European Network for the durable exploitation of crop protection strategies

IA3 Activity: *Human resource exchange*

ENDURE - Internal Mobility

Final activity report

(The form has to be filled in and sent to the activity leader – message should be sent to his p.a. elisa.scanzi@ibaf.cnr.it *– within 15 days after the end of the visit)*

Topic of the visit
Creation of the virtual laboratory

1. Information about researcher and sending partner

Name and surname: DEYTIEUX Violaine

Professional status: junior scientist

Sending partner: INRA

Institute/Department/Research Unit:
INRA Dijon, Experimental unit, Domaine experimental d'Epoisses

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E-mail and phone number of the researcher: violaine.deytieux@epoisses.inra.fr
+33 (0)3 80 69 31 98

Supervisor name*: Nicolas MUNIER-JOLAIN

Supervisor e-mail*: munierj@dijon.inra.fr

Supervisor phone number*: +33 (0)3 80 69 30 35

2. Information about hosting partner

2 hosting partners for this mobility

Hosting partner 1: RRES

Institute/Department/Research Unit:
Rothamsted Research

Department of Plant and Invertebrate Ecology

Address:
Rothamsted Research
Harpenden
Herts., AL5 2JQ
UK

Supervisor name*: Neal EVANS

Supervisor e-mail*: neal.evans@bbsrc.ac.uk

Supervisor phone number*: +44 (0)1582 763133 x 2296

Hosting partner 2: University of Cambridge

Institute/Department/Research Unit:
University of Cambridge
Department of Plant Sciences
Epidemiology and Modelling Group

Address:
Department of Plant Sciences
University of Cambridge
Downing Street
Cambridge
CB2 3EA

Supervisor name*: Doug BAILEY & Chris GILLIGAN

Supervisor e-mail*: djb21@cam.ca.uk

Supervisor phone number*: +44 (0)1223 330229

3. Information about the visit

Duration: 5 months

Starting date: 30/04/2007

Ending date: 28/09/2007

4. Description of the activities and outcomes

Background and context:

RRES: V. Deytieux is the sub-activity leader (IA2.2) of one part of the Virtual laboratory of ENDURE and Neal Evans is the administrator of the virtual laboratory; he's also the IA2.1 and IA2.3 sub-activities leader and the IA2 activity leader.

University of Cambridge:
Field vegetable production involves routinely the growth, or propagation, of seedlings in trays composed of units of varying size. The main identifying characteristic of seedling propagation is, therefore, the unit size of propagation trays and thus, the planting density at which the seedlings

are grown. Recent epidemiological (percolation) theory for the spread of soil-borne disease demonstrates a clear mechanistic link between fungal growth from an individual host, the density of hosts and the invasive spread of the pathogen in a population of hosts. Translation of this theory for disease risk in the propagation of vegetable seedlings suggests a switch from the restricted spread of the pathogen at low planting density to the invasive spread of the pathogen at higher planting densities. The main risks to these systems are (i) the invasive spread of soil-borne pathogens and (ii) hidden infestation without visible symptoms of disease.
I've participated to a project on the spread and control of the infestation and disease caused by the soil-borne plant pathogen Rhizoctonia solani in propagation systems of field vegetables. The work consisted to examine the consistency of this theory for the spread and infestation of damping-off disease caused by R. solani in commercial propagation trays.

Objective:

- To improve English language to facilitate involvement in ENDURE activities
- RRES: to develop the collaboration between RRES and INRA, to launch the reflexion and to begin the construction of the Virtual Laboratory, especially the part dedicated to facilities and laboratory equipment.
- University of Cambridge: (i) To demonstrate experimentally that threshold densities of host plants exist that may lead to a switch from non-invasive to the invasive spread of disease; (ii)) To examine the relationship between the spread of disease and the saprotrophic infestation of the pathogen at selected planting densities above and below threshold values.

Activities carried out: *maximum 20 lines*

RRES:
I've written a questionnaire in order to survey the different facilities that ENDURE partners would like to share in the network. This questionnaire was sent at first to all the partners involved in IA22 sub-activity and it helped us to organize a 2 days workshop in order to discuss about the VL creation and the activities of the IA 21,22 and 23 sub-activities for the next 12 months.
I've synthesised the information available in the questionnaire answers, and proposed a prototype of database (in collaboration with Nicolas Munier-Jolain INRA) and a template for the part of the virtual laboratory dedicated to the field experiments sites. Also, the collected information allowed me to quite achieve the mapping of field experiment sites.
Next we discussed of the technical aspects of the virtual laboratory: how to share the information via a website (or the ENDURE workspace), how to propose and present the information and how to fill the database.

University of Cambridge:
I've participated to the implementation of 2 experiments in the plant growth facilities of the University of Cambridge. They allowed studying the spread of the infestation and the disease caused by the fungus pathogen Rhizoctonia solani Khün in experimental conditions (Experiment 1) and in conditions quite similar to those of commercial propagators (Experiment 2) in different planting densities.
I've been involved in the analysis of the results and the writing of a publication is in progress.

5. Links between visit activity and ENDURE

Describe links and relevance of your visit in relation to a specific ENDURE activity(ies) and sub-activity(ies) – maximum 15 lines

RRES: The activities carried out during the mobility are completely included in the IA2.2 sub-activities and in the activities of the virtual laboratory. The mobility allowed to make it more

concrete the collaboration with RRES, especially with Neal Evans (administrator of the Virtual Laboratory) and Colin Deholm (webmaster involved in technical aspects of the virtual laboratory).

University of Cambridge:
The results obtained would probably contribute to the research activities of ENDURE dedicated to vegetables. A research activity “vegetables” has been proposed in the 2nd JPA.

6. Impact

Added value for the researcher: *maximum 10 lines*
This stay in UK allowed me to really improve my English language skills and it’s very useful for my activities in ENDURE.
Also, this mobility allowed me to develop a good relationship with our partner Rothamsted Research and thanks to my stay at Rothamsted Research, our collaboration is more easy for ENDURE activities.
My work in the University of Cambridge allowed me to develop my skills in this type of approach and methodology.

Added value for sending partner and hosting partner: *maximum 10 lines*
This mobility was a very good training for a recently recruited junior scientist and it allowed to rapidly immerge the scientist in the ENDURE network in order to facilitate her activities in the future.
Also, the relationship between the 2 partners of the project were improved and facilitated and a better communication for the construction of the virtual laboratory was established.
The added value for the University of Cambridge is in the progress on a more important project on the spread and control of a soil born plant pathogen and in the future publication of an article. The results obtained could be included in ENDURE Research activities.

Date of submission: 27 December 2007

endure
diversifying crop protection

Dr. Maurizio Sattin
IA3 activity leader

Approved