground-truthed in multiple regions throughout the vineyard
- Total savings in pruning costs ~ $5 700
- Further ROI achieved via optimal application/spreading of compost to most "in-need" areas + targeting low producing vines
- Improved ability to review vineyard status remotely (offices are ~ 80 km away) – better joint decision-making ability with the client

CASE STUDY - HILL RIVER CLARE ESTATE

3 YEARS - 2020-23

200 Ha survey - conversion from paper to digital maps, seasonal canopy analysis + assessment of "change over time"

PORTAL DEVELOPMENT

Collaboration/support partnership

BENEFITS

- Reduced time/increased accuracy targeting low productivity areas (> productivity by 10T)

- Increased precision in locating problems (workload reduced from days to 1 hour)
- Improved reporting for bank valuation
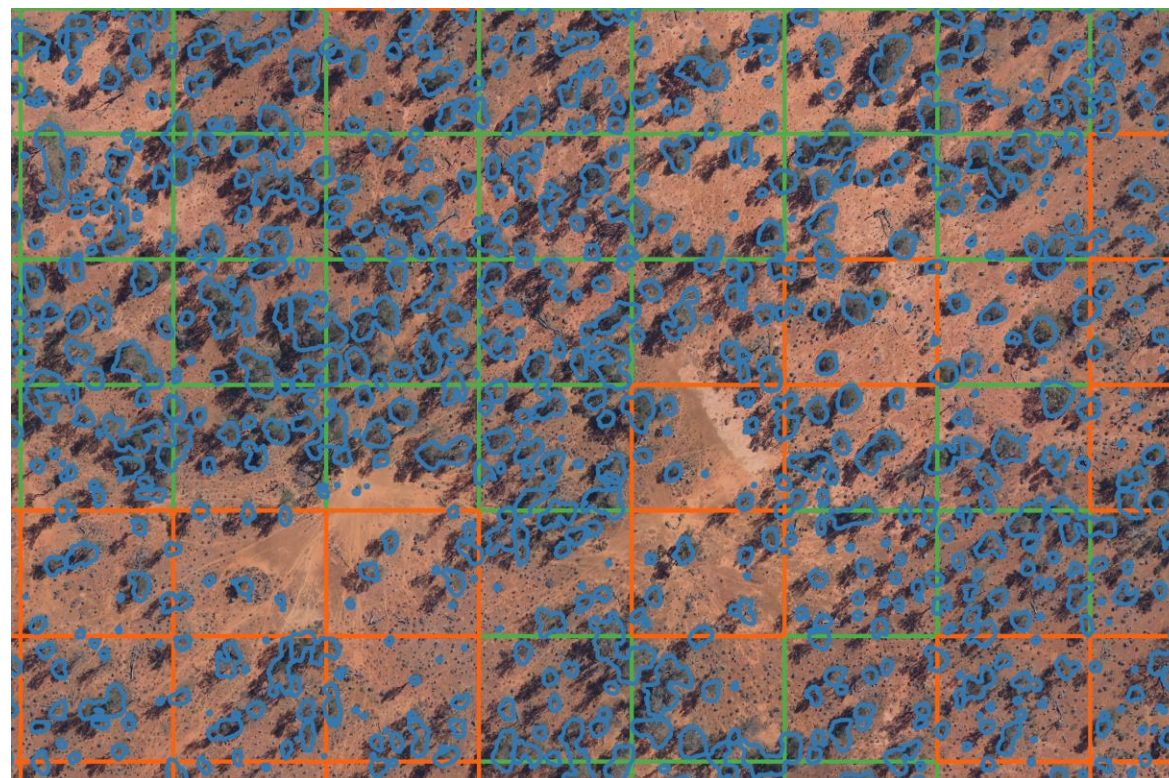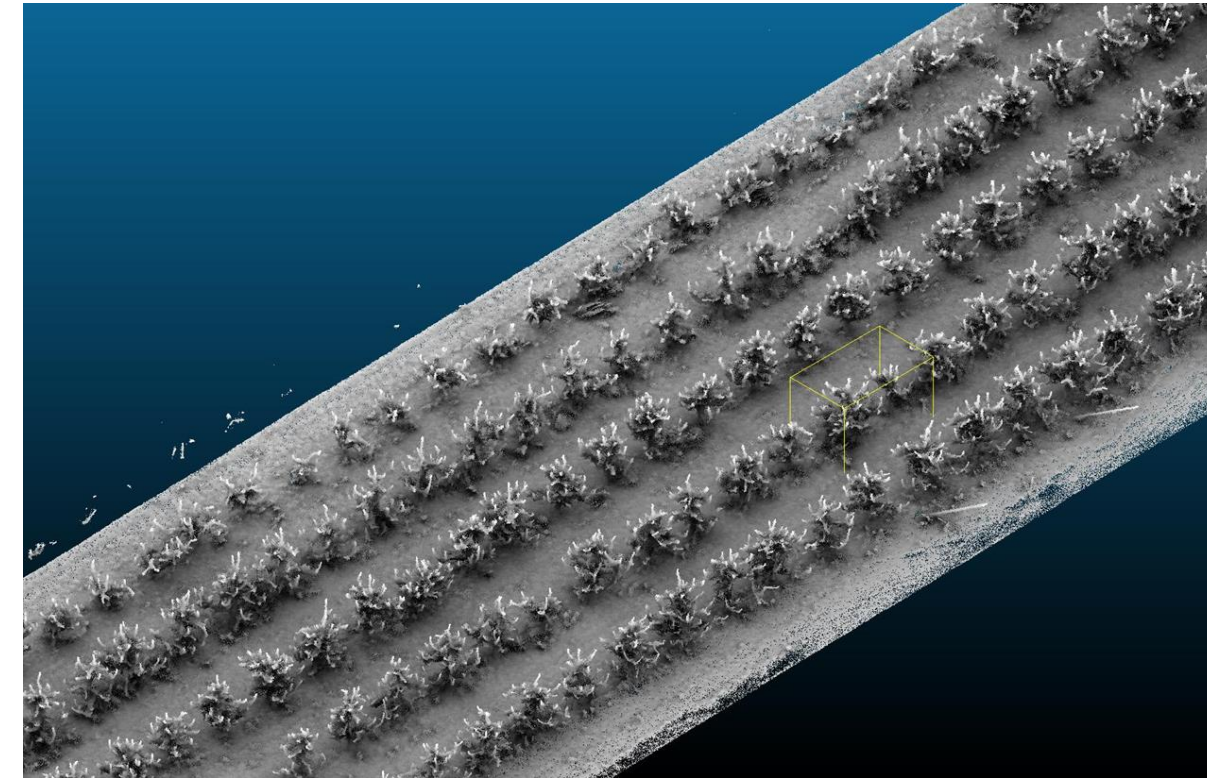- Reported improved decision making and time saved (yet to be quantified)
- Targeted support for tech adoption

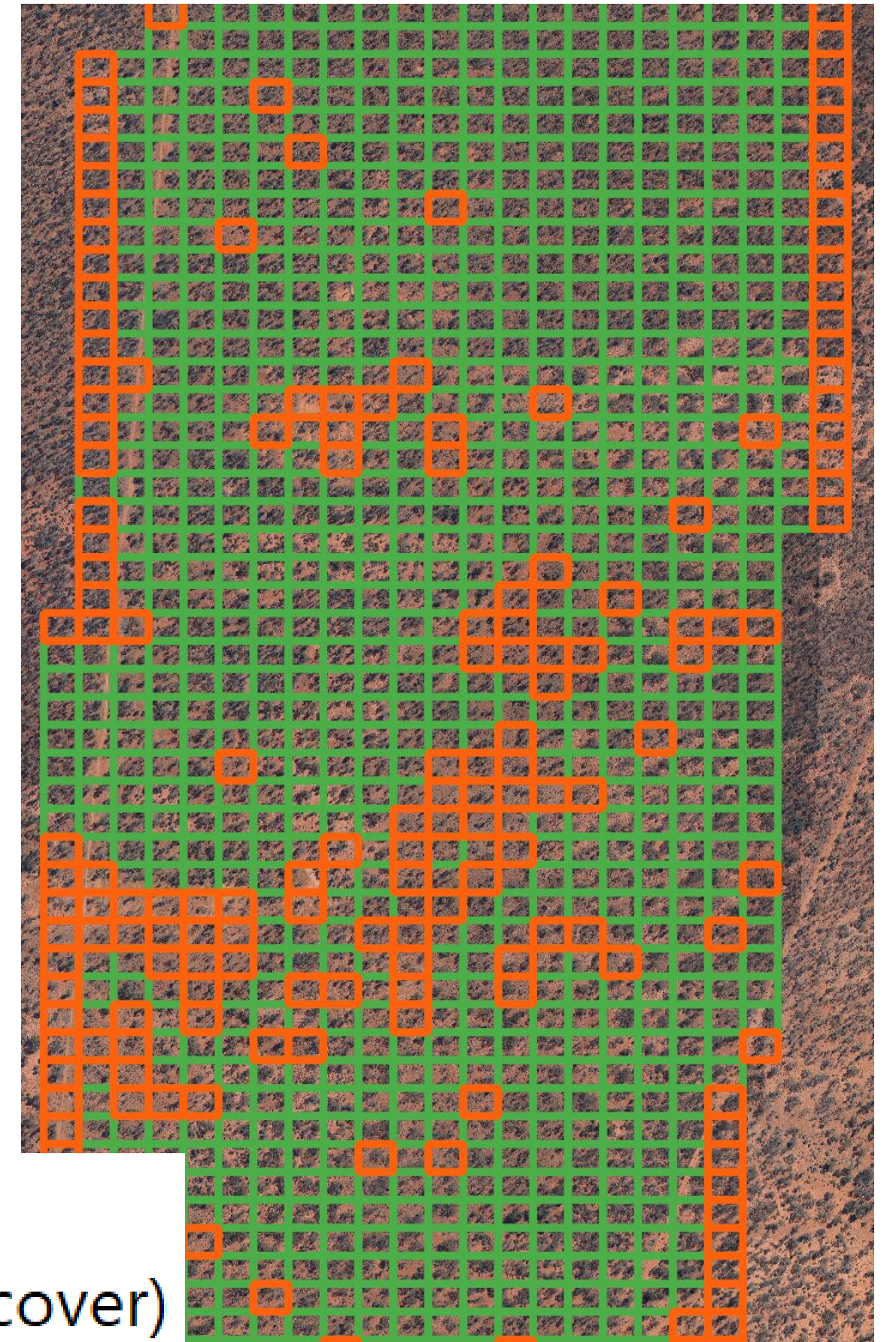READING BETWEEN THE VINES – EPISODE 6
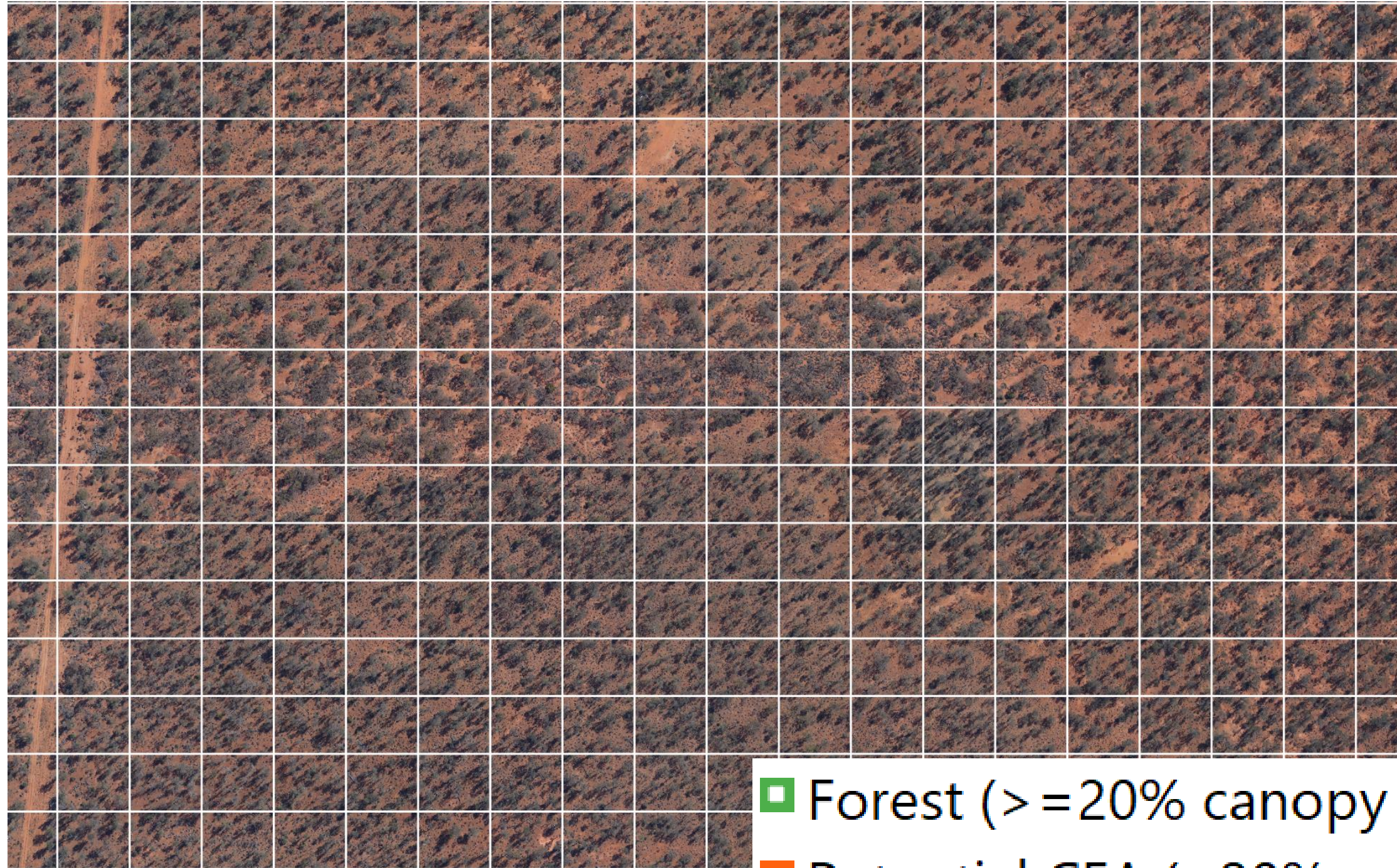https://www.wineaustralia.com/news/articles/reading

CARBON/BIODIVERSITY - Accurate measurement for benchmarking + reporting

CARBON FARMING, GIS & SCRIPTING

☐ Forest (>=20% canopy cover)
☐ Potential CEA (<20% canopy cover)

AirborneLogic
Vigormetrics™

WHAT'S NEXT ?

CARBON & BIODIVERSITY

o ACCURACY AND VALIDATION

o AI AND MACHINE LEARNING

o LARGE-SCALE, LOW-COST IMAGE CAPTURE

o DATA FUSION - RGB, LIDAR, HYPERSPECTRAL

AirborneLogic
Vigormetrics™

CONTACT US

![AirborneLogic logo]

ADDRESS

Room 108 ThincLab Waite Hannaford
Building Waite Campus
URRBRAE South Australia 5064

EMAIL

dan@airbornelogic.com.au
andy@airbornelogic.com.au

PHONE

+61 (0) 400 759 245 (Dan French)
+61 (0) 419 817 205 (Andy Chambers)