

COST ACTION FA0807

Integrated Management of Phytoplasma Epidemics in Different Crop Systems

Executive Committee Meeting-Minutes

Neustadt/Weinstrasse, Germany - September 16th, 2011

2:00-5:00 p.m.

1. Current status of the action after the DC evaluation - the Chair

The Action FA0807 was evaluated as very successful at the COST chair meeting held in Athens in June; consequentially, the budget was increased for the current fiscal period.

2. Overview of the activities up to the Neustadt WG meetings, success assessment (planned vs. completed tasks and activities) and plans for future

The Chair introduced this item and WG leaders agreed to give their written assessments of the activities. They are given below:

WG1- In 2010 a workshop on phytoplasma taxonomy was held in collaboration with WG4. In 2011 a meeting in Paris to resume results of protocol harmonization of fruit tree phytoplasma detection was held in collaboration with EPPO and under EUPHRESKO frame. Moreover a school on bioinformatics analyses of phytoplasma sequences was organized jointly with the WG4 and held in Vilnius (Lithuania) in July 2011. Much interest was raised and more participants of the action will attend the repeated bioinformatics school to be held in the beginning of November 2011 in Belgrade (Serbia). WG1 workshop held in Neustadt on September 16th was attended by about 100 participants and followed the published proceedings for presentation. Discussion was related to collaboration for harmonization of phytoplasma detection protocols.

WG2 - Members of Working Group 2, 'Epidemiology and Vector Ecology' have been actively working in the past year. In 2009 we had 37 scientific publications and 50 in 2010. Additionally, we had 5 members attending Short-Term Scientific Missions (STSMs), expanding and strengthening their areas of expertise. As a result of two Training Schools in the past year, we have posted a wealth of information on the website related to our task 1, 'establish tools to identify vector species'. This includes: a list of known vectors, a Psyllid Key to the European species, minutes and lectures from the two Training Schools. In addition, answers to a questionnaire about phytoplasma diseases and their putative vectors throughout regions in Europe are being compiled. With three tasks (3. infectivity of vector species, 4. monitor differences in vector population and correlate with efficacy of pathogen spread, and 5. importance of different means of pathogen spread) needing more attention, we decided to join forces with Working Group 3 in the preparation of a comprehensive, yet straightforward, questionnaire to address the risk assessment issues of task 3. We will be working closely with WG3 to accomplish this task and will request the assistance of all of the COST membership to participate. We plan to post a comprehensive table on all known studies relating to the various means of phytoplasma transmission on the webpage.

WG2 workshop held in Neustadt on September 15th was attended by more than 100 participants and besides the published proceedings there were the additional presentations summarized below:

Population dynamics of psyllids in an apple orchard and their infectivity with apple proliferation - First study on '*Candidatus* Phytoplasma mali' presence in Belgium. Gertie Peusens, Cedric Duchene, P. Lepoivre, Tim Belien presented by T. Belien.

An improved olfactometer system for investigating psyllid walking behaviour towards odours emitted by plants. Alan Pizzinat, Rosemarie Tedeschi, Jürgen Gross presented by J. Gross.

Host plant attraction of two host-races of grapevine yellows disease vector *Hyalesthes obsoletus*. Miriam Imo, Michael Maixner, Jes Johannesen, Jürgen Gross. Presented by M. Imo.

WG3 - In 2010, a working group meeting was held in Ancona, Italy from 23rd to 24th of September 2010. The chair of the COST action, Assunta Bertaccini, WG2 coordinator Barbara Jaraus as well as both WG3 coordinators (Wolfgang Jaraus and Ester Torres), 7 subtask leader and 15 WG3



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members attended the meeting. The minutes of the meeting are available on the COST website and the abstracts of the presentation given are added. The tasks of WG3 were given in details as follows: Task 1 (resistance to phytoplasma diseases) continues to establish a database of resistant genotypes to fruit tree phytoplasmas. Regarding grapevine phytoplasmas the collection of data shall rather be focused on susceptibility of different cultivars. In subtask 2.1 “use of bioactive compounds for the control of phytoplasma diseases” a database of compounds has been started and will soon be made accessible on the COST website. The subtask 2.2 “recovery” has been extensively discussed and a workshop with the participation of WG3 members has been held on this topic in Udine, Italy from 1st to 2nd September 2011. In task 3 (vector control) questionnaires have been sent out in order to gain information about the spread of fruit tree and grapevine phytoplasma diseases as well as on currently applied control strategies. The return of these questionnaires needs to be improved and collaboration with WG2 is planned. This has been extensively discussed on the joint WG2/WG3 meeting at Neustadt 15th to 16th September 2011. Task 4 “recommendations for best practices in disease control” depends on results of the other tasks and needs to be specified in more detail (see below). Task 5 “control strategies using the interactions of endophytes with the phytoplasma” will be joined with task 2.1 “bioactive compounds” because similar aspects are treated (see below). Task 6 “cross protection strategies” has been abandoned with the approval of all participants because recent research of WG3 members demonstrated the extremely high genetic variability of phytoplasmas which makes it difficult to assure that a mild strain will not become aggressive anymore. WG3 prepares a meeting for plant health inspectors etc. to present the results of the COST action to the public. This meeting is programmed for the end of the action in late winter 2013.

A STSM has been carried out in January 2011 in the framework of WG3.

As pointed out above, collaboration with WG2 has been initiated on the Neustadt meeting to establish a common collection of data on phytoplasma disease spread as well as of its vectors. The questionnaires need to be improved to achieve a better return. A future WG3 working group meeting is planned for June 2012 in Rome. This meeting will focus on discussion of task 4 and 5(2.1) activities. More STSMs in WG3 will be encouraged in 2012.

WG3 workshop held in Neustadt on September 16th was attended by about 100 participants and besides the published proceedings there were the additional presentation titled: Interaction of latent apple viruses with ‘*Candidatus* Phytoplasma mali’ in micropropagated apple. Annerie Liebenberg, Wolfgang Jarausch, Thierry Wetzels presented by A. Liebenberg (for detailed minutes see report in the WG3 section of the web).

WG4 Saskia Hogenhout summarized the WG4 group (43 members) activities in 2011. One STSMs was realized by the members during 2011. Discussions on WG4 topics took place also during the second European Bois Noir workshop at Cison di Valmarino (Italy) in February 2011. Two WG4 members acted as trainers during the WG1-WG4 school on ‘bioinformatic analysis of phytoplasma sequences’ held in Vilnius (Lithuania) in July 2011. Due to the high number of applications, this school will be repeated beginning of November 2011 in Belgrade (Serbia).

After the discussion held in 2011 about the need for additional phytoplasma genome information, Saskia Hogenhout, Michael Kube and Xavier Foissac have decided to launch the Phytoplasma Genome Sequencing Initiative (PGSI). The aim is to sequence as many phytoplasma genomes as possible and to train the European phytoplasma community in advanced technologies for phytoplasma genome assembly and annotation. A call was organized to collect applications. Up to now, 17 applicants proposed to provide enriched phytoplasma DNAs. The Solexa sequencing fees will be paid by their institutions. They all applied to attend to a school to be held in Norwich (UK) on 20-25th February 2012. A preliminary program was presented during the EC meeting that will involve 4 trainers and two invited lecturers. The fixed number of 20 trainees is proposed. A meeting room with

internet access and computers for 20 persons will be rented at John Innes Institute (Norwich) for the duration of the school. The proposed budget for this school is 22,000 €.

The meeting of the WG4 held in Neustadt on November the 15th was a success with more than 100 attendees. Jens Boch from the Institute of Biology in Halle (Germany) gave an invited lecture on the deciphering of the mechanism of action of Tal-effectors in Xanthomonads-plants interactions. During their lectures Olga Makarova (Aarhus University, Denmark) and Allyson MacLean (John Innes Centre, UK) presented their work respectively on genome-wide study of AYWB phytoplasma gene expression and AYWB phytoplasma effectors that alter flower development. Then the plant response to phytoplasma infection was explored by two speakers, namely Sandrine Eveillard (INRA, France) and Michael Kube (Humboldt University, Germany), that respectively presented their work on the epigenic control of stolbur-phytoplasma-tomato plant interaction and the first results about the shotgun proteomic approach to study '*Candidatus* Phytoplasma mali' – *Nicotiana occidentalis* interaction.

3. Conclusions and main points of the Neustadt meeting by WGs - WG leaders and the Chair

In order to avoid redundancy in the minutes, the main points of the meeting are given as WG presentations, under the item 2 of these minutes in WG leaders' reports.

4. Implementation of the Action by the end of the budget period (December 31, 2011)

4.1. Budget increase

Tentative budget situation at September 16th was discussed briefly, the budget increase is foreseeable. An increase in the budget is foreseen for the 2012 but the matter will be discussed after the information is received from the COST office by the end of the fiscal year.

4.2. Activities planned initially by WGs and updated activities

They were also discussed under the item 2 of these minutes. Additional operational problems and new possibilities were additionally discussed under this item as follows:

The course of action for organizing a meeting was agreed on. In case that a member of a particular WG wishes to organize a meeting, the initiative has to go first through the WG leaders.

WG1- in 2012 qPCR school is possible in Slovenia for the minimum number of 5-6 and maximal number of 10-12 participants but a spin-off company organizes it commercially. It should be clarified with the person who proposes the school (Marina Dermastia, Slovenia) that commercial rates cannot be applied for COST action participants and it has to be a COST organized and reimbursable activity.

DNA extraction school in the second half in 2012 in Turkey was suggested. Technical difficulties on collection of plant samples were discussed. Alternative location was also discussed (Česke Budejovice).

WG 2- Endosymbiont meeting is of considerable interest (the joint meeting with COST Action FA1103), it may be possible to invite some of this WG members as speakers for this meeting.

Another school is wanted on molecular tools for identifying insect vectors. About ten students could be hosted in Turin laboratory (with Domenico Bosco) or in Montpellier. The second proposal was assessed as more convenient and Nicolas Sauvion agreed to host this school. Tentative time is in between April and July 2012.

WG3 - A small meeting possibility in Turkey on AlWB (Almond Witches' Broom) in November for Turkish, Lebanese and researchers from the wider area was discussed. Xavier Foissac offered to help organizing it because he will be in the area at that time. It was suggested that researchers from Iran should also be invited for more fruitful discussion and more meaningful management strategies. It is of particular interest because the AlWB vector is not identified yet but it may be from the *Circuliferous* complex. It also vectors phytoplasmas in wild lettuce. The WG2 would be included too

because of this vector problem. There is already an idea for STSM on developing a polyvalent detection tool.

WG3 - Bioactive compounds meeting for a small number of participants will be held attached to the ICVF in Rome in June 2012.

WG4 - the annotation school was announced, as discussed under the item 2. Technical details were further discussed (the budget activation time for 2012, preparation of the final list of participants and trainers). A school on interactions will be proposed (protein-protein interactions) with tentative budget of 10,000-20,000 € for the end of 2012 (November, December).

5. STSM realized by September 2011, planned for by the end of the budget period 2011 – M. Dickinson

The idea is proposed to erase the STSM application deadlines for practical reasons. The only obligation that should be kept is to finish STSMs by November 30 of each year in order to close the budget on time. The proposal is made to increase the budget for STSMs in 2012 due to the regular COST rules for STSM reimbursement.

6. INTERNET/WEB site-update on the webmaster

The present system can be kept as long as formatted and finished files are sent to Martin Verbeek. He can efficiently upload them on the web as he has done so far.

7. Linking FA0708 to other COST Actions and other projects:

7.1. request of joint meeting with FA1103

Joint meeting for two COST actions (FA0807+ FA1103) on endosymbionts is requested to be held at the University of Milan during the first two weeks of February or March 2012.

7.2. request of joint meeting with FA1003

Joint meeting for two COST actions (FA0807+ FA1003) on grapevine pathogens is requested to be held in Sofia (Bulgaria) at the end of April/beginning of May 2012 joined with MC meeting of both actions also to fulfil COST office request to join the MC meeting with other meeting(s).

7.3 request for collaboration from FA0806-on field work in fruit trees

Requests for collaboration by other actions:

FA0605-Stress, FA0603, TV0801 are COST actions that could be considered for collaboration. Further information will be requested by the Chair to verify this for the future.

Information was provided about tentative EUPHRESCO on grapevine phytoplasmas; the phytoplasma EUPHRESCO will probably continue for fruit trees (on AP), a possibility on a similar action was announced for potato phytoplasmas.

8. Update on potential collaborative actions under the FP framework

Grapevine type of "SharCon" project is maybe feasible (2 institutions per country, applied and basic, research institutions plus an end user could be included) – proposal by X. Foissac. The coordination might be a problem. This issue should be discussed at the MC meeting.

Smaller collaborative projects – no information is available yet, but it may be possible.

It is important for the COST to have an idea on the project titles for each team and the funding body (regional, national, international, etc...). This type of information should be collected by WG leaders and national representatives and prepared by the next MC meeting.

9. Outreach and publications update, plans for future, budget 2012 (discussed partially throughout this meeting)

The need to produce more dissemination material is recognized! The suggestion is to produce a leaflet, a book and other types of materials including the tables produced from questionnaires. They could be shown on the COST Action FA0807 web. Simplified versions of the questionnaires can also be produced. They should be mailed to everybody, not just certain WG members. It would be a good idea to advertise something similar to the IPM strategy that is done in Gironde (50 volunteers monitoring vector larvae and adults, and if after 3 mandatory insecticide treatments there are no larvae, they are not obliged to spray again. They also monitor and pull out infected vines.) The FD incidence has dropped immensely in the region as a result.

10. Place and date of future MC meeting

Update on the proposals from Bulgaria and Portugal were given. April-May 2012 is a tentative period for the next MC meeting, preferably in Bulgaria (Varna or Sofia). The dates should be carefully planned (April 29 - 1 May) to evade major holidays.

7. Any Other Business

Requests from non-COST countries: Saudi Arabia, Thailand, Jamaica.

The end of the fiscal year of action is May 2013. An application for the extension will be submitted. The meeting with the growers may be possible at the beginning of 2013. These options should be checked and prepared for discussion before the next MC meeting.

The questions arose about why there were no participants from China and Russia. Their potential participation in the action is perceived as a great opportunity for phytoplasma community and the action itself.