ENDURE

European Network for Durable Exploitation of crop protection strategies

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2nd ENDURE Summer School

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PU Public	**PU**
PP Restricted to other programme participants (including the Commission Services)	
RE Restricted to a group specified by the consortium (including the Commission Services)	
CO Confidential, only for members of the consortium (including the Commission Services)	

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ENDURE	European Network for Durable Exploitation of crop protection strategies

Summary

The Second ENDURE Summer School 'Modelling approaches to support Integrated Pest Management' has successfully taken place from 15 to 19 June 2009 at the International School of Advanced Education (SIAF) in Volterra (ITALY) and was organised by the Scuola Superiore Sant'Anna of Pisa (SSSUP).

Nearly 70 applications arrived from all continents and students from all over the world were selected. The budget allowed sponsoring 16 students from all over the world (Europe, USA, Australia, Argentina, Iran, Burundi, Madagascar, and India). Additionally, one student from the reserve list paid for participation. The Summer School involved six lecturers from Europe and the USA.

The objective of the summer school was to provide a profound theoretical basis in modelling approaches in general and regarding different IPM applications in specific, in order to make students aware of the complexity of modelling when IPM is involved and to have them work on models created within the ENDURE Network. This should enable the participating students to critically review existing models for crop protection and be more prepared in their own research projects to the difficulties rising from such complex modelling situations.

Therefore an interactive summer school was organised based on lectures during which discussion, demonstrations and teamwork based on various IPM models took place. The team of teachers was composed of several ENDURE partners (from INRA, LEI and AU) who developed models within ENDURE, and an external expert (from USA) collaborating with ENDURE partners.

Students were very satisfied with the outcome of the summer school and a student-teacher network has been created as a follow-up activity.

Report of the Second ENDURE Summer School

The Second ENDURE Summer School 'Modelling approaches to support Integrated Pest Management' has successfully taken place from 15 to 19 June 2009 at the International School of Advanced Education (SIAF) in Volterra (ITALY) and was organised by the Scuola Superiore Sant'Anna of Pisa (SSSUP) by the team of Paolo Bàrberi (Scientific supervisor), Gionata Bocci (Logistics and communication), Camilla Moonen (logistics), Chiara Carbonaro (Administration). Sixteen students from all over the world were sponsored by ENDURE and an international teaching team provided a stimulating scientific programme.

1. Objectives

Modelling is becoming a widely distributed tool used in many scientific areas. Models can be useful for both prediction of future situations or the description of processes or mechanisms driving current systems. As such they can be helpful tools in understanding complex crop-pest systems or in predicting expected effects of changes in management on crop-pest dynamics. Although a lot of work has been done on single crop-pest interactions, IPM strategies can only be developed when the complex interactions between multiple pest systems and the crop are taken into account. This requires a high level in both statistical techniques and biological processes, since validation of such complex models is very difficult.

Therefore, the objective of the summer school was to provide a profound theoretical basis in modelling approaches in general and regarding different IPM applications in specific, in order to make students aware of the complexity of modelling when IPM is involved and to have them work on models created/used by ENDURE partners. This should enable the participating students to critically review existing models for crop protection and be more prepared in their own research projects to the difficulties rising from such complex modelling situations.

2. Application summary

The summer school has been published by sending e-mails to all ENDURE partners and all relevant international contacts of the organising institution (SSSUP), with the request to disseminate amongst a wider public. The summer school was published on the ENDURE web-site home page and in the ENDURE Newsletter. Furthermore, the ENDURE Summer School has been advertised in the European Weed Research Society Newsletter issues 105 and 106 and the IPMnet News online-newsletter issue 168 (January/February 2009). Modellers participating in the ENDURE Project were asked to provide us with names of experts in modelling working at non-ENDURE Institutions; emails were sent to those experts asking to promote this event among their PhD students.

Interested PhD students were asked to register on the website and to submit:

- Short CV (max two A4 pages, Times New Roman 12 pt)
- Summary of PhD Project (max one A4 page, Times New Roman 12 pt)
- A motivation letter (max one A4 page, Times New Roman 12 pt)
- A support letter from their supervisor(s)

The deadline for application (1 March 2009) was extended to 10 March. A total of 68 applications were received from 34 different countries. Figure 1 shows the geographical origin of the applications. All valid applications were screened for selection.

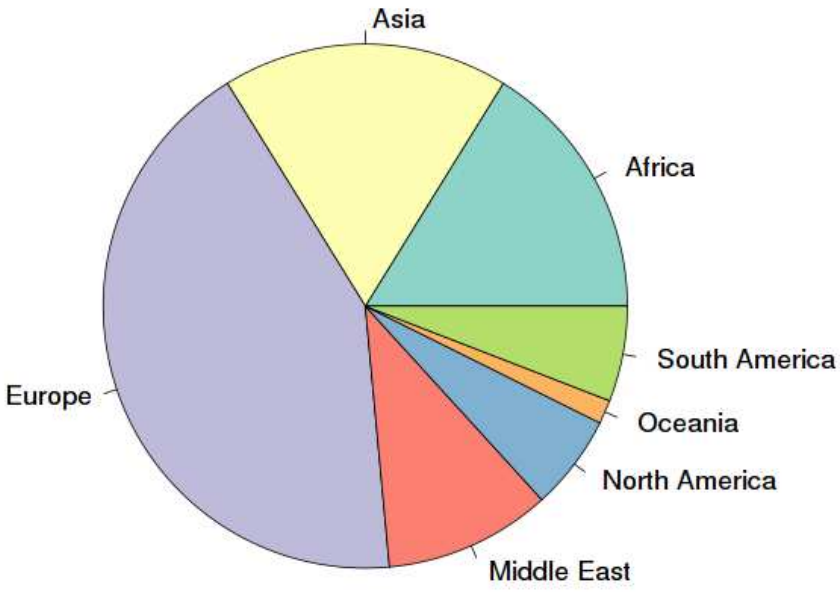

Figure 1: Geographical origin of the 68 applications made to the second ENDURE Summer School 'Modelling approaches to support Integrated Pest Management'.

3. Selection Procedure

The initial aim was to be able to sponsor 15 PhD students for the summer school. Close budget management allowed the organising committee to select 16 students for participation in the summer school (Table 1). Four substitute students (Table 2) were indicated in case one or more of the 16 selected students would not confirm his/her participation. The substitute students have been selected according to the list order of eligible applicants.

A first screening of all applications was made based on the following criteria:

- motivation for participation in the summer school
- relevance of the PhD project to the summer school topics
- quality of the CV
- fluency in English

Consequently, applicants have been selected in order to have a wide geographical representation and to cover, with their projects, the various thematic areas that were treated in the summer school.

Table 1. List of selected students for the summer school and their geographical origin.

Surname	Name	Home country
Belhadef	Abdelhak	France
Domeradzka *	Olga	Poland
Gonzalez Diaz	Lucìa	Spain
Kolb	Lauren	USA
Loddo*	Donato	Italy
Menegat	Alexander	Germany
Nkurunziza	Libère	Burunda/Sweden
Oreja	Fernando Hugo	Argentina
Pluess	Therese	Swiss
Porro	Andrea	Italy
Rakotoninidraina*	Toky	Madagascar
Ramasamy K*	Chandra	India
Savage	David	Australia
Sønderskov*	Mette	Denmark
Szalai*	Mark	Hungary
Taab	Alireza	Iran

Reserve list

Surname	Name	Home country
Ichihara	Minoru	Japan
Atanackovic	Valentina	Serbia
Declercq	Bart	Belgium
Carnus	Tim	France
Sebaaly	Claudine	Lebanon
Burger	Jana	Germany

4. The Scientific Programme

The scientific programme (Figure 2) was developed by the team of lecturers [Jean-Noel Aubertot (INRA), Daniel Wallach (INRA), Will Hennen (LEI), Niels Holst (AU), Philippe Tixier (CIRAD), Ed Luschei (University of Wisconsin)] and the local organising team of SSSUP (Paolo Bàrberi, Gionata Bocci and Camilla Moonen). Programme contents were discussed by E-mail, by telephone conference and by exchange of files and web-based discussions (a dedicated Moodle Platform set up by Ed Luschei). The content of the programme was defined after selection of the students, so that level and content could be adapted to the students' experience with modelling. Although some of them were experienced modellers, most of them were only just getting acquainted with modelling. Therefore the programme started with a generalising overview of modelling approaches (Aubertot) and aspects of parameter estimation and model validation (Wallach). Socio-economic aspects related to IPM were demonstrated by Hennen and students became aware of the fact that socio-economical aspects are very important for the evaluation of any IPM proposal. Through team work on these subjects, students could test their knowledge and have demonstrations on how these models worked.

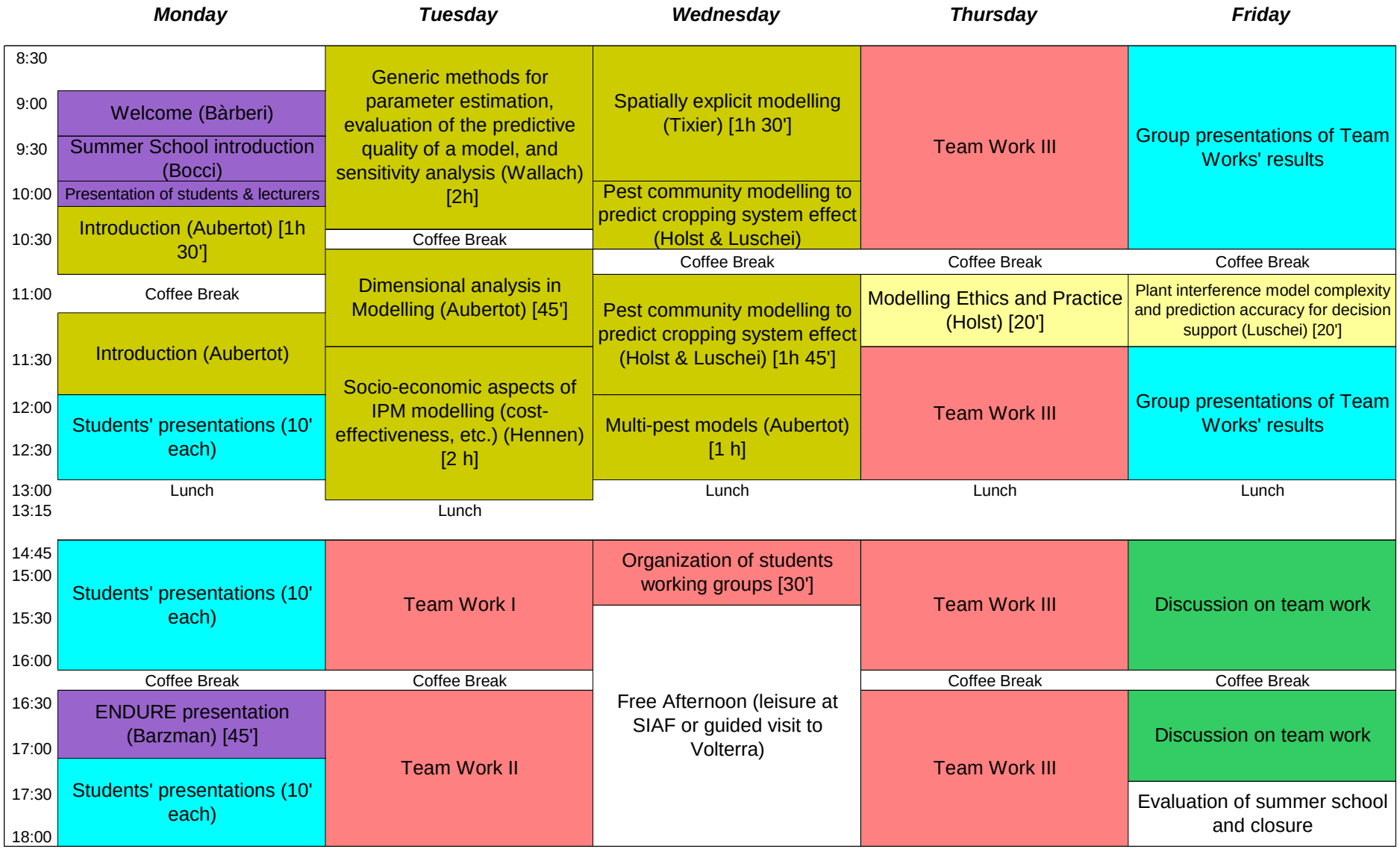

Figure 2: Scientific programme. Legend: purple, by organising team; olive green, by lecturing team; blue, by students; pink, team work; dark green, discussion.

The second part of the summer school consisted in a series of theoretical lectures on three modelling application for IPM, developed by ENDURE partners (Wheatpest, COSMOS and WeedML). Three different approaches were represented by these models: Wheatpest concentrates on the multi-pest aspects of IPM, COSMOS concentrates on the spatial aspects of IPM and WeedML highlights the importance of ecological/biological knowledge of population biology to be integrated in models before you can predict any ecological behaviour of weeds. Next, all students were divided in three groups and worked independently on one of the three modelling applications. On Friday each group presented their findings. The remaining audience was divided in three groups: representatives of 'farmers', of 'modellers' and of 'policy makers' and they were to pose critical questions about the presented model. Therefore in the morning a kind of 'role-playing game' was performed. In the afternoon a discussion on difficulties of modelling for IPM concluded the summer school.

During the main lectures, some short 'opinion' speeches were given by some of the lecturers to 'break' time and to keep people active.

5. Feedback form the students

An anonymous evaluation form was give to the students on the last day of the summer school. Questions regarded (1) information about the summer school, (2) application procedure, (3) preparation for the summer school, (4) the summer school content, (5) accommodation and (6) other comments.

Most students heard about the Summer School through their involvement or that of their supervisor in the ENDURE network. One person saw the advertisement on the EWRS website.

They did not have problems with the subscription although someone mentioned that it would have been better if an e-mail with confirmation of successful application would have been sent.

Overall, students found the preparation for the summer school OK, although some of them mentioned that they received information about the poster / PowerPoint presentation they had to give too late.

The programme was appreciated. For some of the students it consisted of too much lectures, whereas others judged it was well balanced.

Students greatly appreciated the location of SIAF.

Students greatly appreciated the interactions with the lecturers during the entire week.

6. Follow-up

All presentations of the lecturers and the posters of the students will be uploaded on the Moodle site and this site will allow them to keep in touch in the future. In this way a student-lecturers network was created. Whenever possible, this network and interactive website will be transferred to the ENDURE workspace and web-site.