



RIBATEJO - PORTUGAL



Instituto de Investigación y Formación Agraria y Pesquera
CONSEJERÍA DE AGRICULTURA, PESCA Y MEDIO AMBIENTE

New technologies applied to water management



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Natural Resources

Agricultural and Fishery Research and Training Institute



Instituto de Investigación y Formación **IFAPA**, Junta de Andalucía
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KBBE.2013.1.4-04: Improving the capacity of agro-meteorological crop modelling to integrate climatic variability and extreme weather events. Call FP7-KBBE-2013-7



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MAIN ACTIVITIES

(New technologies applied to water management)

- Development of simulation models for improving water management at field, irrigation scheme and basin scale
- Development of remote sensing techniques related with water and crops management
- Determination of adaptation strategies under climate change scenarios (drought management)
- Agrometeorology applied to water management

Capacities of the Group

(New technologies applied to water management)

HUMAN RESOURCES:

- Three PhD researchers
- Five PhD students
- Two technical assistants

EQUIPMENT:

- 2 Eddy Covariance systems
- 1 Scintillometer
- 100 Weather Stations

FACILITIES:

- GIS-Remote Sensing laboratory (Software and hardware)
- Lysimeters (Four)
- Experimental field (5 ha)

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FINISHED PROJECTS

- Integration of simulation models with remote sensing techniques for the improvement of the water management in irrigation schemes (RTA2005-00025)
- Application of new technologies for the improvement of the irrigation advisory services (TRT2006-00014)
- Water resources management in the irrigated agriculture under climate change conditions at irrigation scheme and basin scale (RTA2008-00006-C02-01)
- Knowledge assessment on sustainable water resources management for irrigation (KASWARM; INCO-2004-A.2.3)

ONGOING PROJECTS

- Adaptation strategies to climate change for olive orchards under irrigation (EXC2010-EXC-6126)
- Application of new technologies related with remote sensing for the evaluation of the water management at irrigation scheme scale (RTA2011-0036)

RECENT PUBLICATIONS

- Lorite IJ, Mateos L, Orgaz F, Fereres E (2007) Assessing deficit irrigation strategies at the level of an irrigation district. *Agricultural Water Management* 91: 51 – 60
- Santos C, Lorite IJ, Tasumi M, Allen RG, Fereres E (2008) Integrating satellite-based evapotranspiration with simulation models for irrigation management at the scheme level. *Irrigation Science* 26: 277 - 288
- García-Vila M, Lorite IJ, Soriano MA, Fereres E (2008) Management trends and responses to water scarcity in an irrigation scheme of Southern Spain. *Agricultural Water Management* 95: 458 – 468
- Espadafor M, Lorite IJ, Gavilán P, Berengena J (2011) An analysis of the tendency of reference evapotranspiration estimates and other climate variables during the last 45 years in Southern Spain. *Agricultural Water Management* 98: 1045-1061

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Our Added value to the topic

Innovative methodology integrating different methodologies (remote sensing, crop and hydrological simulation models) for improving water management under drought periods

Optimization of water resources at irrigation scheme and basin scale (using simulation modelling and remote sensing)

Current collaborations:

National organizations of farmers (AIMCRA, FENACORE, etc.) and private companies (BIOAZUL)

Regional and local irrigation associations (Genil-Cabra, Guadalmellato, etc.)

University of Wageningen (Holland), Concepción (Chile), Buenos Aires (Argentina)



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Plant pathology Unit at IFAPA center in Churriana (Málaga)



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Plant Protection Area

Agricultural and Fishery Research and Training Institute



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FP7 Call 2013. KBBE. 2013

Area 2.1.2 Increased sustainability of all production systems (agriculture, forestry, fisheries and aquaculture); plant health and crop protection

Main topics of interest:

- **KBBE.2013.1.2-04: Control of pests and pathogens affecting fruit crops**
- **KBBE.2013.1.2-05: Biological control agents in agriculture and forestry for effective pest and pathogen control**
- **KBBE.2013.1.2-06: Improved coordination and collaboration for European reference collections**

MAIN RESEARCH ACTIVITIES IN THE GROUP

- Plant pathogen diagnostics and control
- Plant virus analysis (etiology, sequence, genetic variability): vegetable and grapevine viruses
- Plant virus quantitation
- Plant sanitation/virus elimination by *in vitro* cultivation
- Transgenic plants obtention and analysis (Transformation, qPCR, Southern) for plant disease control

Capacities of the Plant Pathology Unit at IFAPA Churriana

HUMAN RESOURCES:

One PhD scientist with 15+ year reseach background in plant pathology and molecular biology matters.

One lab technician with 15+ years of expertise in in vitro cultivation and common lab techniques

EQUIPMENT:

All the necessary equipment for molecular biology studies (flow cabinets , balances, microfuges, baths, conventional PCR and qPCR devices, fitotron, incubators

ADDITIONAL FACILITIES:

One plant pathology insect-proof greenhouse, growth rooms

FINISHED PROJECTS

- Quantitative epidemiology of whitefly-transmitted viruses in cucumber: Prediction models
- Molecular characterization of closteroviruses affecting vegetable crops in the region of Murcia and analysis of the genetic variability of their populations
- Leafroll and other viral diseases of the grapevine: epidemiology and impact on wine quality

ONGOING PROJECTS

- Conservation, genetic control and health monitoring of the germplasm collection of genus *Fragaria*
- Characterization, sanitation, multiplication and transfer of local Andalusian wine varieties

RECENT PUBLICATIONS

- Velasco, L., Simón, B., Janssen, D., Cenis, J.L. 2008. Incidences and progression of tomato chlorosis virus disease and tomato yellow leaf curl virus disease in tomato under different greenhouse covers in southeast Spain. *Annals of Applied Biology*. 153:335–344.
- Martín, G., Velasco, L., Segundo, E., Cuadrado, I.M., Janssen, D. 2008. The complete nucleotide sequence and genome organization of bean yellow disorder virus, a new member of the genus Crinivirus. *Archives of Virology*. 153:999–1001.
- Padilla, C.V, Cretazzo, E., López, N., Padilla, V., Velasco, L. 2010. First report of Grapevine leafroll-associated virus 5 in Spain. *Plant Disease*. 94(12):1507.
- Dabauza, M. and Velasco, L. 2012. Development of highly efficient genetic transformation protocols for table grape sugraone and Crimson Seedless. (Chapter 19). *Methods in Molecular Biology*. Jim M. Dunwell and Andy C. Wetten (eds.), *Transgenic Plants: Methods and Protocols*, *Methods in Molecular Biology*, vol. 847. pp. 227-235.

OUR ADDED VALUE TO THE TOPIC

Long experience in plant pathogen control, etiology, epidemiology, characterization

Long-term relationship with companies in the crop production sector: seed companies, breeders, etc: (some examples: Seminis, Monsanto, Enza Zaden, Rijk Zwaan, Agrosemillas)

Wide contacts and collaboration with many academic/government research institutes

Broad expertise in the management of different pathogens both of vegetable crops and woody plants



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Other topics of interest:

KBBE.2013.1.2-01: Agro-silvo-pastoral systems for Europe

KBBE.2013.1.2-02: Legume breeding and management for sustainable agriculture as well as protein supply for food and feed

KBBE.2013.1.2-09: Diversification of fish species and products in aquaculture

KBBE.2013.1.2-10: Boosting the domestication of established farmed finfish species through selective breeding

Other topics of interest:

KBBE.2013.2.3-01: Development and industrial application of sensors for food processing operations

KBBE.2013.2.3-02: Network for the transfer of knowledge on traditional foods to SMEs

KBBE.2013.2.4-01: Assuring quality and authenticity in the food chain

KBBE.2013.3.1-01: Plant High Value Products - from discovery to final product



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Many thanks for your attention

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