European Commission
Fifth Framework Programme
Energy, Environment and Sustainable Development

Final Announcement
WORKSHOP
Water Use of Woody Crops: techniques, issues, modelling and applications on water management

WATERUSE Project
Evaluation of alternative techniques for determination of water budget components in water – limited, heterogeneous land-use systems

Ílhavo, Portugal
20th and 21st May 2004

The WATERUSE Project

The increasing pressure on the water resources leads to competition between users, particularly where water of appropriate quality is scarce during the dry season, which occurs in the European countries of Mediterranean climate. There is, however, a lack of knowledge on evapotranspiration of woody plants and survival strategies under water stress, partially because of few appropriate sensors and models to estimate the water use of such stands. Within the WATERUSE project, we aim to contribute to improving the sensors and models to estimate water use, by investigating and applying alternative techniques for the determination of water budget components, in order to achieve a sustainable use of the water resources.

This workshop is an opportunity 1) to be introduced to the techniques which were used and developed in the project, by a group of recognized scientists, to assess plant water use and 2) to be aware of some of the results of its application, with potential impacts on water management. The first day will be dedicated to the techniques, while the second will focus on applications.

Participating entities
- Instituto Superior de Agronomía, Technical University of Lisbon (Portugal)
- Instituto de Desenvolvimento Rural e Hidráulica, Ministry of Agriculture, Rural Development and Fisheries (Portugal)
- Centro Operativo de Tecnologia de Regadio, Technical association in the area of irrigation (Portugal)
- University of Dundee (Scotland, United Kingdom)
- Mendel’s University of Agriculture and Forestry (Czech Republic)
- Christian-Albrechts-Universitaet zu Kiel (Germany)
- Università degli studi di Padova (Italy) + Basel University (Switzerland)
- GeoHires International Ltd (Germany)
- Università di Napoli Federico II (Italy)

First day – Techniques

Sessions on: Transpiration and evapotranspiration, Soil, roots and water, Modelling.

8:30 – Welcome addresses
Prof. Isabel Ferreira, WATERUSE, Project coordinator
Eng. C. Mattamouros Resende, President of IDRHa
Eng. L. Amorim, Regional Director of DRABL (Agriculture Regional Directorate of Beira Litoral)

Transpiration and evapotranspiration

1 - 9:00 to 9:45 – Introduction - Environmental and physiological control of ET from vegetation - Hamlyn G. Jones
2a and 2b – 9:45 to 10:20 – Sap flow measurements and their scaling up - Jan Cermak (JC)/Nadezhda Nadezhdina (NN) and Isabel Ferreira (IF).
10:20 Coffee-break (install posters)
4 - 11:40 to 12:00 – Water stress indicators; use of sap flow measurements for stress diagnosis - NN/IF
12:00 Lunch at the centre

Posters session: 13:30

5 - 14:00 to 14:30 - Surface temperature measurement and estimation of evaporation - Hamlyn G. Jones (HGJ) and Nicole Archer (NA)

Soil, roots and water

6 – 14:30 to 15:00 – Soil water measurements - traditional methods – Carlos Arruda Pacheco (CA)
7 - 15:00 to 15:30 – GPR for soil mapping/assessment and roots imaging - Susanne Lorra (SL) and Andreas Kathage (AK)
8 – 15:30 to 16:00 - High resolution geoelectric techniques – Said Attia (SA)/ Ulrike Werban (UW)
16:00 CB

Modelling

9 - 16:30 to 17:00 – Soil moisture modelling - Guido Durso (GD)
10 - 17:00 to 17:30 - Reference ET and crop coefficients: how good is this approach for woody stands? Use of stress coefficients - Isabel Ferreira (IF)

Second day – Applications on Water Management

11 – 17:30 to 17:50 - Estimation of canopy cover, vertical and radial leaf distribution and LAI, application to Olea europea – JC
17:50 to 18:20 – Questions/ Discussion/ Summary

19:00 – Departure to Reception at Ílhavo Town Hall – Maritime Museum - and to Aveiro (dinner on your own).

12 - 9:00 to 9:40 – General overview on water management - Carlos Pais (CP)
10:30 CB

14 – 11:00 to 11:40 – Posters session

15a, b and c - 11:40 to 12:30 – Seasonal changes in water use of evergreen oak woodlands (Rio Frio and Évora, Portugal) – Teresa David, IF, RS, CA, NN, Peter Widmoser.
12:30 Lunch at the centre

16a and b - 14:00 to 14:30 - Hydrogeophysics of soils and trees – SA/UW
17 – 14:30 to 15:00 - Sound tomography for stem investigations providing structural information for stem water/sap flow measurements and analysis - SL/AK
18 – 15:00 to 15:30 - Use of satellite and airborne remote sensing for estimating evaporation – NA
15:30 to 16:00 – Discussion/ conclusions.
16:00 CB

16:30 – 17:00 - Documentary on Techniques and IOP2 (IDRHa)

Visit to Aveiro

Closing Dinner

Speakers
• Hamlyn G. Jones, Nicole Archer - University of Dundee (UK)
• Jan Cermak, Nadezhda Nadezhdina - Mendel’s Univ. of Agric. and Forestry (CR)
• Said Attia, Ulrike Werban - Albrechts-Univ. zu Kiel (DE)
• Andrea Pitacco - Università degli studi di Padova (I)
• Roland Vogt - Basel University (CH)
• Susanne Lorra, Andreas Kathage, - GeoHires International Ltd (DE)
• Guido Durso - Università di Napoli Federico II (I)
• M. Isabel Ferreira, Carlos Arruda, Teresa do Paço - Instituto Superior de Agronomia, T University of Lisbon (P), José Silvestre, T. Soares David, (collab INIAP, P).
• Carlos Pais - Inst. de Desenvolvimento Rural e Hidráulica (P)
### Organizing Committee

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<tr>
<th>João Tito Nunes</th>
<th>Julieta Tito Nunes</th>
<th>Carlos Pais</th>
<th>Teresa Afonso do Paço</th>
<th>Isabel Ferreira</th>
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### Team Scientific Coordinators

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<tr>
<th>Isabel Ferreira, Portugal (Project Coordinator)</th>
<th>Hamlyn Jones, United Kingdom</th>
<th>Jan Cermak, Check Republic</th>
<th>Said Attia al Hagrey, Germany</th>
<th>Andrea Pitacco, Italy</th>
<th>Susanne Lorra, Germany</th>
<th>Isaurindo Oliveira, Portugal</th>
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### Workshop location


### Accommodation

Here are some possible places for accommodation. In order to ensure reservations, please contact directly:

**Professional Training Centre for Agriculture, Gafanha da Nazaré – Ílhavo**
Tel: +351 234325355 Fax: +351 234324391

**Hotel Imperial (****) Tel:** +351 234380150 Fax: +351 234380151

**Hotel As Américas (*****)**
Tel: +351 234384640 Fax: +351 234384258

**Residencial do Alboi (1st class)**
Tel: +351 234380390 Fax: +351 234380391

### Workshop fee

100 € (documentation, attendance, lunches and closing dinner). The payment can be made with a check payable to Instituto Superior de Agronomia or via bank transfer to the bank account with the following references:

- **NIB:** 0035 0027 00078047530 96 (for national transfers; Multibanco transfers accepted)
- **IBAN:** PT50003500270007804753096 (for international transfers)
- **SWIFT CODE:** CGDIPTPL

For the payment via bank transfer (including Multibanco for national transfers), the registration form must have a bank transfer certificate in annex.

Local payments during the workshop will be aggravated to 120 €.

Participants are welcome to make a **poster presentation** during the Workshop. For this purpose, a one page abstract must be sent before the 5th of May.
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Ilhavo, Portugal
20th and 21st May 2004

Registration form
Name: ____________________________________________________________
Institution: ________________________________________________________
Address: _________________________________________________________
_________________________________________________________________
Country: ________________________________
Phone: _________________________ ________
Fax: __________________________ _________
e-mail: __________________________________
Payment by:   check □   bank transfer □   transfer via Multibanco □
Participation in the closing dinner:   yes □   no □
send by letter to:
IDRHa - Instituto de Desenvolvimento Rural e Hidráulica
Engº. Carlos Pais / Engª. Julieta Tito Nunes
Av. Afonso Costa 3
1949-002 LISBOA
PORTUGAL