



# Citrus Case Study

Citrusdal, WC

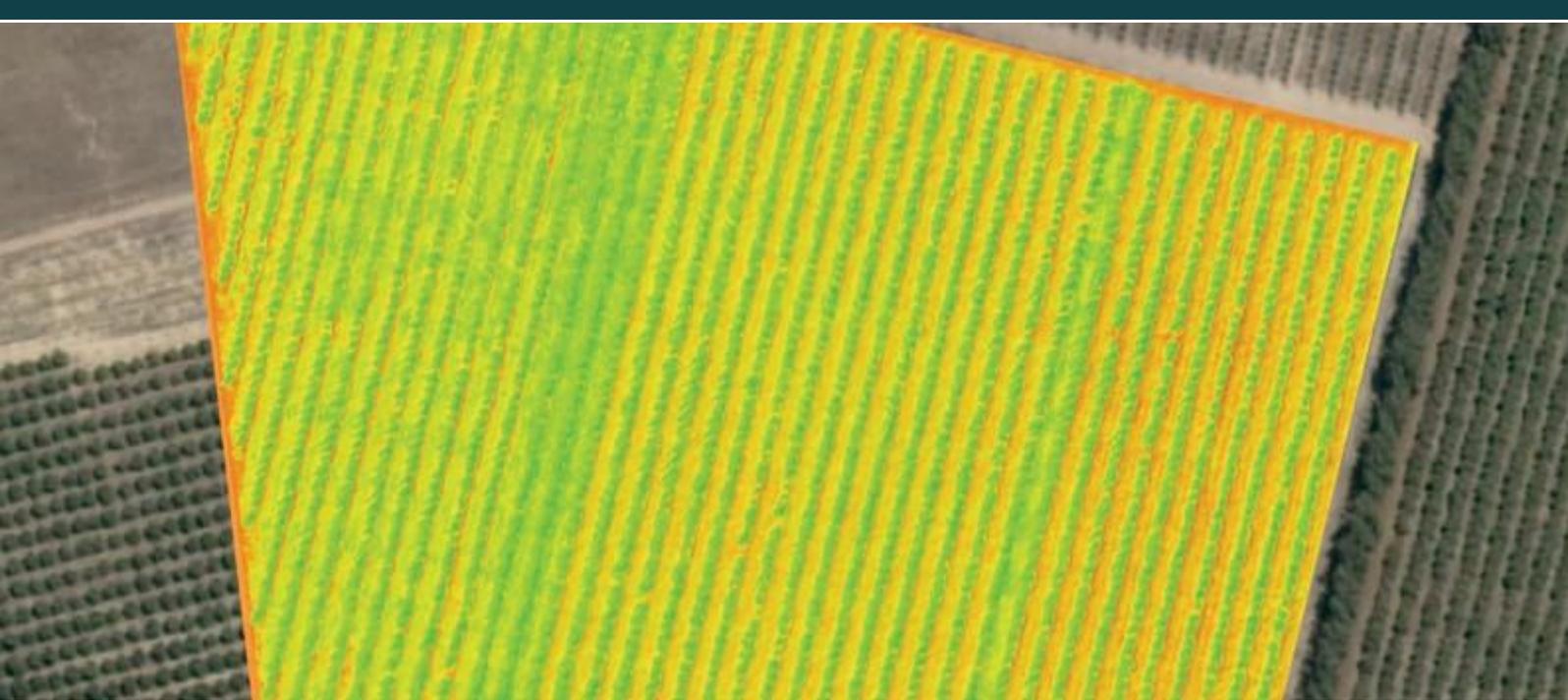
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## Summary:

- 187 Ha - 1 flight
- 17 Minutes of flight and sensing
- 48 Hour turnaround time
- Found various areas where chemicals were misapplied
- 6% Saving on agri chemicals
- 85% Savings on time



## **A question of variability**

The client was a major agri-distributor in the Western Cape, contracted to multiple farms and businesses in the region. Testing the use of the technology, and DroneClouds, was thus an important step to deciding whether he could recommend the service to his clients.

The client has a large contract with one of the major citrus exporters located in the Citrusdal valley of the Western Cape. Managing the spray program for a large farm with multiple cultivars, and determining variability in a single orchard is of great importance, but takes a lot of time, and requires large teams of labourers. The field visits leave a measure of variability in observations, though, causing miscalculation when spraying specific rows and/or trees. This means that certain rows, or even whole blocks, may be miscalculated due to field visits only covering about 1% of the orchard. And making a call on only 1% of all data? That is a risky bet when your future depends on it.

## **A multi-prong approach**

Considering the large farm footprint, a combination of drone and satellite imagery made the greatest sense. First new satellite data of the area was tasked and captured, thereafter a single drone was used to fly key “focus areas” to ascertain the health and phenological stadium of individual trees, while creating a 3-dimensional model of the orchards, trees and leaf structures. These would help calculate runoff (from the spraying method), and highlight where small differences in the terrain or tree structure may cause misapplication of the necessary chemicals.



## Visiting a whole orchard in under 20 minutes

After the satellite survey, seven blocks were chosen with different cultivars. One of the blocks was performing well, while the others had fluctuations in yield over the past few seasons. Field inspection of these blocks would take an average of 4 days.

While putting the eBee drone over the area with a Near-Infrared (NIR) sensor, the data was confirmed by a short field visit. This allowed the team to ensure the scientific veracity of the collected data after processing.

Once the data was processed, an unexpected bonus was found: the lemon block (which was located on the north of the study site) had shown good health. The field workers had not yet reached there, and the farm manager was preparing to spray a heavy dose of (unnecessary) strengtheners to ensure the good health of the block.

Various areas of spraying adaptation was pointed out, and the cutting of new “spray windows” for specific trees could be indicated on a tree-by-tree basis. All of that from a quick phone call, a single satellite image, and a 17-minute drone flight.

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