

SIXTH FRAMEWORK PROGRAMME

TP5 - Food Quality and Safety (FP6-2004-FOOD-3B)

T.5.4.6.9. Rational use of water for quality and safe crop products (STREP)



Contract for:

SPECIFIC TARGETED RESEARCH OR INNOVATION PROJECT

**Project acronym:**

**IRRIQUAL**

**Project full title:**

**Sustainable orchard irrigation for improving fruit quality and safety**

# Main Objective

**The main aim of IRRIQUAL is to study the effects of different irrigation strategies (Regulated deficit irrigation and water quality) on fruit quality and safety in tree crops**

# CONSORCIUM

## Partner 1. Consejo Superior de Investigaciones Científicas (CSIC)

- (i) CEBAS, Murcia (Dpto. Riego y Dpto. Tecnología Alimentos).
- (ii) IRNASE, Sevilla.
- (iii) IAS, Córdoba.
- (iv) IATA, Valencia.

## Partner 2. Universidad Politécnica de Cartagena (UPCT)

## Partner 3. Federación de Cooperativas Agrarias de Murcia (FECOAM)

## Partner 4. Abacotech S.L (ABACOTECH)

## Partner 5. Contadores de Riego S.L. (CONTARIEGO)

## Partner 6. Institut National de la Recherche Agronomique (INRA)

## Partner 7. University of Thessaly (UTH)

## Partner 8. Università degli studi di Foggia

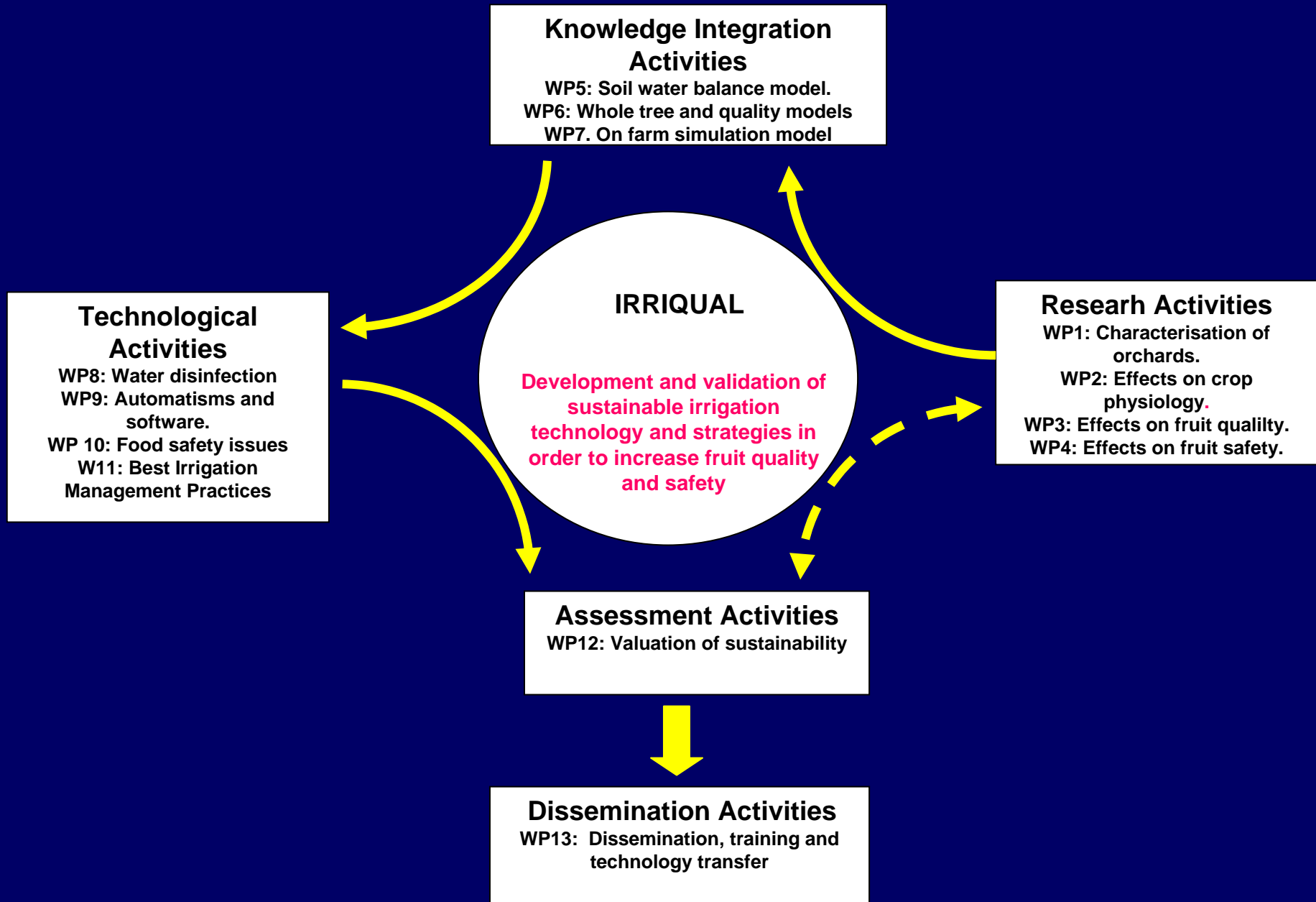
## Partner 9. Wageningen University (WU)

## Partner 10. Lebanese Agricultural Research Institute (LARI)

## Partner 11. Litani River Authority (LRA)

## Partner 12. Institute Agronomique et Vétérinaire Hassan II (IAV)

## Partner 13. Sapiama S.L. (SAPIAMA)



# **Work package 1: Characterisation of orchards**

**Irrigation area of Murcia and Andalucía (Spain) (almond, peach, olive, citrus)**

**Irrigation area of Avignon (France) (peach)**

**Irrigation area near Volos (Greece) (peach, olive)**

**Irrigation area near Agadir (Morocco) (citrus)**

**Irrigation area near to Saida-Tyre (Lebanon) (peach, citrus)**

# **Work package 2: Effects of crop physiology**

**Acquisition of knowledge on crop  
physiological response under different  
irrigation**

**Morphometric measurements**

**Plant water status**

**Gas exchange measurements**

# Work package 3: Effects of fruit quality

**Study the effects of different RDI strategies, nutrient supply by fertigation and irrigation water quality on fruit quality attributes at harvest and after storage**

Dimensions, weight, volume, form, diameter, uniformity, firmness, hardness, softness, juiciness, mealiness, acidity, astringency, vitamin C, polyphenol, carotenoid, ascorbate content, total lipids, fatty acid composition, antioxidant activities, etc.

# **Work package 4: Effects on fruit safety**

- **Determination of the microbials on fruits picked from trees exposed to different irrigation scheduling**
- **Evaluation of the different susceptibility to fungal development during post harvest storage.**
- **Determination of the nitrite and nitrate content in fruits picked from trees.**



# **Work package 5: Soil water balance model**

**Development of a model of the  
water transfer in soil under various  
irrigation regimes**

# **Work package 6: Crop and fruit quality models**

**Inclusion of the effects induced by  
cultural practices (RDI, water  
quality) into tree models.  
Development of fruit quality  
models**

# **Work package 7: On farm simulation model**

**Simulation of the effects of different irrigation practices on farm functioning using a farm simulator. Integration of the crop models into the farm simulator**

# **Work package 8: Water disinfection**

**Development of a prototype of  
ultrasound generator for irrigation  
water disinfection in ponds**

# **Work package 9: Automatism and software**

**Development, validation and  
optimisation of an automated  
irrigation equipment for control of  
irrigation scheduling at farm level**

# **Work package 10: Food safety issues**

**Detection of Control Crop Points(CCPs) to guaranty the safety of agricultural commodities.  
Development of guidelines of “Good agricultural practices” according to this CCPs.**

**Work package 11:  
Best irrigation management  
practices**

**Development of Best Irrigation  
Management Practices for each  
crop and cultivation area**

# **Work package 12: Valuation of sustainability**

**Assessment of the socio-economic  
impact and sustainability of new  
thechnology and irrigation  
strategies at farm and regional  
scales**



# **Work package 13: Dissemination, training and technology transfer**

- Transfer of the irrigation technology to SMEs.
- Diffusion of Best Irrigation Management Practices to the farmers and stakeholders.

# IRRIQUAL

- **Improve the competitiveness of the farmers.**
- **Propose a new approach to Irrigation studies, related to the fruit quality and safety.**
- **Constitutes a promising contribution to the sustainable development of the agriculture.**