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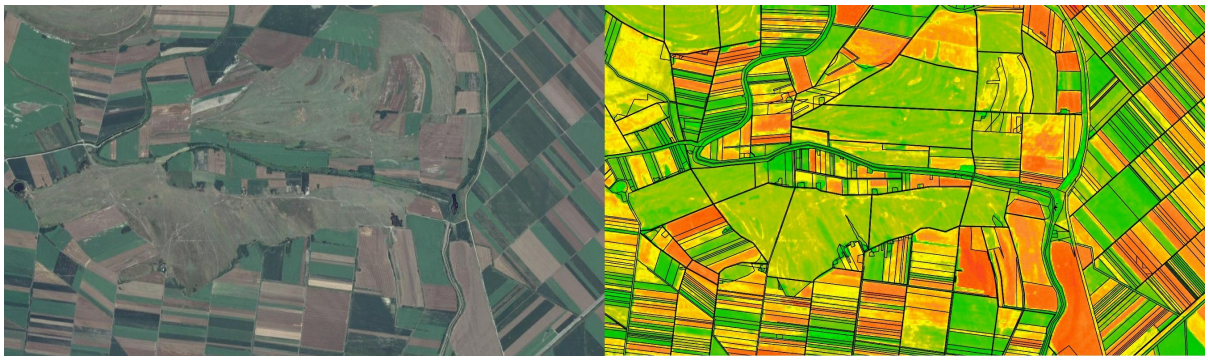
A Mobile Platform for Measuring Canopy Photosynthetically Active Radiation Interception in Orchard Systems



Title	A Mobile Platform for Measuring Canopy Photosynthetically Active Radiation Interception in Orchard Systems
Title (native language)	
Category	• Recording or mapping technology
Short summary for practitioners (Practice abstract) in English)	A mobile platform was developed for measuring midday canopy photosynthetically active radiation (PAR) interception in orchards. The results presented are for almond (Prunus dulcis) and walnut (Juglans regia), but the mobile platform can be used in other orchard crops as well. The mobile platform is adjustable to accommodate orchard row spacing from 4.8 to 7.8 m and is equipped with a global positioning satellite (GPS) receiver and radar for positional assessment as well as three IR thermometers for measuring soil surface temperature. Data from the mobile platform are logged at 10 Hz and stored on a data logger. Custom software has been developed to process the data. The mobile platform was used extensively for mapping midday canopy PAR interception in almond and walnut orchards in 2009 and 2010. The mobile platform produced comparable results to those collected with a handheld light bar with the advantage of being able to cover much larger areas and compare these data to mechanically harvested yield data over the same area.
Short summary for practitioners	
Website	
Audiovisual material	
Links to other websites	
Additional comments	
Keywords	Plant production and horticulture
Additional keywords	Almond; Walnut; PAR interception/yield relationships; Light interception; Yield
Geographical location (NUTS)	EU
Other geographical location	Global
Cropping systems	Tree crops
Field operations	Crop and soil scouting
SFT users	Farmer | Contractor
Education level of users	Primary education | Secondary education | Apprenticeship or technical school education | University education
Farm size (ha)	0-2 | 2-10 | 10-50 | 50-100

Scientific article

Title	A mobile platform for measuring canopy photosynthetically active radiation interception in orchard systems
Full citation	Lampinen, B.D.; Udompetaikul, V.; Browne, G.T.; Metcalf, S.G.; Stewart, W.L.; Contador, L.; Negrón, C.; Upadhyaya, S.K. (2012). HortTechnology, DOI:

Effects of this SFT

Productivity (crop yield per ha)	Some increase
Quality of product	No effect
Revenue profit farm income	Some increase
Soil biodiversity	No effect
Biodiversity (other than soil)	No effect
Input costs	No effect
Variable costs	No effect
Post-harvest crop wastage	No effect
Energy use	No effect
CH4 (methane) emission	No effect
CO2 (carbon dioxide) emission	No effect
N2O (nitrous oxide) emission	No effect
NH3 (ammonia) emission	No effect
NO3 (nitrate) leaching	No effect
Fertilizer use	No effect
Pesticide use	No effect
Irrigation water use	No effect
Labor time	No effect
Stress or fatigue for farmer	Some decrease
Amount of heavy physical labour	No effect
Number and/or severity of personal injury accidents	No effect
Number and/or severity of accidents resulting in spills property damage incorrect application of fertiliser/pesticides etc.	No effect
Pesticide residue on product	No effect
Weed pressure	No effect
Pest pressure (insects etc.)	No effect
Disease pressure (bacterial fungal viral etc.)	No effect

Information related to how easy it is to start using the SFT

This SFT replaces a tool or technology that is currently used. The SFT is better than the current tool	agree
The SFT can be used without making major changes to the existing system	agree
The SFT does not require significant learning before the farmer can use it	disagree
The SFT can be used in other useful ways than intended by the inventor	agree
The SFT has effects that can be directly observed by the farmer	no opinion
Using the SFT requires a large time investment by farmer	no opinion
The SFT produces information that can be interpreted directly	disagree

View this technology on the Smart-AKIS platform.

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