COST Action 838
Managing arbuscular mycorrhizal fungi for improving soil quality and plant health in agriculture

Training course

Sampling and evaluation strategies for AMF diversity characterization
June 20 - 24, 2005
Lisboa - Portugal

Registration Deadline and Fees:
RD 2 June, 2005, by email: cebv@fc.ul.pt, or fax: +351217500048
Fees: 200 (fees will cover all the material for the participants, lunches, coffee break and field trip)

Number of participants:
20 (15 can be covered by COST)

Admission requirements:
Posgraduated students, preferentially in a PhD programme envolving mycorrhiza research.

Course Coordination:
Maria Amélia Martins-Loução
Silvio Gianiazzi

Local Organization:
Maria Amélia Martins-Loução
Cristina Cruz
Luis Carvalho
Patricia Correia

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Faculty of Sciences
Centre for Ecology and Plant Biology
Campo Grande C2. Piso 4
1749-016 Lisboa, Portugal

Aims:
The training course "Sampling and evaluation strategies for AMF diversity characterization" will focus on the emphasis that is placed on the experimental approach to understanding patterns of AMF diversity actually observed in nature.
The central focus is on the methods currently available for AMF identification and a number of discussions on how to sample depending on type of questions and levels to approach. Secondly, the kind of analysis that is required to answer the question will be considered since particular methods of analysis require certain kinds of data. Then, the importance of factors inherent to the studying area (plant cover, dominant types of roots, topography, accessibility and area of study site), time availability, money, technological and field assistance will be considered.

**Target:** All young scientists, technicians, MS and PhD students that are involved in assessing AMF diversity. This training course aims at functioning as a forum for a comprehensive critical discussion of desirable research strategies and adequate methodologies for sampling and evaluating AMF diversity characterization providing an opportunity for young scientists to make contact with senior AMF scientists experts in their field. Besides theoretical and practical instruction, the students will have the opportunity to discuss their case studies.

**Selection of candidates:** participants who fulfill the conditions of assess to the course will be invited to present a particular case study that will be discussed in a forum. The candidates with the most interesting case studies will be selected to participate in the course. The particular teams in which the case should be presented will be detailed in the near future.

**Course outputs:** The forum generated by candidates proposals will be formed by all the team (lecturers and organizers) involved in the course and assessible to all members of the COST action who want to get involved in the discussion through website. This last activity of the Cost Action 8.38 would allow a broad interaction between all team members. For that the intention is to profit the case studies presented by the students as a discussion forum within all the group.

At the end of the course all compiled answers and discussions will be assessed and evaluated in a practical and synthetic output to serve as a practical guide for new young scientists. This output will be available through web page and final manual book.

**Lecturers**

M. van der Heijden, Department of Systems Ecology, Vrije Universiteit, The Netherlands
J. Morton, West Virginia University, USA
D. van Tuinen, UMR INRA France
R. Kjeller, Institute Of Biology Department of Microbiology, DK
M. Rillig, University of Montana, USA
R. Tenreiro, University of Lisbon, Portugal
# Programme and lectures:

<table>
<thead>
<tr>
<th>Time</th>
<th>20th June (Monday)</th>
<th>21st June (Tuesday)</th>
<th>22nd June (Wednesday)</th>
<th>23rd June (Thursday)</th>
<th>24th June (Friday)</th>
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</thead>
<tbody>
<tr>
<td>08:30</td>
<td>Reception of participants</td>
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<tr>
<td>09:00</td>
<td>Opening and welcome</td>
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<tr>
<td>09:30</td>
<td>Methods to evaluate the influence of AMF and AMF diversity on plants, plant communities - M. van der Heijden</td>
<td>Molecular Methods to evaluate AMF functionality in soil and in roots - D. van Tuinen</td>
<td></td>
<td>Discussion of case studies presented by the participants</td>
<td>Discussion of case studies presented by the participants</td>
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<tr>
<td>10:10</td>
<td>Coffee Break</td>
<td>Coffee Break</td>
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<td>Coffee Break</td>
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<tr>
<td>11:00</td>
<td>Sampling strategies and bias associated with the method - M. van der Heijden</td>
<td>Sampling strategies and bias associated with the method - D. van Tuinen</td>
<td>Field trip: sampling under distinct conditions, plant cover, dominant types of roots, topography, accessibility and area of study site</td>
<td>Discussion of case studies presented by the participants</td>
<td>Discussion of case studies presented by the participants</td>
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<tr>
<td>12:30</td>
<td>Lunch</td>
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<tr>
<td>13:30</td>
<td>AMF diversity through spores identification - J. Morton</td>
<td>Critical overview of the methods used in accessing AMF diversity - R. Kjøller</td>
<td>Experimental designs in assessing AMF diversity - M. Rillig</td>
<td>Taxonomic and functional diversity in AMF: is there any relationship? - M. van der Heijden</td>
<td>Future perspectives on sampling and evaluation reliability - M. Rillig</td>
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<tr>
<td>14:30</td>
<td>Sampling bias during AMF spores identification - J. Morton</td>
<td>The use of High-Through-Put Screening/robotics - R. Kjøller</td>
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<td>15:30</td>
<td>Coffee Break</td>
<td>Coffee Break</td>
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<td>Coffee Break</td>
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<tr>
<td>16:00</td>
<td>Discussion of sampling strategies and associated bias according to the method - J. Morton</td>
<td>Discussion about the questions we can ask with the sampling we are handling and the methods we are using - R. Kjøller</td>
<td></td>
<td>Discussion on the experimental designs and associated bias according to the questions and the methods we are using - M. Rillig R. Tenreiro</td>
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**Light Blue** theoretical classes  
**Blue** practical classes