

New Technologies to increase efficiency in agriculture LAC 2030

CHILE, ARGENTINA, COLOMBIA, SPAIN, URUGUAY



Webstory



Technological solution

Improved water use in agriculture is achieved through the integration of conceptual frameworks and satellite information. The technological innovation is the implementation of an on-line PLAS satellite platform, which, with webGIS technologies, allows technicians and users to consult crop water demands in a simple, numerical and graphical way. It also allows to follow the development and growth of the crop canopy numerically through images. Products such as RGB composition, NDVI and Kcb index, derived from acquired satellite images, as well as reference evapotranspiration maps from numerical models, allow this monitoring. Advances in satellite imagery and global ETo maps, integrated within the PLAS ALC webGIS platform, allow the application of a standard methodology to all the areas analyzed and to the different crops to estimate water consumption.



Technological description

The PLAS-ALC project has been developed in agricultural pilots with very different environments and climates, ranging from arid and semi-arid in Argentina and Chile, tropical in Colombia and humid sub-tropical in Uruguay. The crops on which the trials and validations have been developed are very varied and representative of the diversity of climates. To estimate crop irrigation demand, both at plot and irrigable area scale, the "Kc-ETo SATELLITE ASSISTED" methodology has been implemented, based on FAO Manual 56. The conceptual innovation is the use of the temporal pattern of the NDVI Satellite Vegetation Index to describe the evolution of the basal crop coefficient values. All this technological package was transferred to the users during the project.



Impacts and results

The implementation of the PLAtaforma Satelital "on line PLAS", allowed multiple users open access to satellite images. This condition revolutionizes irrigation management as it is conceived today. The information available on the PLAS platform allows farmers to analyze climatic data (weekly ETo forecast model) and the level of development of their crops to optimize water use. It also provides sectorization tools (MZM) to advance precision agriculture. The implementation of technological pilots at the farm and watershed levels has allowed validation of the proposed technological package for crops and local conditions. Training in conceptual frameworks for defining irrigation demand using satellite information has been fundamental for transferring knowledge and promoting the adoption of these technologies. The International Symposium held at INIA Uruguay consolidated the Network of Irrigation Specialists proposed as an objective.



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