# UTILISING DRONES IN PRECISION AGRICULTURE

**DRONES 1**

**2019** EDITION

# UTILIZING DRONES IN PRECISION AGRICULTURE WILL PROVE TO BE A CRUCIAL TOOL IN ADDRESSING GLOBAL FOOD SUSTAINABILITY

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With the world's population projected to hit 9bn by 2050, agricultural production will need to increase by around 70% to satisfy this anticipated growth.

Farmers and agronomists must embrace revolutionary technologies such as drones in order to meet this increasing demand, all the while keeping production sustainable.

## A GRADUALLY RELAXING REGULATORY ENVIRONMENT, COMBINED WITH TECHNOLOGICAL DEVELOPMENTS, WILL ENSURE DRONES ARE PART OF THE SOLUTION
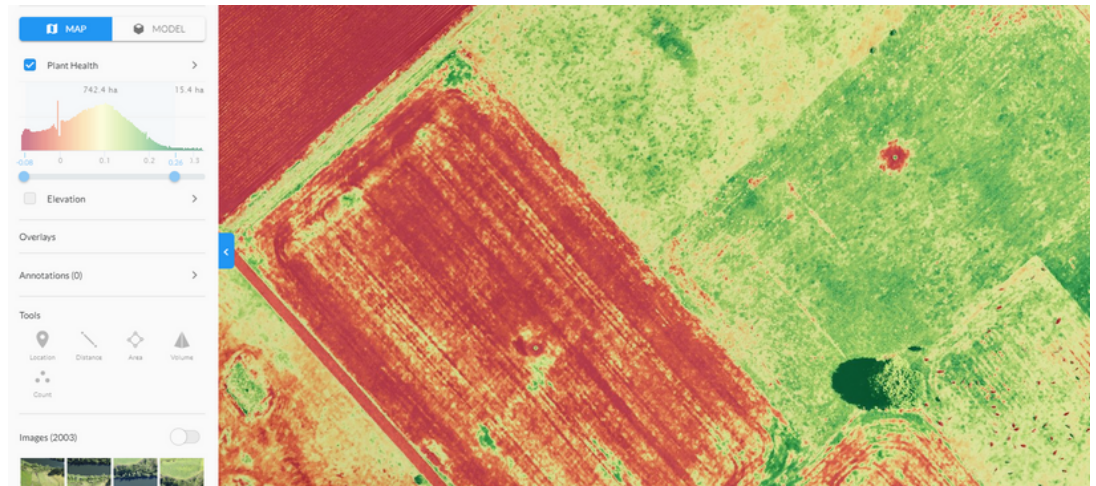
# CROP HEALTH MONITORING

Our fully automated drone aerial surveys provide you with a cost effective way to gain a holistic view of your farm.



Our multi-spectral cameras, when combined with NDVI and VARI algorithms, reveal crop health variability throughout your farm. These precise geo-referenced models allow growers to diagnose and pinpoint specific issues in their crops before they spread. Similarly, these multi-spectral images can be used to identify and assess the severity of certain pests and infections, enabling swift intervention.

**THIS DATA ULTIMATELY ENABLES FARMERS AND AGRONOMISTS TO LOCALIZE THE APPLICATION OF FERTILIZER, INSECTICIDES AND FUNGICIDES. THIS REDUCTION IN WASTE ULTIMATELY REDUCES BOTH MAN HOURS AND INPUTS. IT IS THIS THAT PROVIDES YOU WITH A REAL RATE ON INVESTMENT.**

## SOIL ASSESSMENT

Drone aerial surveys can be employed to extract soil characteristics, variations and patterns not visible from the ground. These characteristics can include temperature, moisture, slope, elevation and more. This data set enables growers to conduct more appropriate soil sampling and produce more suitable seeding prescriptions.

## IRRIGATION MANAGEMENT

By combining thermal and regular imagery we can deliver a clear tool with which to manage your irrigation. This allows for the detection of potential pooling or leaks in irrigation, issues that may not be detectable with simply the human eye on the ground.

The high-resolution models and images can be used to help write Variable Rate Irrigation (VRI) prescriptions or just simply adjust your irrigation management.

## PLANT EMERGENCE AND POPULATION

Farmers and agronomists are increasingly using the data from drone aerial surveys to better understand crop emergence patterns as well as population and spacing metrics. This data drives both replanting, thinning and pruning decisions.

DRONES ARE QUICKLY BECOMING AND
INDISPENSIBLE TOOL TO HELP YOU
BECOME MORE EFFICIENT IN THE FIELD.

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OUR AERIAL SURVEYS PROVIDE
FARMERS AND AGRONOMISTS
WITH REAL-TIME ACTIONABLE
DATA, ENABLING THE SWIFT
IDENTIFICATION OF ISSUES AND
IMPROVING CROP MANAGEMENT
DECISIONS.

## THE PROCESS

Our professional grade drone will a complete a fully automated flight of your entire farm during which it will be collecting and geo-referencing both RGB (visible) and multispectral (non-visible) imagery.

Time for you to sit back and have a cup of tea whilst the drone completes its flight!

All the while the drone will be transmitting a live-feed to wherever it is you are stationed.



## POST-FLIGHT

Once the mapping is complete we process this information in our advanced terrain modelling software. From this we can create a fully interactive 3D model of your site with sub-2cm relative horizontal and vertical accuracy.

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This 3D model can be shared to you via our cloud platform where it can be accessed remotely by all parties involved, wherever in the world they may be.
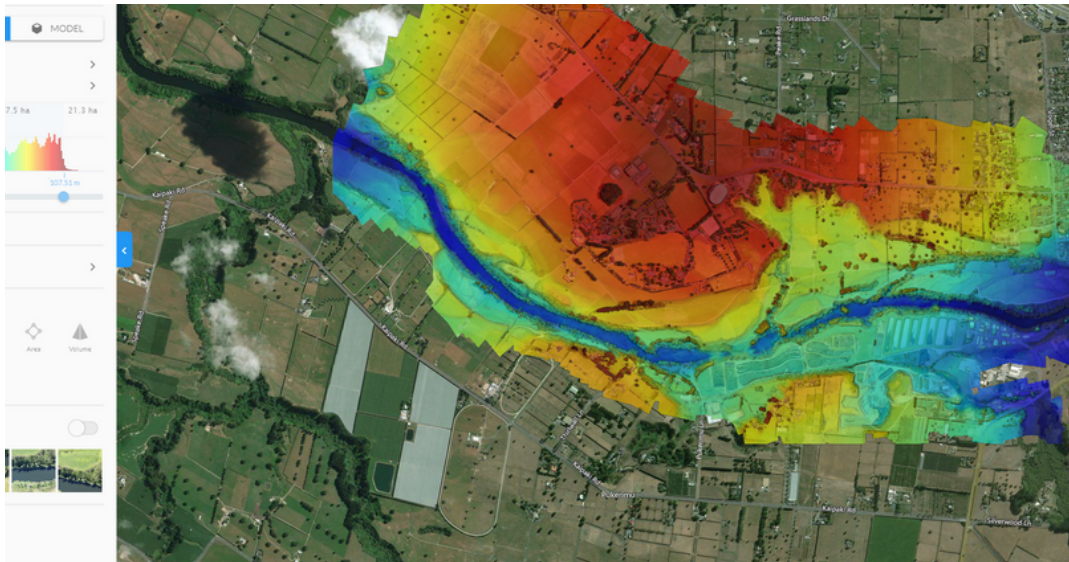


This overview of your farm provides you with a rich data set for analysis. This data can range from elevation and distance measurements, to thermal imagery, and to crop health variances measured using our NDVI and VARI algorithms.

Throughout the year multiple aerial surveys should be conducted, allowing you to monitor the progress of your crops, enabling targeted fertiliser application and reducing labour and input costs.

**ULTIMATELY OUR AGRICULTURAL AERIAL SURVEYS AND ANALYTICS PROVIDE YOU WITH THE INFORMATION AND INSIGHT TO HELP YOU BECOME MORE EFFICIENT IN THE FIELD AND IMPROVE YOUR CROP MANAGEMENT DECISIONS.**
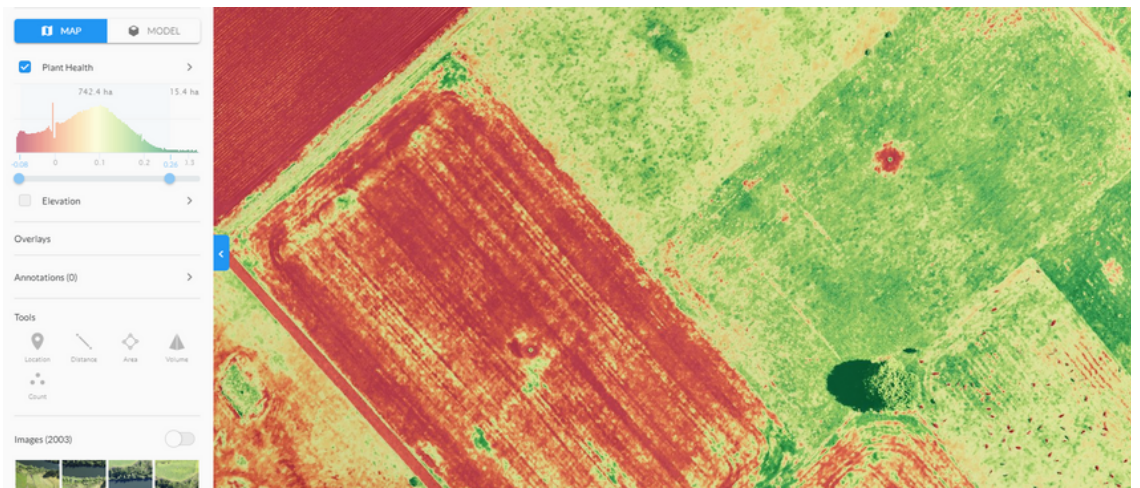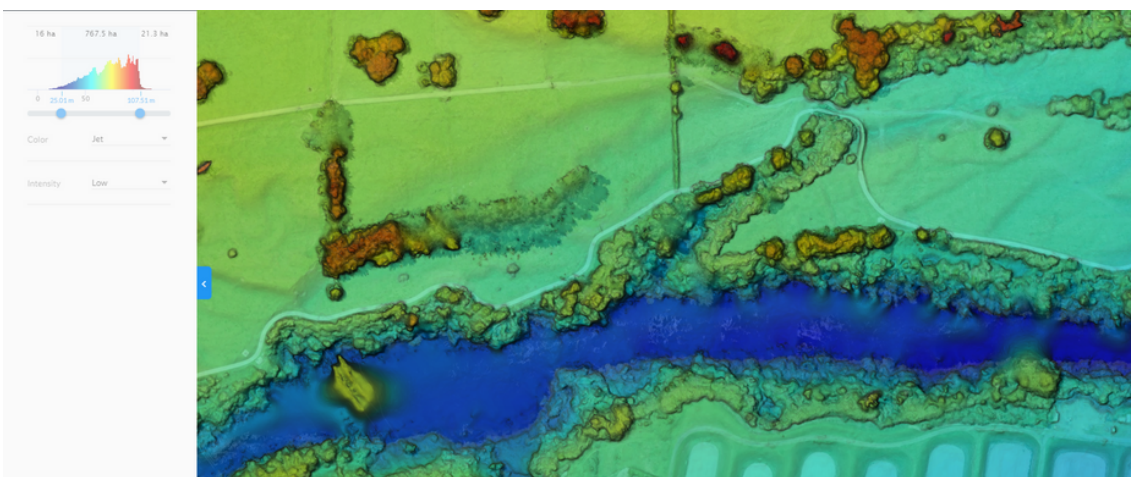
# INTERACTIVE 3D MODEL



# CROP HEALTH MONITORING



# ELEVATION AND TERRAIN MODELLING

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