

COPERNICUS FOR EFFICIENT FARMING IN THE WESTERN CAPE OF SOUTH AFRICA

The Western Cape of South Africa, including Cape Town, is experiencing a severe drought. With local farmers needing to become water-wise, FruitLook is the tool being used to aid this.



200,000ha of vineyards and orchards are monitored by FruitLook on a weekly basis

The challenge

Droughts are making agriculture increasingly vulnerable and it is expected that the impact of droughts will increase due to climate change. In the Western Cape of South Africa a severe drought is currently affecting two of its biggest industries: fruit and wine production. These industries are of huge fiscal importance—representing almost a third of the province's exports – so optimizing their production whilst minimizing the ecological impact is both an economic and environmental gain. The Western Cape Department of Agriculture (WCDa) stimulates the efficient use of (water) resources in farming via an innovative approach. In cooperation with the Dutch company eLEAF, FruitLook was created. www.fruitlook.co.za is an online platform to monitor vineyards and orchards, building on frequently updated satellite imagery and weather information.

The space based solution

The starting point to improve water use efficiency is knowing how much water is actually consumed through crop production. In agriculture, this is described as actual Evapotranspiration (ETact). Reliable information on ETact is difficult to obtain since in situ measurements are complicated,

expensive and do not show any spatial variation. This is where FruitLook comes in.

Via FruitLook, available since 2010, farmers have access to the latest satellite information technologies to analyse crop growth and water consumption over time and space. The use of Sentinel-2 satellite data is pivotal for the production of FruitLook's weekly data products. FruitLook services an area of 9 million ha, including 200,000 ha of fruit crops. The data is available via the web portal and can be accessed on a field-by-field basis. Local partners support farmers in the successful uptake of the service. FruitLook offers nine different information data sets, from biomass production showing how well the crop is growing to an evapotranspiration deficit parameter indicating whether crops are experiencing stress.

Farmers access the data at no cost, as the service is fully funded by the WCDa. As such, WCDa provides the information infrastructure to move the local agricultural sector forward.

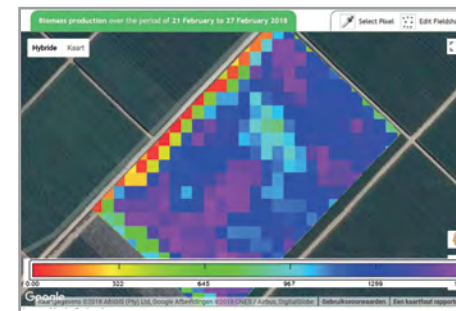
Benefits to Citizens

The current drought in the Western Cape is deemed the worst in more than 100 years.

“FruitLook helps farmers understand their water use efficiency on and between their orchards and how they respond to irrigation and climate changes throughout the season by giving the grower a visual presentation and record.”

Anton Muller, Technical Manager KROMCO, one of the largest deciduous fruit packing facilities, Western Cape Province of South Africa

Under these circumstances every drop literally counts.



Variation in crop growth captured in a table grape block

With FruitLook farmers are empowered to make better management decisions which are reflected in the efficiency and productivity of their water use. Farmers use FruitLook to monitor crop development, detect and locate growth problems, evaluate and improve water management and generally optimize resource use. And with success: the water use efficiency of FruitLook users has already increased by between 10% and 30%!

Making better informed decisions not only saves water, but can have other beneficial environmental impacts as well. It enables

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producers to understand what is needed when and where. For example, with FruitLook farmers can identify disease infected parts of a block quite accurately. By spraying only infected parts of a block, pesticide application is substantially reduced, saving costs and reducing environmental impact.

The agricultural sector is an indispensable component of the local economy in terms of employment opportunities and general livelihood. FruitLook provides crucial information services to make this sector more sustainable and robust. It is therefore no wonder that FruitLook is a flagship project for the Western Cape Government.

Outlook to the future

A changing climate, increased competition for water and rising input costs means farmers worldwide need to attain higher yields with fewer means to do so. Information from advanced technology is necessary to address this challenge. Pixel Intelligence Mapping technology, which forms the backbone of FruitLook in creating smart data products, is applicable on any land surface on the planet. This technology provides a huge potential aid to agriculture and water management worldwide.

Acknowledgements

The Western Cape Department of Agriculture is acknowledged for their funding of the FruitLook service.

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