Combining LiDAR intensity with aerial camera data to discriminate agricultural land uses

Title	Combining LiDAR intensity with aerial camera data to discriminate agricultural land uses
Title (native language)	
Category	• Recording or mapping technology
Short summary for practitioners (Practice abstract) in English)	In this study we combine imagery from aerial camera with LiDAR data to discriminate agriculture land uses. The normalization of intensity LiDAR improves visual aspect and the coefficient of variation of samples. The normalization improves the overall accuracy; therefore agriculture land uses are better discriminated. The combination of sensors (LiDAR and digital camera) produces synergy and better results in classification of land uses.
Short summary for practitioners	
Website	
Audiovisual material	
Links to other websites	
Additional comments	
Keywords	Plant production and horticulture
Additional keywords	Aerial digital camera; Classification; Intensity; Orthophoto; LiDAR
Geographical location (NUTS)	EU
Other geographical location	
Cropping systems	
Field operations	Crop and soil scouting
SFT users	Contractor
Education level of users	Secondary education | Apprenticeship or technical school education | University education
Farm size (ha)	0-2 | 2-10 | 10-50 | 50-100 | 100-200 | 200-500 | >500

Scientific article

Title	Combining LiDAR intensity with aerial camera data to discriminate agricultural land uses
Full citation	Mesas-Carrascosa, F.J.; Castillejo-González, I.L.; De la Orden, M.S.; Porras, A.G.F. (2012). Computers and Electronics in Agriculture, DOI:10.1016/j.compag.2012.02.020

Effects of this SFT

Productivity (crop yield per ha)	No effect
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	Some decrease
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	no opinion
The SFT can be used without making major changes to the existing system	no opinion
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	agree
The SFT produces information that can be interpreted directly	no opinion

[View this technology on the Smart-AKIS platform.](#)

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