



ENDURE

European Network for Durable Exploitation of crop protection strategies

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Thematic Priority 5
FOOD and Quality and Safety

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Report on progress and success with the implementation of the first human resource exchanges

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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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Summary

Mobility plans are important instruments to efficiently implement programmes of human resource exchange for scientists and young researchers (PhD students and new post-docs). The Network has allocated substantial funding to this activity.

The first internal human mobility plan was set up well before the beginning of the project and it involved only partners of the ENDURE Network.

All information about the implementation, rules, duties and procedures were regularly updated by IA3 coordination office in the web-site.

During the implementation of the plan several researchers were substituted with others and many deviations from the original plan had to be discussed and agreed.

At the moment, more than 40% of the researchers included in the first mobility plan have done all or part of their mobility period (10 researchers have finished while one has done half of it). A total of 25.5 months of mobility were done, which represent more than 45% of the overall number of mobility months originally planned.

The other 15 researchers have been included in the second mobility plan (spanning from M13 to M30) and most of them have recently confirmed that they will finish their mobility according to the plan by June 2008 while a few, for various valid reasons will finish it by the end of 2008.

1. First mobility plan

1.1 Planning

Mobility plans are important instruments to efficiently implement programmes of human resource exchange for scientists and young researchers (PhD students and new post-docs). The Network has allocated substantial funding to this activity. The first internal human mobility plan of ENDURE was set up well before the beginning of the project and it involves only partners of the ENDURE Network.

1.2 Definition of the rules, duties and procedures

The first mobility plan involves only people belonging to the network's partners. In June 2007, after a discussion with the management team, it was decided to extend the period of implementation of ENDURE mobility plans from 12 to 18 months because this allows a better planning and more flexibility. Therefore the period of implementation of the 1st mobility plan spans from January 2007 to June 2008. The plan includes a total of 26 researchers (10 scientists or senior scientists and 16 younger researchers – see attachment 1); all research partners are involved either as sending or hosting institution. Young researcher means a PhD student or a person with less than four years of experience after his/her degree (including PhD courses), while senior researcher is a person with at least ten years of research experience after his/her degree. For each stage, the length of the period was set at 1-2 months for senior researchers and 3-6 months for younger researchers. The grants were roughly calculated according to Marie Curie schemes.

Relevant rules are:

- During the visit, the researcher must continue to be employed by his/her sending organisation; salary is not an eligible cost.
- Eligible costs are:
 - travelling: 1 round trip travel from the sending to the hosting institution (max € 750);
 - accommodation and living expenses according to internal rules of the sending institution.
 - the budget for each researcher was decided and allocated before the start of the project. Only this budget can be refunded by ENDURE unless any change is previously agreed with the activity leader.

A procedure was decided:

- a) the researcher, prior to the start of the visit, has to confirm to the activity leader, Maurizio Sattin, about the starting and ending date of the visit as well as the hosting institution (message should go to his p.a.: elisa.scanzi@ibaf.cnr.it);
- b) at the end of the visit, the researcher has to send a final report (see attachment 1) to the activity leader, Maurizio Sattin, (message should go to his p.a. elisa.scanzi@ibaf.cnr.it). The final report should be sent within 15 days after the end of his/her visit;

c) the researcher will be refunded directly by his/her institution after the activity leader has approved and transmitted the final report to the reference person of the specific organisation. The reference person for each organisation should inform his/her administration of the above rules.

1.3 The implementation of the first mobility plan

Considering that the first mobility plan was planned well in advance of the ENDURE start, it has been decided to let Organisations change researchers and researchers change hosting Institution.

All information about the implementation, rules, duties and procedures were regularly updated by IA3 coordination office in the public ENDURE web-site.

At the moment, more than 40% of the researchers included in the first mobility plan have done all or part of their mobility period (10 researchers have finished while one has done half of it). A total of 25.5 months of mobility have been done, which represent more than 45% of the overall number of mobility months originally planned. Mobility during 2007 involved six ENDURE institutions as sending partner and seven as hosting partner.

Eight researchers sent their final report to the activity leader (see attachment no. 2). For some of them additional information or clarification of specific points were requested, however all of them at the end were approved by the activity leader (see attachment no 2). Despite repeated requests, T. Kagi (AGROS) and Z. Galbacs (SZIE) have not sent their final report yet.

The remaining 15 researchers have been included in the second mobility plan (spanning from M13 to M30) and most of them have recently confirmed that they will finish their mobility according to the plan by June 2008 while a few, for various valid reasons, will finish it by the end of 2008.

This delay is probably related to initial phase of the project when the system needed some running in as well as to a delayed start of some sub-activities. On the other hand, several positive comments and feed back relative to the flow of information and the general management of the mobility have recently been received from the Organisations' reference person.

2. Problems

The very early planning of the first mobility plan coupled with the initial phase of the project when the organisation was being set up caused some initial confusion and delay.

During the implementation of the plan several institutions asked to substitute some of the researchers originally included in the plan and many other deviations from the original plan had to be discussed and agreed. Several people thought they could do and change things whenever they wished.

It has been difficult to get information back from the participants to the first mobility plan, who often did not answer to e-mails sent by the IA3 activity leader (i.e. participants did not inform the activity leader about the change of hosting institution or about the starting and end dates of their visit).

Annex I: table of the first mobility plan

	Name	Position	Hosting institute	Duration	Topic
AGROS	T. Musa	Scientist	DIAS	1 month	Factors influencing the epidemic of Fusarium head blight and assessments of common species by PCR methods
	L. Eggenschwiler	Junior Scientist	RRES/BBA	2.5 months	The value of 'non-cropped' land on farms for conservation biological control (sampling natural enemies on farms across the East of England that have contrasting crop and non-crop diversities and/or sampling soils in the different habitats for ascomycete fungi)
	G. Mack	Senior Sci.	PRI	1 month	Literature review on the effect of risked management and information on strategic and tactical choices of farmers will allow setting up a methodology for applied studies
	T. Kagi	Junior Sci.	BBA	1 month	SYNOPS model / Look for data Case Study Wheat
BBA	Hertz	post doc	CIRAD	2 months	To define current constraints which hamper the practical implementation of promising biocontrol approaches in outdoor crops
	A. Guenther	PhD	SZIE	1 month	Basic conditions and requirements for training and certification of farmers, advisors and distributors for using plant protection products in ENDURE partner states
	J. Strasemeyer	Senior Scientist	AGROS	1 month	SYNOPS model; implementation of data
	S. Deike	PhD	RRES	2 months	Long-term effects of different pest and fertilization managements on the resource efficiency in integrated and organic farming systems
CNR	L. Rosso	Post doc	RRES	2 months	Practical aspects of microbial selections for control of main through the release of antagonists
	E. Guerrieri	Scientist	RRES	1 month	Improvement of the efficiency of natural enemies of plant pests through characterization of foraging behaviour. Volatiles involved in long-range and short-range attractiveness towards insect parasitoids in a tritrophic contest
	I. Sartorato	Scientist	RRES	2 months	Biology and ecology of weed species, modelling of weed competitiveness in relation to species establishment and early growth. Protocols on ecophysiological characterisation of invasive species
	L. Scarabel	Scientist	INRA	2 months	Resistance to acetyl-CoA carboxylase inhibiting herbicides in grass weeds. Characterise the genetic and molecular target-site based resistance. Use of molecular tools to perform population genetic studies and to diagnose herbicide resistance

	G. della Rocca	PhD	INRA	1.5 months	Developing a strategic approach in biological control and a sustainable management of tree crop fungi
IHAR	E. Kochanska – Czembor	Senior Sci.	AGROS	2 months	Powdery mildew resistance genes in wheat and barley
	J. Henryk Czembor	Senior Sci.	Univ. Of Zurich	2 months	Fusarium in maize
PRI	M. Klerks	PhD	AU (DIAS)	3 months	Risk analysis of the occurrence of Human pathogens on fresh products using advanced detection and monitoring technologies
	R. Trifonia	PhD	AGROS	3 months	Evaluate application of a new environmentally friendly substrate in organic farming. Microbial colonization of torrefied grass fibers with the aim to develop an alternative for the use of peat in potting soil
	M. Riemens	PhD	SSSUP	3 months	Management of weeds in crop protection systems aimed at suppression of <i>Meloidogyne</i> species
SSSUP	L. Boccaccio	PhD	AGROS	3 months	Landscape and field effects on insect pests-natural enemies interactions
	F. Bigongiali	PhD	AGROS	6 months	Increased competitive ability of wheat cultivars as an IWM tool
SZIE	G. Turoczi	Senior Scientist	RRES	1 month	Sharing knowledge on biological resources, standardization of methods
	Z. Galbacs	PhD	INRA	3 months	Marker assisted selection (MAS) for powdery and downy mildew resistance in a grapevine hybrid family
INRA	M. Sigwaert	Junior scientist	SSSUP	1 month	Characterization of Esterase (Enzyme involved in insecticides resistance) in <i>C. pomonella</i> in order to find molecular markers to detect resistant insects 2-prospective collaboration on olive fly management
	R. Paratte	PhD	AGROS	3 months	Study on apple production systems, information and method exchange
	V. Deytieux	PhD	RRES	5 months	Creation of the virtual laboratory
	C. Lamine	Senior Sci.	AU	1 month	Comparison of certified low input production systems

Annex II: People that have done their mobility during 2007

	Name	Position	Hosting institute	Duration	Topic
AGROS	G. Mack	Senior Sci.	PRI	1 month	Literature review on the effect of risk management and information on strategic and tactical choices of farmers will allow setting up a methodology for applied studies
	T. Kagi	Junior Sci.	BBA	1 month	SYNOPS model / Look for data Case Study Wheat
BBA	J. Strasemeyer	Senior Scientist	AGROS	1 month	SYNOPS model; implementation of data
	S. Deike	PhD	RRES	2 months	Long-term effects of different pest and fertilization managements on the resource efficiency in integrated and organic farming systems
CNR	G. della Rocca	PhD	INRA	1.5 months	Developing a strategic approach in biological control and a sustainable management of tree crop fungi
SSUP	F. Bigongiali	PhD	AGROS	6 months	Increased competitive ability of wheat cultivars as an IWM tool
SZIE	Z. Galbacs	PhD	INRA	3 months	Marker assisted selection (MAS) for powdery and downy mildew resistance in a grapevine hybrid family
INRA	M. Sigwaert	Junior scientist	SSSUP	1 month	Characterization of Esterase (Enzyme involved in insecticides resistance) in <i>C. pomonella</i> in order to find molecular markers to detect resistant insects 2-prospective collaboration on olive fly management
	R. Paratte	PhD	AGROS	3 months	Study on apple production systems, information and method exchange
	V. Deytieux	Junior Sci.	RRES	5 months	Creation of the virtual laboratory
	C. Lamine	Senior Sci.	AU	1 month	Comparison of certified low input production systems

Attachments

1. Final report form



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

1. Information about researcher and sending partner

Name and surname:

Professional status: *(PhD student, post-doc, junior or senior scientist)*

Sending partner:

Institute/Department/Research Unit:

Address: *(street, postal code, city)*

E-mail and phone number of the researcher:

Supervisor name*:

Supervisor e-mail*:

Supervisor phone number*:

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

2. Information about hosting partner

Hosting partner:

Institute/Department/Research Unit:

Address: *(street, postal code, city)*

Supervisor name*:

Supervisor e-mail*:

Supervisor phone number*:

* For senior scientist indicate the name of the collaborating colleague

3. Information about the visit

Duration: *(number of weeks or months)*

Starting date:

Ending date:

4. Description of the activities and outcomes

Background and context: *maximum 10 lines*

Objective: *maximum 10 lines*

Activities carried out: *maximum 20 lines*

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

6. Impact

Added value for the researcher: *maximum 10 lines*

Added value for sending partner and hosting partner: *maximum 10 lines*

Date of submission

2. Final activity reports of the researchers



European Network for the durable exploitation of crop protection strategies

IA3 Activity: Human resource exchange

ENDURE - Internal Mobility

Final activity report

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

Topic of the visit

Comparison of certified low input production systems

1. Information about researcher and sending partner

Name and surname: Claire LAMINE

Professional status: *senior scientist*

Sending partner: INRA

Institute/Department/Research Unit: Eco-Innov

Address: *(street, postal code, city)* 78850 Thiverval Grignon France

E-mail and phone number of the researcher: clamine@grignon.inra.fr

Supervisor name*:

Supervisor e-mail*:

Supervisor phone number*:

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

2. Information about hosting partner

Hosting partner: AU

Institute/Department/Research Unit: Department of Agroecology and Environment

Address: *(street, postal code, city)* Blichers Allé Postbox 50 DK-8830 Tjele

Supervisor name*: Egon Noe

Supervisor e-mail*: Egon.Noel@agrsci.dk



Supervisor phone number*: 45 8999 1207

* For senior scientist indicate the name of the collaborating colleague

3. Information about the visit

Duration: (*number of weeks or months*) 1 month

Start date: 1st October 2007

End date: 2nd November 2007

4. Description of the activities and outcomes

Background and context: *maximum 10 lines*

AU and INRA both participate to RA3.5 and it seemed useful to enhance the collaboration through a mobility stay.

As Denmark often appears as a “model” regarding the reduction of pesticides and pesticides action plans, it is important for all Endure to understand the potentialities and the limits of Danish actions and policies.

Objective: *maximum 10 lines*

The main objectives were to carry out an analysis of the involvement of civil society in the elaboration of Danish policy of pesticide reduction as well as an analysis of the Danish IP scheme.

Activities carried out: *maximum 20 lines*

1 – the involvement of civil society in the elaboration of Danish policy of pesticide reduction

- analysis of the documentation
- interview of 10 persons: institutions and scientists that were responsible for the elaboration of this policy and the involvement of the civil society; civil society actors (consumer, farmer, environmental, crop protection organisations) which took part to this process

2 – a socio-technical study of the Danish IP label

- analysis of the documentation concerning this label, its history and network
- 3 interviews

3 – scientific discussions with Danish colleagues on our respective research programs on crop protection issues and our theoretical paradigms

- with Egon Noe, Hugo Alroe, N. Halberg
- one seminar around farmers’ trajectories and conversion to organics (cross disciplinary project) held on October 29th

The analysis of point 1 was presented as a working paper in Versailles Endure AM and will be put on Endure website. The analysis of point 2 will be also written in a working paper and will be integrated in the comparative analysis at RA3.5 scale.

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

This mobility stay inform both RA3.5 and SA3.3, but is interesting for SA1 (prospective study) and Endure in general as it is essential to understand the factors of success and the limits of the so-called “Danish model” regarding the pesticides policy and national action plans. In the near future, all other member states will have to implement such plans.

More precisely, the work achieved during this mobility stay was necessary to understand which stakeholders were involved, and how they were involved, in these processes.

6. Impact

Added value for the researcher: *maximum 10 lines*

This mobility stay was a very good opportunity to do some fieldwork in another country, which is usually very difficult, thanks to a very good preparation and introduction by my Danish colleagues.

It was very important to understand the potentialities and the limits of the so-called “Danish model” regarding the reduction of pesticides and pesticides action plans. This is all the more important that all other member states and France among them are going to implement such plans.

Added value for sending partner and hosting partner: *maximum 10 lines*

Enhance the collaboration between the sociologists of the 2 institutes and their willing to develop interdisciplinary approaches, as we all belong to interdisciplinary research teams.

For Danish scientists and stakeholders it was interesting to have this analysis (that have not really been done yet even by national scientists) done by someone from a different background. The preparation of the fieldwork as well as the analysis could be discussed along the way.

Date of submission

1st December 2007



Dr. Maurizio Sattin
IA3 activity leader

Approved



European Network for the durable exploitation of crop protection strategies

IA3 Activity: Human resource exchange

ENDURE - Internal Mobility

Final activity report

Topic of the visit

“Resource efficiency in different farming systems as related to different intensity of fertilizer application and pesticide use”

1. Information about researcher and sending partner

Name and surname: Stephan Deike

Professional status: PhD student

Sending partner: Federal Biological Research Centre for Agriculture and Forestry (BBA)

Institute/Department/Research Unit: Institute for Integrated Plant Protection

Address: Stahnsdorfer Damm 81, D-14532 Kleinmachnow, Germany

E-mail and phone number of the researcher: S.Deike@bba.de; +49 33203 48-399

Supervisor name: Bernd Hommel

Supervisor e-mail: B.Hommel@bba.de

Supervisor phone number: +49 33203 48-312

2. Information about hosting partners

2.1 Hosting partner: University of Aarhus (AU), Faculty of Agricultural Sciences

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

Address: Forsøgvej 1, DK-4200 Slagelse, Denmark

Supervisor name: Dr. Per Kudsk

Supervisor e-mail: Per.Kudsk@agrsci.dk

Supervisor phone number: +45 8999 3582

2.2 Hosting partner: Rothamsted Research (RRes)

Institute/Department/Research Unit: Department of Soil Science (SCC)

Address: Harpenden, Herts, AL5 2JQ, UK

Supervisor name: Prof. Keith Goulding

Supervisor e-mail: Keith.Goulding@bbrsc.ac.uk

Supervisor phone number: +44 01582 763133

3. Information about the visit

3.1 AU, Denmark

Duration: 5 weeks

Start date: 27/08/2007

End date: 28/09/2007

3.2 RRes, UK

Duration: 5 weeks

Start date: 30/10/2007

End date: 30/11/2007

4. Description of the activities and outcomes

Background and context: Nitrogen surplus, efficiency of fossil energy use, and humus replacement are important indicators for the assessment of different farming systems with regard to their sustainability. Information on the long-term effect of pest management strategies on yield, nitrogen balances, and energy use efficiency are scarce, though various husbandry measurements will often cause changes in the population dynamic of weeds and other soil-borne pests not until several years.

Moreover, changes in the soil organic matter content and different steady-state-situations, with consequences for the nitrogen turnover, will take a number of years to develop. So, long-term effects of different management practices on the indicators mentioned have to be taken into account when assessing different strategies of pesticide use.

Objective: The main objectives of both visits were to investigate the impact of different pest management strategies on different indicators of resource efficiency, namely nitrogen balance, energy use efficiency and humus replacement by considering interactions with other management practices, such as crop grown, crop rotation, tillage intensity, or fertilizer application. Furthermore, other important agronomical and phytopathological aspects like yields and pest infestation level should have been taken into account.

Activities carried out:

AU, Denmark:

- Investigation of several one-year field trials with different pesticide use intensity conducted on different experimental sites in Denmark, e.g. different application rates and dressings of fungicides in winter wheat, in regard to nitrogen surpluses by using

the balance model REPRO (co-operation with Lise Nistrup-Jørgensen, Head of sub-activity “Case-study Wheat” in RA 1).

- Detailed investigation of the CENTS-Experiment (**C**rop Management and **E**conomics of **N**on-Inversion **T**illage **S**ystems) conducted at the experimental Flakkebjerg for the period from 2003 to 2006. By using the balance model REPRO, yields, nitrogen efficiency, humus replacement, and energy efficiency as related to different intensity of tillage, pesticide use and crop rotation have been investigated (co-operation with Bo Melander, Head of sub-activity “Case-study Integrated Weed Management” in RA 1). It is aimed to assess the potential risk of environmental endangerments caused by the different pesticide treatment applied to the CENTS-Experiment by using the model SYNOPS (co-operation with Jörn Strassemeyer, BBA; also involved in Research Activity RA3).

RRes, UK

- Investigation of the Broadbalk-Experiment with respect to yields, nitrogen efficiency, humus replacement, and energy efficiency as related to fertilizer application, crop rotation, and pesticide use by using the model REPRO for the period from 1997 to 2006. Specific emphasis on interactions between fertilizer and pesticide application, long-term effects of different husbandry and changes of soil humus content caused by different management practices.

5. Links between visit activity and ENDURE

The investigations carried out within both visits can be assigned to the Endure Research Activity RA3: “Multi-sector evaluation of crop protection methods and farming systems”. There is a specific link to the sub-activity RA 3.4 “Life Cycle Assessment”. Existing methods to assess pesticide risk and environmental impact cannot be readily applied to a Life Cycle Assessment (LCA) approach. So, it has to be investigated if certain indicators used within LCA, such as nitrogen efficiency, energy use, and humus replacement, can be applied for the assessment of different strategies of pesticide use.

6. Impact

Added value for the researcher: The investigation of different long-term experiments with different husbandry conducted on different sites with respect to resource efficiency enables us to arrive at more general conclusions regarding the impact of different strategies of pesticide use as well as their long-term effects.

The results of comparing the different field trials in Denmark and in the UK with other long-term field trials conducted at the experimental site Dahnsdorf, Germany are aimed to be enclosed in the PhD thesis of Stephan Deike.

Added value for sending partner and hosting partner: The investigations of all research institutes are either focussed on phytopathological aspects (AU, BBA) or agronomical and phytopathological aspects (RRes). The investigation of their field experiments in existence with regard to resource efficiency is a fairly new and different way of assessing the different management practices tested. Since environmental effects of agriculture (e.g. nitrate leaching, fossil energy use, and carbon dioxide emissions) are of growing concern, the indicators used for investigating the field experiments (e.g. nitrogen surplus, energy efficiency, and humus replacement) have to be taken into account for an overall assessment of farming systems or different husbandry practices. This is especially true for different strategies of pesticide use.

Date of submission
05/12/2007



Dr. Maurizio Sattin
IA3 activity leader

Approved



European Network for the durable exploitation of crop protection strategies

IA3 Activity: Human resource exchange

ENDURE - Internal Mobility

Final activity report

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

Topic of the visit

Literature review on the effect of risk management and information on strategic and tactical choices of farmers will allow setting up a methodology for applied studies

1. Information about researcher and sending partner

Name and surname: Gabriele Mack

Professional status: *senior scientist*

Sending partner: Agroscope Reckenholz-Tänikon (AGROS)

Institute/Department/Research Unit: Forecasting systems Unit of AGROSCOPE ART.

Address: 8356 Ettenhausen, Switzerland

E-mail and phone number of the researcher: Gabriele.mack@art.admin.ch

Supervisor name*:

Supervisor e-mail*:

Supervisor phone number*:

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

2. Information about hosting partner

Hosting partner: Agricultural Economics Research Institute (LEI)

Institute/Department/Research Unit: Plant division, section Enterprise & Environment;

Address: Burgemeester Patijnlaan 19 - 2585 BE Den Haag - The Netherlands

Supervisor name*: Jan Buurma

Supervisor e-mail*: jan.buurma@wur.nl

Supervisor phone number*: 31 (0)70 3358330

* For senior scientist indicate the name of the collaborating colleague

3. Information about the visit

Duration: 4 weeks

Start date: 13. August 2007

End date: 9. September 2007

4. Description of the activities and outcomes

Background and context:

To manage crop production risks, which are caused by pest and diseases, farmers apply various risk management strategies. The most common strategies are: diversification of the cropping system, cultivating more or less risky crops, growing resistant cultivars and improving the knowledge related to cropping systems and crop protection methods. These risk management strategies have a wide influence on the application of chemical and alternative pest control measures.

Objective:

1) Deepening knowledge and research skills for ENDURE RA 3.2 on the impact of risk on pesticide use and risk management strategies:

- Theoretical aspects of risk-perception on tactical and strategic choices of farmers.
- Research on causal connection between risk-perception, pest incidence and intensity of crop protection and degree of innovation.

2) Improving language skills (English communication)

Activities carried out:

A literature review on risk-management and pesticide use on farm level. The literature review comprises three parts:

1. Summary on scientific definitions related to risk and risk management
2. Overview on Economic theory: Economics of decision making on pesticide use
 - Overview of economic models
 - Impact of risk on decision making on pesticide use
3. Overview on risk management strategies on farm level to reduce pesticides
 - Influence of entrepreneurship on pesticide use
 - Factors affecting adoption of IPM-methods

5. Links between visit activity and ENDURE

Elaborating a literature review on risk caused by pest and diseases and the impact on pesticide use is part of the research activities of RA 3.2 in the first 18 months. The objective of RA 3.2 in the first phase is to carry out a literature review on the effect of risk perception and gained information about pest incidence on strategic and tactical choices of farmers will allow setting up a methodology for applied studies. (see ENDURE – 031499, Annex I, Description of work, Release 3 , S 154)

6. Impact

Added value for the researcher:

It was very interesting to gain insight into working conditions and operational procedure in a foreign research institute.

Added value for sending partner and hosting partner: *maximum 10 lines*
Contacts to work together in other projects were made.

Date of submission

26/11/2007



Dr. Maurizio Sattin
IA3 activity leader

Approved



European Network for the durable exploitation of crop protection strategies

IA3 Activity: Human resource exchange

ENDURE - Internal Mobility

Final activity report

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

Topic of the visit

Test antimicrobial activity of polyphenols from olive oil mill waste-water (OMW) against some phytopathogenic fungi

1. Information about researcher and sending partner

Name and surname: GIANNI DELLA ROCCA

Professional status: PhD STUDENT

Sending partner: CONSIGLIO NAZIONALE DELLE RICERCHE (CNR), ITALY.

Institute/Department/Research Unit: ISTITUTO PER LA PROTEZIONE DELLE PIANTE Sez. di Firenze. (IPP-CNR).

Address: Via Madonna del Piano 10, 50019 Sesto F.no (FI) ITALY

E-mail and phone number of the researcher: g.dellarocca@ipp.cnr.it, 0039 3405717472

Supervisor name*: DANTI ROBERTO

Supervisor e-mail*: r.danti@ipp.cnr.it

Supervisor phone number*: 0039 0555225583

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

2. Information about hosting partner

Hosting partner: INSTITUT NATIONAL DE LA RECHERCHE AGRONOMIQUE (INRA), FRANCE.

Institute/Department/Research Unit: URIH. Unité de Recherches Intégrées en Horticulture. Laboratoire de Pathologie appliquée.

Address:

INRA - 400 Route des Chappes - BP 167 06903 SOPHIA-ANTIPOLIS

Supervisor name*: M.me Claudine Andreoli.

Supervisor e-mail*: andreoli@sophia.inra.fr



Supervisor phone number*:0033 671866607

* For senior scientist indicate the name of the collaborating colleague

3. Information about the visit

Duration: 6 weeks

Start date: July 21 , 2007

End date: September 1st, 2007

4. Description of the activities and outcomes

Background and context:

Olive oil extraction produces a great volume of residue. This olive mill waste-water (OMW) is a powerful pollutant, resistant to degradation and presents a severe environmental problem related to its high organic content made up largely of phenolic compounds well characterized, that have been described as being antimicrobial and phytotoxic. On the other hand the toxicity of those compounds against bacteria (Capasso et al., 1995, Ramos-Cormenzana et al., 1996), fungi (Fodale et al., 1999; Kotsou et al., 2004)), algae (Della Greca et al., 2001), plants (Casa et al., 2003), insects (Capasso et al., 1994) could be used for production of biopesticides. It is demonstrated that, biophenols that are extracted and isolated from fractioned OMW, have a selected and minimal toxicity (Obied et al., 2007).

Objective:

Verify the possibility of using the active polyphenols from olive oil mill waste-water (OMW) in an integrated disease management program for the protection of some forest trees against some important pathogenic fungi.

Activities carried out:

We tested in vitro the antimicrobial activity of polyphenols from olive oil mill waste-water (OMW) against some fungi agents of important diseases on some forest trees. The fungi selected for the test were *Seiridium cardinale* and *Sphaeropsis sapinea* agents on cypress and pinus cankers; *Cryphonectria parasitica* agent of chestnut canker; *Ophiostoma novo-ulmi* agent of dutch elm disease. We prepare some cultural media containing extracts at different concentrations of OMW collected in Florence. Mycelium plugs of the four pathogens were transferred on Petri plates containing the medium. After incubation at 25°C, the diametric growth of the colonies was measured after 3 weeks.

5. Links between visit activity and ENDURE

Research oriented toward plant protection technologies against diseases using sustainable low environmental impact methods.

6. Impact

Added value for the researcher:

Improvement of the knowledge on the control of the diseases using sustainable methods; Experience exchange with researchers of INRA about plant protection; Visit of some experimental plantations in the south of France; Improvement of French language.

Added value for sending partner and hosting partner:

Increasing the knowledge about the possibility of applications of OMW to control some pathogenic fungi responsible of severe diseases that are of interest for both the research units.

Date of submission

27/12/2007



Dr. Maurizio Sattin
IA3 activity leader

Approved



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

Address: Domaine d'Epoisses
21110 BRETENIERE
FRANCE

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@diyon.inra.fr

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

2. Information about hosting partner

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 IA2.1,2 and 3 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 making 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 immerse 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



Dr. Maurizio Sattin
IA3 activity leader

Approved



European Network for the durable exploitation of crop protection strategies

IA3 Activity: Human resource exchange

ENDURE - Internal Mobility

Final activity report

- 1- Characterization of Esterase (Enzyme involved in insecticides resistance) in *C. pomonella* in order to find molecular markers to detect resistant insects**
2- Prospective collaboration on olive fly management

1. Information about researcher and sending partner

Name and surname:

SIEGWART Myriam

Professional status: (*PhD student, post-doc, junior or senior scientist*)

Junior scientist

Sending partner:

INRA d'Avignon

Institute/Department/Research Unit:

INRA/SPE/PSH

Address: (*street, postal code, city*)

Unité PSH, bât. A
INRA Domaine St PAUL
Site Agroparc
84914 Avignon

E-mail and phone number of the researcher:

myriam.siegwart@avignon.inra.fr

Supervisor name*:

Benoit SAUPHANOR

Supervisor e-mail*:

benoit.sauphanor@avignon.inra.fr

Supervisor phone number*:

04.32.72.26.07

2. Information about hosting partner

Hosting partners:

- University of Modena and Reggio Emilia
- SSSUP of Pisa

Institute/Department/Research Unit:



- Dept. of Agricultural and Food Science
University of Modena and Reggio Emilia
- Land Lab
Scuola Superiore Sant'Anna

Address: (*street, postal code, city*)

- Via Kennedy 17/I 42100 Reggio Emilia Italy
- Piazza Martiri della Libertà 33
56127 Pisa, Italy

Supervisor name*:

- Stefano CASSANELLI
- Paolo Bàrberi, PhD
Associate Professor in Agronomy & Weed Science
EWRS Scientific Secretary

Supervisor e-mail*:

stefano.cassanelli@unimore.it
barberi@sssup.it

Supervisor phone number*:

- +39 (0)522 522047
- +39-050-883.525

3. Information about the visit

Duration: (*number of weeks or months*)

1 month

Start date:

17 november 07

End date:

15 decembre 07

4. Description of the activities and outcomes

Background and context: *maximum 10 lines*

In Reggio Emilia

The codling moth, *Cydia pomonella* (L.) (Lepidoptera: Tortricidae) is the major insect pest in the orchards of temperate regions. Conventional chemical treatments remain the major mean to maintain low population of the pest. As consequence of these treatments, *C. Pomonella* developed resistances to various groups of synthetic insecticides in Europe. The mechanisms involved in such forms of resistance include increase in the activity of several metabolic enzymes as cytochrome P450 oxidases, glutathione-S-transferases or Esterases that confer non-specific insecticide resistance. Molecular characterisation of these enzymes could be very useful in the monitoring and the management of insecticides resistance.

In Pisa

Paolo BARBERI's Team is working on functional biodiversity as related to weed/insect/other biota interactions at field and landscape scale, development of DSS and web-based systems

for the monitoring and control of the olive fly (*Bactrocera oleae*). In Avignon, we have a similar project on the influence of landscape and of the spatial distribution of culture practices on population dynamic of orchard pests.

Objective: *maximum 10 lines*

In Reggio Emilia

In order to:

- understand enzymatic detoxification of insecticides for a better management of insecticide resistance
- identify molecular markers, allowing a faster detection of resistant insects

We want to characterize carboxyl-esterase gene family, which is suspected to be involved in insecticide resistance in *C. pomonella*.

In Pisa

Meet Paolo BARBERI's team to present Avignon's projects and try to begin collaboration.

Activities carried out: *maximum 20 lines*

In Reggio Emilia

First, we wanted to know the genetic code of esterase genes. Carboxyl-esterase is a multi-gene family already described in some insect species. That is why we chose to clone a little part of this gene well conserved in the family. It was carried out by using a couple of degenerated primers designed on data from gene banks. Our matrix (RNA) was extracted from midguts of diapausing larvae of 3 laboratory strains, susceptible, selected for resistance to diflubenzuron, and selected for resistance to azinphos methyl. After a reverse transcription, we managed to amplify a piece of DNA (170 pb). We cloned it on a commercial vector, and sequenced it. We found two different sequences which correspond to esterase after an in silico verification. I started to sequence other different clones after RFLP screening. The objective is to obtain a maximum number of members of this multi gene family.

In another part, we analyzed the polymorphism of esterases of susceptible and resistant individuals using native gel and iso-electric focusing migrations. We used different concentrations of Acrylamide to optimize the separation. Finally, we saw differences related to strains and tissues (midgut and fat body). In the same time, iso-electric focusing gave us new profiles of esterases. We clearly saw two additional bands in resistant individuals compared to susceptible ones. The same observation was made in proteins from midgut or from fat body. It reinforces the hypothesis of different esterase forms in susceptible and resistant individuals.

In Pisa

We have found a common project: testing insecticide resistance of olive fly samples from Toscana, to evaluate the frequency and the magnitude of resistance of this pest, well known to have current target mutation on Acetylcholine esterase.

Actually, a comparative study of insecticide resistance in French and Greek populations of codling moth is carried out on the occasion of collaboration (project PLATON) between Dr Benoit Sauphanor and Professor John Tsitsipis's teams. This researcher is specialised in pesticide resistance in olive fruit fly. This will be the occasion to create a link between these three labs.

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

Objective of my visit in the University of Reggio Emilia and my visit in the Scuola Superiore Sant'Anna in Pisa exactly correspond to the ENDURE sub-activity:
RA4.1 Pesticide resistance management. More precisely, the goal of these training workshops is detection and management of pesticide resistance.

6. Impact

Added value for the researcher: *maximum 10 lines*

In Reggio Emilia

This training workshop taught me new molecular biology techniques. New interesting approaches on esterases, which are essential enzymes in mechanisms of insecticide resistance, will thus be implemented in Avignon. By cloning of the other esterase genes, we could compare the sequences and find specific enzymes involved in pesticide detoxification and define molecular markers for detection of resistance in natural populations of the pest. Starting with known sequences considerably facilitates this work.

In Pisa

Extend relation between our team and other countries. Elaborate new collaborations to get extended pest samples from all over the world. (cf collaboration with Dr John Tsitsipis)

Added value for sending partner and hosting partner: *maximum 10 lines*

In Reggio Emilia

The University of Modena and Reggio Emilia has performed a study on fixed resistant strains of *Cydia pomonella* thanks to this exchange. It has obtained results on esterases on this common project.

In Pisa

Start a new collaboration, estimating the degree of resistance in olive fly population in this region, and add this parameter to their forecasting models.

Date of submission :

20/12/2007



Dr. Maurizio Sattin
 IA3 activity leader

Approved



European Network for the durable exploitation of crop protection strategies

IA3 Activity: Human resource exchange

ENDURE - Internal Mobility

Final activity report

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

**SCREENING OF THE POTENTIAL COMPETITIVE ABILITY OF A MIXTURE OF WINTER WHEAT CULTIVAR
AGAINST WEEDS**

1. Information about researcher and sending partner

Name and surname: Federica Bigongiali

Professional status: PhD student

Sending partner: Scuola Superiore Sant'Anna

Institute/Department/Research Unit: LAND-LAB

Address: Via S.Cecilia 3, 56100 Pisa Italy

E-mail and phone number of the researcher: f.bigongiali@sssup.it ; 050 883506

Supervisor name*: Paolo Bàrberi

Supervisor e-mail*: barberi@sssup.it

Supervisor phone number*: 050 883449

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

2. Information about hosting partner

Hosting partner: Faculty of Agricultural Science, research Centre Flakkebjerg , Aarhus University (DK)

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

Address: Forsøgsvej 1 DK-4200 Slagelse. tel: +45 8999 1900

Supervisor name*: Niels Holst and Preben Klarskov Hansen

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

Supervisor phone number*:

* For senior scientist indicate the name of the collaborating colleague

3. Information about the visit

Duration: 6 months

Start date: 8th May 2007

End date: 18th October 2007

4. Description of the activities and outcomes

Background and context: Two years of experience in open field experiments have as their object the competition between cultivars of wheat and weeds in conventional and organic systems.

Objective: Study of competition between four varieties of spring wheat (chosen to represent the range in varietal weed suppressiveness among varieties in the Danish variety list) and four weeds. Cultivar was studied in pureness and in mixer between them.

Activities carried out: Sampling was carried out in order to monitor:

1. Regularity of density of wheat
2. Phenological phase (according with Zadoks scale (1974), once a week.
3. Density of weeds
4. Biomass of wheat and weeds
5. Height of wheat
6. Crop and weeds canopy cover (By digital image analysis)
7. Harvest
8. Statistical analysis of data

5. Links between visit activity and ENDURE

The visit activity is connected with RA1 Optimising and reducing pesticide use (Leader: DIAS).

Study in depth competition between wheat varieties (with different morphological characteristics) and weeds can give information useful for the management of weeds.

6. Impact

Added value for the researcher: Added knowledge about competitive ability of wheat varieties, and statistical analysis

Added value for sending partner and hosting partner: Possibility to compare the different methodologies used to study competitive ability. Possibility to investigate how climatic conditions can influence competition between crop and weeds.

Date of submission
23/1/2008



Dr. Maurizio Sattin
IA3 activity leader

Approved



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

Study on apple production systems, information and method exchange

1. Information about researcher and sending partner

Name and surname: Réjane PARATTE

Professional status: *(PhD student, post-doc, junior or senior scientist)* PhD student

Sending partner: INRA

Institute/Department/Research Unit: Unité d'Ecodéveloppement

Address: *(street, postal code, city)* Domaine St Paul, Site Agroparc, 84914 Avignon Cedex 9

E-mail and phone number of the researcher: rparatte@avignon.inra.fr ; 0432722574

Supervisor name*: Christian Deverre and Christine de Sainte Marie

Supervisor e-mail*: deverre@avignon.inra.fr ; csm@avignon.inra.fr

Supervisor phone number*: 04 32 72 25 63 ; 04 32 72 25 95

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

2. Information about hosting partner

Particular situation, as it was not convenient for me to stay in a host institution, Agroscope Wädenswil being too far from my fieldwork. Therefore, I moved and worked according to the needs of my fieldwork.

Hosting partner:

Institute/Department/Research Unit:

Address: *(street, postal code, city)*

Supervisor name*:

Supervisor e-mail*:

Supervisor phone number*:

* For senior scientist indicate the name of the collaborating colleague

3. Information about the visit

Duration: *(number of weeks or months) 3 months and a half*

First starting and ending date: 18.06.07 – 13.07.07

Second starting and ending date: 12.10.07 – 12.01.07

4. Description of the activities and outcomes

Background and context: *maximum 10 lines*

Switzerland is often described as a model of the feasibility of integrated production as 86% of its agriculture respects the IP guideline. Therefore, it seemed interesting to investigate, from an anthropological point of view, how this was made possible and how growers adopted this model.

Objective: *maximum 10 lines*

The objective of this fieldwork was to collect data on the situation of integrated fruit production in Switzerland, in order to understand how IP developed in this country, and became the standard of production. In particular, this work meant to collect data on the trajectories of growers and groups of IP growers, on the labels and certified systems existing, on the environmental and consumer NGOs dealing with agricultural issues and on the agricultural policy.

Activities carried out: *maximum 20 lines*

39 individual and comprehensive interviews with : growers (17), advisors from extension services, researchers from federal agronomic research institutes, national and regional grower organisations, federal office of agriculture, environmental and consumer NGO's, IOBC, wholesaler and retailer.

1 collective interview with 5 growers and an advisor from a chemical company

2 days in a regional grower organisation to consult archives

1 week in a national grower organisation to consult documents and archives

2 days in an environmental NGO to consult documents and archives

2 days in a consumer NGO to consult documents and archives

Consultation of documents in an agricultural documentation centre

Participation to a one day course on Swissgap

Participation to two collective controls of insects and disease in vine

Participation to national meeting on apricot (2 days)

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

This fieldwork takes place in the sub-activity RA.3.5. It contributes in particular to the following tasks :

- analysis of the perception of crop protection issues by endusers as well as their practices towards possible evolutions
- a socio-technical analysis of certified production systems in different countries
- analysis of the actions and perceptions of chemical issues by environmental and consumer NGOs

6. Impact

Added value for the researcher: *maximum 10 lines*

Collection of data, comprehension of the situation of IP in Switzerland

Added value for sending partner and hosting partner: *maximum 10 lines*

Date of submission

18th of January 2008



Dr. Maurizio Sattin
IA3 activity leader

Approved