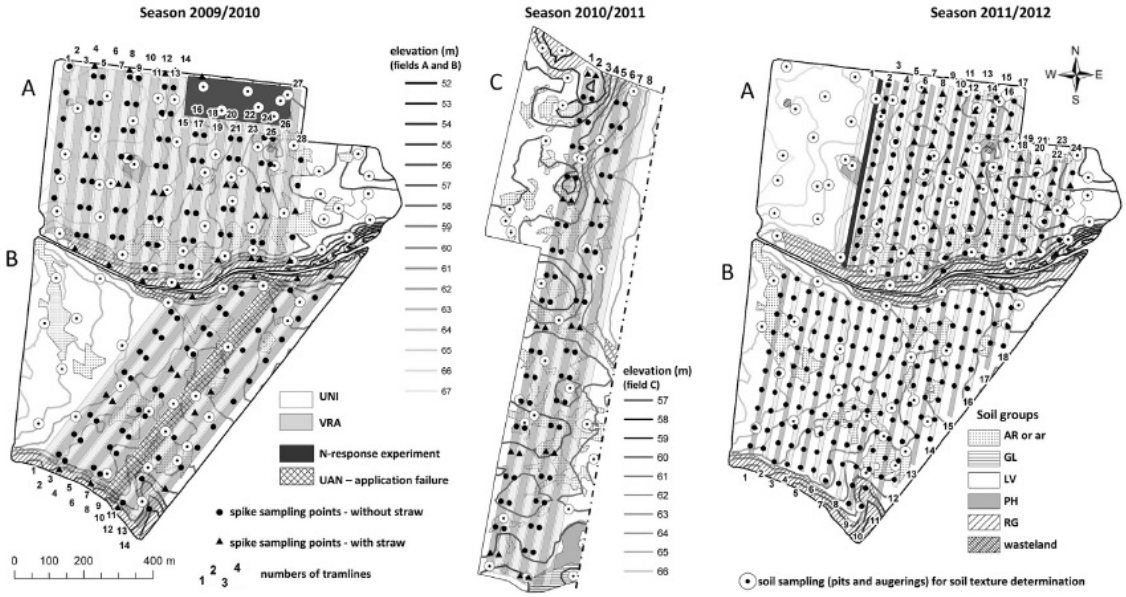
THIS PROJECT HAS RECEIVED FUNDING FROM THE **EUROPEAN UNION'S HORIZON 2020 RESEARCH AND INNOVATION PROGRAMME** UNDER GRANT AGREEMENT N. 696294

Active optical sensor for variable nitrogen application



Title	Active optical sensor for variable nitrogen application
Title (native language)	
Category	• Reacting or variable rate technology • Farm Management Information System
Short summary for practitioners (Practice abstract) in English)	Side-by-side comparisons of uniform and variable N application revealed inconsistent benefits in terms of grain yield, grain protein content (GPC), N use and N use efficiency (NUE) across five site-years. Anticipated yield increases and/or reduced N rates are typical drivers for active optical sensor (AOS) adoption. Significant yield increases are not easily attained on farms with winter wheat yields already close to maximum yield potential. Thus, sensor-based variable N rate recommendations for fields previously fertilized with relatively low uniform N rates would often entail more appropriate allocation (redistribution) of the same amount of total N. This would minimize N surplus in areas of lower productivity and to improve the sustainability of N management overall.
Short summary for practitioners	
Website	
Audiovisual material	
Links to other websites	
Additional comments	
Keywords	Fertilisation and nutrients management
Additional keywords	Winter wheat, Active optical sensor, Variable nitrogen application, On-farm research
Geographical location (NUTS)	EU
Other geographical location	
Cropping systems	Arable crops

Field operations	Fertilization | Crop and soil scouting
SFT users	Farmer | Contractor | Supplier
Education level of users	All
Farm size (ha)	0-2 | 2-10 | 10-50 | 50-100 | 100-200 | 200-500 | >500

Scientific article

Title	On-farm evaluation of an active optical sensor performance for variable nitrogen application in winter wheat
Full citation	Samborski, S.M.; Gozdowski, D.; Stepień, M.; Walsh, O.S.; Leszczyńska, E. (2016). European Journal of Agronomy, DOI:10.1016/j.eja.2015.11.020

Effects of this SFT

Productivity (crop yield per ha)	No effect
Quality of product	Some increase
Revenue profit farm income	No effect
Soil biodiversity	No effect
Biodiversity (other than soil)	No effect
Input costs	Some decrease
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	Some decrease
Pesticide use	No effect
Irrigation water use	No effect
Labor time	No effect
Stress or fatigue for farmer	No effect
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	no opinion
The SFT can be used in other useful ways than intended by the inventor	no opinion
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	no opinion

View this technology on the Smart-AKIS platform

This factsheet was generated on 2018-Apr-03 11:57:18.