



PRACTICE ABSTRACT NR. 66

AUTHOR(S):

Lívia Madureira

Universidade de Trás-os-Montes e Alto Douro

Using soil moisture probes for smart irrigation in Northern Lezíria do Tejo flatlands

Ribatejo agrarian flatlands lie between Central and Southern Portugal, and are split into two regions by River Tagus: Northern and Southern Lezíria do Tejo. Irrigated crops, mainly corn and vegetables, prevail in the former, through the use of groundwater extracted from wells feeding irrigation pumping systems, and currently using electricity as an energy source. Common irrigation systems are sprinklers and central pivots, although drip irrigation is increasing as production of vegetables increases. Unsurprisingly, farmers face mounting pressures to save water and cut energy costs. Soil moisture probes are a smart technology which has proven useful in enhancing water use eco-efficiency in the region. Probes are installed in the soil and monitor such parameters as humidity, temperature and salinity at different soil depths in real-time. They communicate the collected data to a software developed in an app format that stores, manages and integrates information from other devices, comprising in-field meteorological stations. Smart humidity sensors give farmers indications as to when plots should be irrigated and how much water is needed to do it in an eco-efficient manner. The app is installed in farmer's mobile phones or other electronic devices. Adopters of such technology are happy with probes for perceived benefits in business competitiveness due to energy cost savings and increased clients' satisfaction, besides work effort reduction which results from diminishing the need for manual monitoring of in-field irrigation. And, although perceived rises in productivity are not significant to the majority, positive effects on the product quality are acknowledged, particularly regarding vegetables.

CONTACTS:

UTAD, Quinta de Prados,
5000 801, Vila Real,
Portugal

Email: lmadurei@utad.pt

COUNTRY/REGION:

PORTUGAL

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ADDITIONAL INFORMATION

Northern Ribatejo is an agrarian region that pioneered the introduction of precision farming in Portugal. Soil moisture probes are part of the digitalisation strategy initiated in the nineties led by farmer-based organisations (FBO) and entrepreneurial farmers. In recent years, the huge development of digital infrastructures, and devices and users' interfaces allowed the region to take advantage of its accumulated knowledge and know-how. FBO play a key role in the development and dissemination of digital technologies in the region. Trusted by farmers, advisors are able to encourage them to experiment the probes, similarly to other digital technologies. Farmer's use of digital technologies varies according to their cost-benefit analysis. The fragmentation of irrigated area by several small plots hinders many farmers to adopt the probes, due to excessive costs. It is the farmers who own larger plots who benefit the most from probes. Nevertheless, most farmers stood to gain from the collective learning experience enhanced by probe free trials. They now know more about irrigation and are more aware of how to optimise it. Namely, they understand the advantages of the eco-efficient use of the water to the productivity and quality of their crops.

Watch the advices & tips of an pioneer farmer: João Coimbra (Quinta da Cholda) <https://www.youtube.com/watch?v=96nC1RH2EUc>

Follow his project "Milho Amarelo" <https://milhoamarelo.pt/>



ABOUT AGRILINK

AgriLink is a multi-actor project funded by the European Union's Horizon 2020 research and innovation programme. It brings together 16 partners from 13 countries, including universities, applied research institutes, advisors and consultants from public organisations, private SMEs, a farmer-based organisation and specialists in communication and distance learning.

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pierre.labarthe@inrae.fr

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