

European Commission
Fifth Framework Programme
Energy, Environment and Sustainable Development



ISA



Ministério da
Agricultura,
Desenvolvimento
Rural e Pesca

IDRHa
Instituto de Desenvolvimento
Rural e Hidráulica

WORKSHOP

**Water Use of Woody Crops:
techniques, issues, modelling and applications on
water management**

Programme

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

First day – Techniques

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

Chairs: Andrea Pitacco and Carlos Arruda

1 - 9:00 to 9:45 – Introduction - Environmental and physiological control of evapotranspiration (ET) from vegetation - Hamlyn G. Jones

2 – 9:45 to 10:30

a. Sap flow measurements and their scaling up to tree and stand levels – Part A - Jan Cermak (JC) J. Kučera, N. Nadezhdina (NN);

b. Sap flow measurements and their scaling up – Part B – *Granier* method - Isabel Ferreira (IF), T. S. David, J. Silvestre, T. A. Paço, N. Nadezhdina, A. Thomsen, R. M. Silva, A. L. Silva

10:30 Coffee-break (install posters)

3 - 11:00 to 11:50

a. Micrometeorological measurement of ET: Part A - Fluxes extra vergine - Roland Vogt (RV) A. Christen, I. Lehner, F. Imbery, A. Pitacco.

b. Micrometeorological measurement of ET: Part B - The role of the canopy in modifying the partitioning of fluxes - Andrea Pitacco (AP), V. Zambetti, R. Vogt

4 - 11:50 to 12:10 – Water stress indicators. Use of sap flow measurements for stress diagnosis - Isabel Ferreira, T. A. Paço, N. Nadezhdina.

12:10 to 12:30 – Questions/ Discussion

12:30 Lunch at the centre

Chairs: Guido D' Urso and Carlos Pais

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 – the most usual methods: gravimetric, neutronic, capacitive and time domain reflectometry (TDR) – 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 hydrogeophysical techniques – Said Attia (SA), Ulrike Werban (UW), R. Meissner, W. Rabbel and A. Ismaeil

16:00 CB

Modelling

Chairs: Said Attia and Susanne Lorra

9 - 16:30 to 17:00 – Modelling and simulation of root water uptake and evapotranspiration for irrigated *Olea europea* - Guido Durso (GD), M. Panico, E. de Marco

10 - 17:00 to 17:20 - Reference ET and crop coefficients: how good is this approach for woody stands? Use of stress coefficients - Isabel Ferreira (IF) and T. A. Paço

11 – 17:20 to 17:50

a. Main biometric parameters and leaf area distribution in an old olive trees and orchard in southern Italy - J. Čermák, J. Gašpárek, F. de Lorenzi, H.G. Jones.

b. Leaf area distribution measurements in solitary growing old trees - J. Čermák, J. Gašpárek, F. de Lorenzi, H.G. Jones

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).

Second day – Applications on Water Management

Chairs: Hamlyn Jones and Isaurindo Oliveira

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

13 – 9:30 to 10:30 – Combination of transpiration & ET techniques

a. Introduction – IF.

b. Application on irrigated peach orchard - Teresa do Paço (TdP), M. I. Ferreira, N. Conceição.

c. Application on vine - José Silvestre (JS) and M. I. Ferreira.

d. Application on kiwi (*Determinação das necessidades de rega em kiwi, na região de Entre-Douro e Minho*) – Rodolfo Silva (RS), M. I. Ferreira, T. A. Paço, A. Veloso, M. Oliveira (also integrated in Project AGRO 288)

10:30 CB

14 – 11:00 to 11:40 – Posters session (Chairs: T. S. David and T. A. Paço)

15 - 11:40 to 12:30

a. Seasonal trends of transpiration from open *Quercus ilex* stands (*montados*): a comparison between two sites in southern Portugal - Teresa S. David, J. S. David, M. O. Henriques, M. I. Ferreira, S. Cohen,³ J. S. Pereira.

b. Seasonal changes in water use of evergreen oak woodlands – evapotranspiration and transpiration from a *Quercus suber* stand (*montado*) in the region of Lisbon – M. I. Ferreira, R. M. Silva.

c. Seasonal changes in water use of evergreen oak woodlands - sap flow in roots and stem of *Quercus suber* tree - Nadezhda Nadezhdina, M. I. Ferreira, R. Silva, C. A. Pacheco

12:30 Lunch at the centre

Chairs: Jan Cermak and Roland Vogt

16 - 14:00 to 14:30 - Hydrogeophysics of soils and trees – Said A. al Hagrey, Ulrike Werban, R. Meissner, W. Rabbel and A. Ismaeil

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 ground airborne and satellite remote sensing for estimating evaporation – NA and H. G. Jones

15:30 to 16:00 – Discussion/ conclusions.

16:00 CB

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

17:00 – 17:10 – COTR activities - Isaurindo Oliveira

Closing Dinner

Speakers

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