



Monitoring tree crops through Earth Observation data



Science and Technology Facilities Council

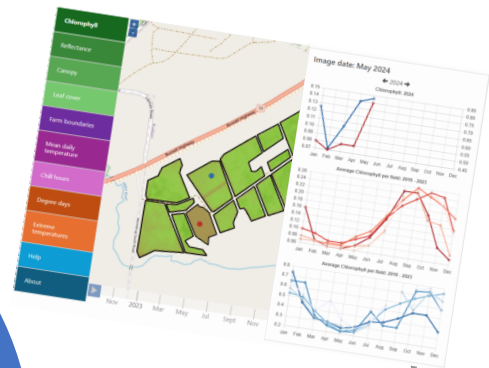


Fruit Sense has begun the groundwork to adapt existing tools and techniques used to remotely monitor grain crops to measure fruit tree crops. Data from Earth Observation satellites have the potential to allow remote monitoring of tree crop health at paddock scale and on a weekly basis through measurements of plant biophysical parameters.

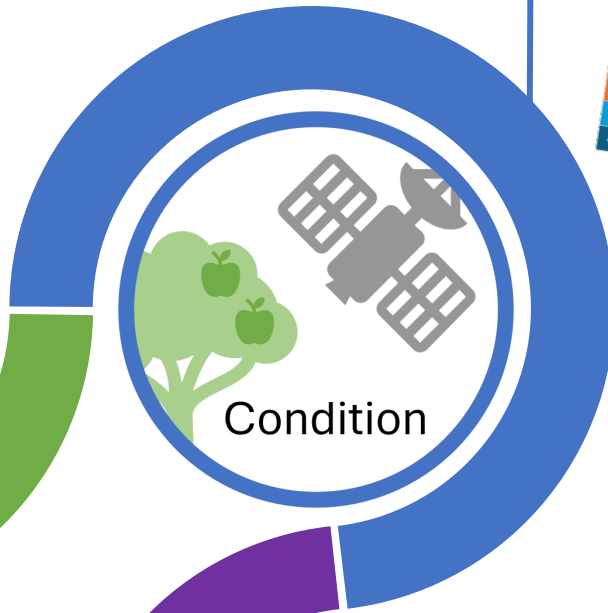


Images from the Sentinel spacecraft were used to train an algorithm to automatically map locations of apple, olive, avocado, grape and citrus farms in Western Australia.

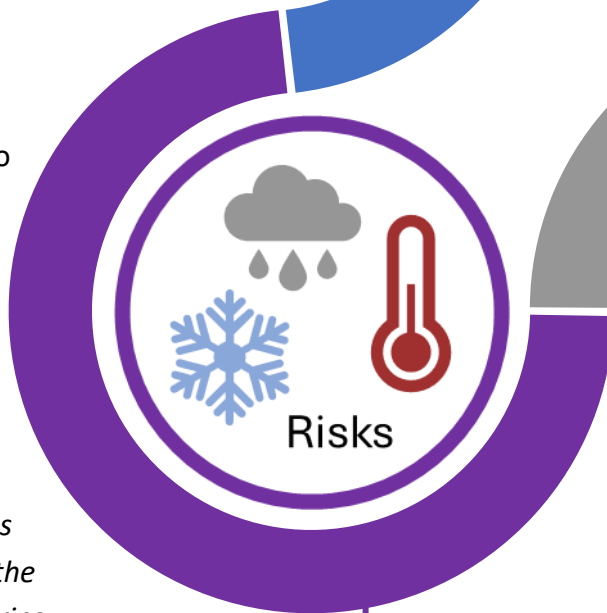
Analysis of fieldwork data showed chlorophyll and fruit count were correlated, suggesting that yield can be estimated remotely from satellite images.



Fieldwork was carried out at two sites in Western Australia, monitoring chlorophyll content and yield of avocado trees.



A web platform was created for farmers to visualise plant health and climate trends.



Analysis of climate data showed an increase in temperatures over recent decades. This has led to a decrease in winter chill hours in parts of southern Australia and Tasmania.



Photos from the field trips



Future Work

Fruit tree crops bring unique challenges, as their planting arrangements vary, which introduces spatial complexity in their analysis using satellite imagery.



Further fieldwork is needed to establish the relationships between field measurements and satellite observations of chlorophyll content and yield.



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