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. federica.piccolo@ibaf.cnr.it *– within 15 days after the end of the visit)*

Topic of the visit

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1. Information about researcher and sending partner

Name and surname: Roberta Masin

Professional status: Post-doc

Sending partner: CNR

Institute/Department/Research Unit: IBAF

Address: Viale dell'Università 16, 35020 Legnaro (PD)

E-mail and phone number of the researcher: roberta.masin@unpd.it

Supervisor name*: Prof. Giuseppe Zanin

Supervisor e-mail*: giuseppe.zanin@unipd.it

Supervisor phone number*: (+39) 049 8272819

*Supervisor information only for PhD student, post-doc and junior researchers

2. Information about hosting partner

Hosting partner: AU (Aarhus University)

Institute/Department/Research Unit: Department of Integrated Pest Management

Address: Forsøgsvej 1, DK-4200 Slagelse

Supervisor name*: Niels Holst

Supervisor e-mail*: Niels.Holst@agrsci.dk

Supervisor phone number*: (+45) 89993591

* For senior scientist indicate the name of the collaborating colleague

3. Information about the visit

Starting date: 30/09/2010 **Ending date: 30/10/2010**

Total duration *(number of weeks)**: 4 weeks***

4. Description of the activities and outcomes

Background and context: *maximum 10 lines*
The main topics of the visiting researcher include modelling of weed emergence for crop protection, crop-weed competition and modelling of its effects on crop yield, and development of DSS for weed control. The visiting researcher is involved in the ENDURE (I.A. 2.4) for the construction of an operational DSS for weed control in maize that integrates selected bests parts of 3 existing DSS. The collaboration between IA 2.4 and I.A. 4 (that the hosting researchers are involved in) is based on the use of the modelling tool Universal Simulator to formulate the models developed within ENDURE project.

Objective: *maximum 10 lines*
Main objective of the mobility period was, for the visiting researcher, to acquire the skills to use the modelling tool Universal Simulator (previously known as WeedML). This tool was used for representing the weed emergence models (WeedTurf and AlertInf) previously developed by the research group of the visiting researcher.

Activities carried out: *maximum 20 lines*

- *Study of the basic concepts of XML (eXtensible Markup Language) specification.*
- *XML representation (Universal Simulator compliant) of the emergence models (WeedTurf and AlertInf)*
- *Development of the UniSim open source plug-ins which implement both the weed emergence models for end-users.*
- *Development of a plug-in to implement advanced AlertInf (model for weed control in maize) functionalities able to make statistical analysis and provide the evaluation indexes of the simulations. Such version will be useful to researchers for easily evaluating every year the model performance.*
- *Additional statistical analysis with the R software package were commenced.*

5. Links between visit activity and ENDURE

The visiting researcher is involved in the ENDURE Integrating Activity 2.4 "Development of a modeling platform and integration of decision support systems". One of the aims of this activity is the construction of an operational DSS for weed control in maize that integrates selected bests parts of 3 existing DSS (CPOWeeds (INRA), DECIDHerb (AU) and GestInf (CNR). The IA 2.4 collaborates with IA 4 (that the hosting researchers are involved in). The IA 4 has created and made freely available software package useful to formulate models for weed control. This tool will be used for representing the emergence models which the research group of the visiting researcher developed for improving weed control in Italy.

6. Impact

Added value for the researcher: *maximum 10 lines*
The added value for the visiting researcher was:
- *learning the basic elements of XML language.*
- *learning how to implement a model into the XML language (Universal Simulator).*
- *applying his knowledge to develop UniSim open source plug-ins of WeedTurf and AlertInf models.*

Added value for sending partner and hosting partner: *maximum 10 lines*
The hosting partner had the chance to represent a new kind of models, the emergence predictive models, using the Universal Simulator Program and so improve the program performance. The sending Institution had the chance, through this mobility, to improve knowledge about software languages in its working group and develop plug-ins implementing the two weed emergence models (WeedTurf and AlertInf). Both Institutions aim at making the collaboration lasting in the future.

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endure
diversifying crop protection

Dr. Maurizio Sattin
IA3 activity leader

Approved