



Practice Abstracts I

Deliverable D11.9

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PoshBee

**Pan-european assessment, monitoring, and mitigation
of stressors on the health of bees**



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Preface

WP11 “Dissemination, Communication and Knowledge Transfer” aims to prepare and establish promotional and dissemination tools that will make the results of PoshBee available across stakeholders and the general public. The reported information includes the process of creation of resources for successful dissemination, communication and knowledge transfer on the European Innovation Partnership for Agricultural productivity and Sustainability (EIP-AGRI) platform.

To ensure this, a process for preparing practice abstracts and clarifying their goal and format was provided to PoshBee partners. As a result three practice abstracts have been produced and submitted presenting a summary of main information/recommendation/practices that can be adopted into practice.

Summary

To represent the PoshBee objectives to one of the key project target groups - practitioners, the first practice abstracts have been prepared and submitted for the European Innovation Partnership for Agricultural productivity and Sustainability (EIP-AGRI) platform.

EIP-AGRI’s aim is to foster a competitive and sustainable agriculture and forestry sector. It contributes to ensuring a steady supply of food, feed and biomaterials, and to the sustainable management of the essential natural resources on which farming and forestry depend, working in harmony with the environment. To achieve this goal, the EIP-AGRI brings together innovation actors (farmers, advisors, researchers, businesses, NGOs, etc.) at the EU level and helps to build bridges between research and practice. The agriculture actors are invited to share innovative project ideas and practices, including project results.

In order to place PoshBee on the EIP-AGRI platform and provide the first couple of practice abstracts, we prepared the requested table sheet with metadata, including partner and project information. Additionally, we produced a short consent form for each partner, due to the requirements introduced in the GDPR (General Data Protection Regulation) that prompts partners to provide their clear consent to use the provided data on the EIP-AGRI website.

Moreover, we have provided the PoshBee partners with easy-to-use instructions, templates and examples to enable them to provide practice abstracts in the right format. Up to this point, three abstracts have been approved by project coordinator Mark Brown and sent for publication by EIP-AGRI.

1. Administrative part

To ensure that all the administrative requirements of the EIP-AGRI platform are fulfilled, we prepared a list of all PoshBee partners which they had to update or change if necessary and a consent form (Figs.1 & 2) to use these contact details for dissemination through the EIP-AGRI website.

1.1. Partners information details

PROJECT PARTNER INFORMATION

We would like to confirm with you your contact details and to ask to further provide us with your institution address and telephone numbers.
 If any of the other details have changed, please do not hesitate to update your information in this file.
 Please do not forget to fill out the consent form below to give us permission to use your information on the EIP-AGRI website.

	Name	Address	Email	Telephone	Type of partner
project coordinator (lead partner) from PROJECT INFORMATION	Mark Brown, Royal Holloway University of London	United Kingdom	mark.brown@rhul.ac.uk	+44 1784 276443	Research institute
project partner	Felix Wäckers, Biobest Group	Belgium	felix.berag@biobestgroup.com		SME
project partner	Denis Michet, Université de Mons	Belgium	denis.michet@univ-mons.ac.be		Research institute
project partner	Liubomir Feneff, Pened Publishers Ltd	Bulgaria	penev@pened.net		SME
project partner	Chris J. Topping, Aarhus University	Denmark	cjtopping@au.dk		Research institute
project partner	Marika Mäkelä, Estonian University of Life Sciences	Estonia	marika.makela@emu.ee		Research institute
project partner	Ann Rõõmberg, The Estonian Chamber of Agriculture and Commerce	Estonia	ann.roomberg@erica.ee		NGO
project partner	Mari Kallimaa, Estonian Professional Beekeepers Association	Estonia	info@metriksaad.ee		NGO
project partner	Marie-Pierre Charrel, French Agency for food, environmental and occupational health & safety	France	marie-pierre.charrel@anses.fr		Research institute
project partner	Karim Arghès, Association Plateforme BioPark d'Archaum	France	karim.arches@biopark-archaump.org		Other
project partner	Philippe Bédou, Centre National de la Recherche Scientifique	France	philippe.bedou@univ-grenoble-alpes.fr		Research institute
project partner	Yves Le Conte, Avignon, France	Avignon, France	yves.leconte@avira.fr		Research institute

Figure 1 - Project Partners Information 1

Consent Form

Full name:

Email:

By checking this box, you confirm that you have read the PRIVACY section of this template.

By checking this box, you agree to let **PoshBee** publish your information (as provided above) on the EIP-AGRI website.

Figure 2 - Consent form

2. Practice abstracts

2.1. Instructions, templates and examples

To ensure consistent presentation of all practice abstracts, we prepared instructions, templates and examples of those (Fig. 3).

Practice abstracts template	
<p>The EIP common format consists of a set of basic elements characterising the project and includes one or more "practice abstract(s)". The format was developed with two main objectives:</p> <ul style="list-style-type: none"> • to enable contacting partners and incentivise efficient knowledge exchange, and • to disseminate the results of the project in a concise and easy understandable way to practitioners. <p>We recommend including the following elements (please note that they are not, however, obligatory):</p> <ul style="list-style-type: none"> • Audiovisual materials, useful and attractive for practitioners (e.g. YouTube link, videos, other dissemination material); • Links to the project website of the project (URL); • Links to other website(s) hosting information on the project (results) that are available after the project has ended, by preference using the existing local/regional/national communication channels that practitioners most often use. <p>Additionally, we have listed a few practice abstracts examples that you may find useful:</p> <ul style="list-style-type: none"> • https://ec.europa.eu/eip/agriculture/en/find-connect/projects/recovery-and-utilization-nutrients-4-low-impact • https://ec.europa.eu/eip/agriculture/en/find-connect/projects/campylobacter-how-handle-tools-equipment-and • https://ec.europa.eu/eip/agriculture/en/find-connect/projects/optimising-pea-cultivation-and-yields 	<p style="font-size: small;">1000 - 1500 characters, word count - no space</p> <p style="font-size: small;"><i>Do not complete if the summary below is completed in English!</i></p> <p>This summary should at least contain the following information:</p> <ul style="list-style-type: none"> • Main results/outcomes of the activity (expected or final) • The main practical recommendation(s), what would be the main added value/benefit/opportunities to the end-user if the generated knowledge is implemented? How can the practitioner make use of the results? <p>This summary should be as interesting as possible for farmer/end-users, using a direct and easy understandable language and pointing out entrepreneurial elements, which are particularly relevant for practitioners (e.g. related to cost, productivity etc). Research oriented aspects which do not help the understanding of the practice itself should be avoided.</p> <div style="border: 1px solid black; height: 150px; width: 100%;"></div>
<p>In English</p> <p>Short title: <i>Less than 150 characters</i></p> <p>.....</p> <p>Short summary for practitioners in English on the (final or expected) outcomes:</p>	

Figure 3 - Practice abstract template and instructions

2.2. First practice abstracts

2.2.1. PoshBee: pan-European assessment, monitoring, and mitigation of stressors on the health of bees by Mark Brown (Royal Holloway University of London)

The first practice abstract was prepared by Mark Brown, also PoshBee project coordinator. In the submitted text, he provides a summary of the project goals:

“Bees – honey bees, bumble bees, and solitary bees – pollinate our crops and wildflowers, and thus are essential for human well-being. However, in Europe, and around the globe, bees face many threats and are often in decline as a result. One potential driver of reduced bee health is agrochemicals. While laboratory and semi-field studies suggest that such chemicals negatively impact bee health, their importance and relevance in the real world remains unclear. PoshBee (www.poshbee.eu) is a consortium of academics, governmental organisations, industry, and NGOs that will address the issue of agrochemicals to ensure the sustainable health of bees and their pollination services in Europe. Integrating the knowledge and experience of local beekeeping and farming organisations and academic researchers, we will provide the first comprehensive pan-European assessment of the exposure hazard of chemicals, their mixtures, and co-occurrence with pathogens and nutritional stress for solitary, bumble, and honey bees across oilseed rape and apple orchards. Integrated studies across

the lab-to-field axis will determine the effect of chemicals, their mixtures, and interactions with pathogens and nutrition on bee health. We will develop new model species and innovative protocols for testing chemicals in bees, and develop dynamic landscape environmental risk assessment models for bees. Using proteomics, we will produce new molecular markers for assessing bee health and enabling long-term monitoring schemes. Finally, we will deliver practice- and policy-relevant research outputs to local, national, European, and global stakeholders. Together, our work will support healthy bee populations, sustainable beekeeping, and sustainable pollination across Europe.”

2.2.2. Pan-european assessment, monitoring, and mitigation of stressors on the health of bees (PoshBee) by Simon Hodge and Jane Stout (Trinity College Dublin)

“Many recent reports describe long-term declines in insects. ‘PoshBee’ aims to identify factors negatively impacting bees in European farmland, and in 2019 performed an extensive pan-European field study over 8 countries. Our recommendations for groups planning to perform similar multi-partner, farm-scale, field studies on pollinating insects are listed below.

Scientists

- *Accept variation will occur among partners, but record appropriate data to be used as covariates in subsequent data analysis.*
- *Ensure all methodological protocols are understood and are practicable for all partners.*
- *If specialist techniques are needed, hire staff familiar with these processes or ensure staff have adequate training.*
- *Unless additional resources are available (staff/vehicles/funding), avoid adding extra ‘side projects’ out of scope of the main project.*

Beekeepers

- *Standardize study hives in terms of equipment, colony size etc. If possible, obtain colonies from a single source.*
- *Beekeepers should request clear guidelines on all aspects of hive management, and what records should be maintained.*
- *Beekeepers should maintain regular contact with project management, and communicate which procedures have been performed and any pests and diseases that have been observed.*

Farmers

- *Growers/ field sites should be located early in the planning process.*
- *Researchers should explain what they plan to do and when, and how the farmer can help throughout the study. Farmers should explain what they require so that farm operations are not negatively impacted by the research program.*

Farmers should ask what information relating to the field site and crop management is required by the research team, and then maintain appropriate, easily accessible records.”

2.2.3. Effect of real-world clothianidin exposure on bees and their diseases by Joachim Rodrigues De Miranda and Maj Rundlöf, Swedish University of Agricultural Sciences

“In this study we used 16 commercial oilseed rape fields across southern Sweden to investigate the effect of real-world clothianidin exposure on bees. Half of the fields were sown with clothianidin-treated oilseed rape seed and half with clothianidin-free seed. Honeybee and bumblebee colonies as well as mason bee cocoons and nests were placed at each field and monitored during the growing season, with the honeybee colonies also monitored the following year through a second season of clothianidin exposure in oilseed rape. Chemical analysis of the nectar and pollen collected by the bees showed large differences in clothianidin exposure between treated and untreated fields, and between the two seasons. Honeybee colony growth and development was not affected by clothianidin exposure, but both bumblebees and mason bees produced far fewer offspring at treated fields than at untreated fields. Follow-up analyses showed that clothianidin exposure had no effect on pathogen levels in either honeybees or bumblebees, nor on immune genes in honeybees. The conclusion is that honeybee colonies are relatively robust to neonicotinoid exposure in agricultural landscapes, but that bumblebees and solitary bees are strongly affected.

For farmers:

If wild pollinators and their pollination are important for you or your neighbours, consider adjusting your plant protection strategy to reduce pesticide use, particularly in flowering crops and during bloom. For honeybees this would also be beneficial, but less critical.

<https://www.youtube.com/watch?v=mlqxa7lOjdQ>

www.nature.com/articles/nature14420

www.nature.com/articles/s41467-018-07914-3

www.nature.com/articles/s41467-019-08523-4 “

3. Conclusions and further steps

PoshBee will continue to submit practice abstracts on an ongoing basis and as they come along in connection with important project research and results. A reminder about this important opportunity to disseminate research will be included in the regular monthly dissemination reminders. The progress of the PoshBee collection on EIP-AGRI will be reported once again at the end of the project in D11.10 Practice Abstracts II.