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Terms of reference for an EU Bee Partnership

European Food Safety Authority (EFSA)

Abstract

Managed and wild bees provide essential ecosystem services by pollinating crops and wild plants. Losses of managed honey bee colonies as well as the decline of many wild bee species in the EU and elsewhere have raised considerable concern about bee health amongst stakeholders, including the general public. As part of the European Parliament's Week of Bees and Pollination 2017, there was a general agreement that an EU Bee Partnership Discussion Group (DG) should be established, with the vision of 'a Platform run by stakeholders for the benefit of society to ensure that bees in the EU can thrive and prosper'. Subsequently, an EU Bee Partnership was identified as one of the targeted platforms established by EFSA, under the Stakeholder Engagement Approach. This document describes the terms of reference developed by and for this EU Bee Partnership DG. The objective of the EU Bee Partnership is to improve data collection, management, sharing and communications to achieve a holistic approach to the assessment of bee health in Europe and beyond. It will consider honey bees, with the potential for subsequent expansion to include bumble bees and solitary bees. Six broad themes of potential work were identified, including an inventory of data on the health of honey bees, bumble bees and solitary bees. During the first 12 months, the Partnership will focus on one or more of these six themes, using a 'proof of concept' approach. Details of stakeholders and observers are presented, including roles and responsibilities. The DG identified the need for both short- and long-term funding. A phased approach to funding is proposed, but with clear recommendations that long-term resources are needed. Critical success factors were defined. Several risk and risk mitigation strategies were identified, relating to funding, confidentiality, time, resource and project coordination and stakeholder motivation.

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Key words: honey bees, bumblebees, solitary bees, stakeholders, EU Bee Partnership, pollination, sustainable agriculture

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Correspondence: sc.secretariat@efsa.europa.eu

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Summary

Managed and wild bees provide essential ecosystem services by pollinating crops and wild plants. Losses of managed honey bee colonies as well as the decline of many wild bee species in the EU and elsewhere have raised considerable concern about bee health amongst stakeholders, including the general public.

As part of the European Parliament's Week of Bees and Pollination 2017, there was a general agreement that an EU Bee Partnership Discussion Group should be established, with the vision of 'a Platform run by stakeholders for the benefit of society to ensure that bees in the EU can thrive and prosper'. Subsequently, an EU Bee Partnership was identified as one of the targeted platforms established by EFSA, under the Stakeholder Engagement Approach. Following a call for nominating experts, selected members represent beekeeper associations, conservation organisations, farmer associations, plant protection and veterinary medicine industry, risk assessors, scientists and veterinarians. The EU Bee Partnership DG was coordinated by EFSA, which provided the chair, rapporteurs and secretariat and was responsible for drafting the minutes of the meetings. This document describes the terms of reference developed by and for this the EU Bee Partnership DG.

The objective of the EU Bee Partnership is to improve data collection, management, sharing and communications to achieve a holistic approach to the assessment of bee health in Europe and beyond. It will consider honey bees, for which knowledge and good datasets are available and which are within the scope of the EFSA bee guidance, with the potential for subsequent expansion to include bumble bees and solitary bees. Six broad themes of potential work were identified, including an inventory of data on the health of honey bees, bumble bees and solitary bees, the need for data harmonisation, the development of tools for bee health assessment, provision of advice for decision-makers about standardised methods for data collection and management, a dedicated dissemination strategy and securing EU resources. During the first 12 months, the Partnership will focus on one or more of the above-listed themes, using a 'proof of concept' approach and prioritising those where rapid progress is possible. This will include work towards a definition of health relevant to bumble bees and solitary bees. A work breakdown structure and schedule have been developed.

Details of stakeholders and observers are presented, including roles and responsibilities.

The DG identified the need for both short- and long-term funding: short-term to support the proposed 'proof of concept' on data sharing, and long-term to allow the EU Bee Partnership to sustainably address data sharing for the benefit of bee health. A phased approach to funding is proposed, but with clear recommendations that long-term resources are needed. During the first 12 months, in-kind contributions from stakeholders will be used to support a pilot study demonstrating proof of concept.

The work of the DG on data sharing and collection of bee health will be considered successful if the Partnership is perceived as a reliable source of data and of advice on data collection, management and analysis, objective data and information are available to help support sound decision-making at all levels, and there is a measurable positive impact on bee health. Several risk and risk mitigation strategies were identified, relating to funding, confidentiality, time, resource and project coordination and stakeholder motivation.

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1. Introduction

1.1. Background

Managed and wild bees provide essential ecosystem services by pollinating crops and wild plants, thereby contributing to both human food security and maintenance of natural biodiversity. Losses of managed honey bee colonies as well as the decline of many wild bee species in the EU and elsewhere have raised considerable concern about bee health amongst stakeholders, including the general public. The gathering and sharing of data on bee health among stakeholders is an important step to mitigating bee losses and declines. As yet, however, data sharing is limited. Many of the stressors that currently compromise bee health also affect other wild animals, therefore, obtaining and sharing data on bees will also have a beneficial impact on other ecosystem serving providers, e.g. soil organisms and natural pest control (Neumann P et al).

Networking with stakeholders, Member States, EU and international agencies is seen as a key step in promoting data collection and sharing among interested stakeholders on bee health in the EU¹ (EFSA, 2014). At its 70th Meeting on 16 March 2016, EFSA's Management Board adopted the Decision on the criteria for establishing a list of registered stakeholders and the establishment of the Stakeholder Forum and Stakeholder Bureau². This has provided the framework of a new way that EFSA engages with its stakeholders. Once registered, stakeholders are able to take part in the Stakeholder Forum and Stakeholder Bureau, the two permanent mechanisms for engagement. Registered stakeholders are also invited to interact with EFSA through targeted engagement platforms, based on their interests and technical expertise (e.g. Roundtable Meetings, Question Framing Working Groups, Discussion Groups, Communicators Lab, Info Sessions).

As part of the European Parliament's Week of Bees and Pollination 2017, a scientific symposium on 'Collecting and sharing data on bee health: Towards a European Bee Partnership' was co-organised by EFSA, European Farmers and European Agri-Cooperatives, European Professional Beekeepers Association, BeeLife European Beekeeping Coordination and the European Crop Protection Association (EFSA et al, 2017). At this meeting, there was a general agreement that an EU Bee Partnership Discussion Group (DG) should be established, with the vision of 'a Platform run by stakeholders for the benefit of society to ensure that bees in the EU can thrive and prosper'. The stakeholders suggested that, at first, the focus would be honey bees, but later extended to other managed bees and wild bees. Further, stakeholders expressed different needs and expectations in terms of deliverables. For example, scientists found that the gathering of very large datasets of reliable and clean data (as occurs with human epidemiological monitoring) would be optimal; farmers would need extension services to receive advice; industry would favour more robust data to consolidate risk assessments at both pre- and post-marketing and for good stewardship; etc.

The Partnership has been established as one of the EFSA Discussion Groups under the SEA framework, and is in line with the willingness expressed by stakeholders to work towards setting up an EU Bee Partnership facilitated by EFSA. The EU Bee Partnership DG is composed of EU-wide stakeholder organisations working in the food chain and organisations representing consumers, food and feed operators, food industry, food trade, academia and NGOs, providing a balanced representation of the interests of the stakeholders that interact with EFSA.

1.2. Objective of the EU Bee Partnership Discussion Group

Under the new SEA³, through which EFSA engages with stakeholders on technical issues, the Discussion Group on an EU Bee Partnership is one of the targeted platforms established by EFSA. The

¹ Call for European research network to address bee losses. <http://www.efsa.europa.eu/en/press/news/140313>

² Decision of the Management Board of the European Food Safety Authority on the criteria for establishing a list stakeholders and the establishment of the Stakeholder Forum and Stakeholder Bureau
<http://www.efsa.europa.eu/sites/default/files/Document18992.pdf>

³ Stakeholder Engagement Approach
http://www.efsa.europa.eu/sites/default/files/EFSA%20Stakeholder%20engagement%20approach_FINAL.pdf

relations and work carried out through all interactions within this engagement mechanism will be guided by EFSA's core values of transparency and independence. The EU Bee Partnership DG will enable the members of the group to define the terms of reference of an EU Bee Partnership for collecting and sharing data on bee health.

As part of the experience gained in trialling EFSA's process on the development of a holistic approach for the risk assessment of multiple stressors in bees, it has been shown that the input provided by stakeholders is an important source of information and knowledge (EFSA 2013, EFSA and EC DG AGRI 2016, EFSA 2016).

In order to further harmonise data collection, management and sharing, and to strengthen collaboration for a more holistic and robust assessment of bee health in the EU, EFSA engaged all relevant stakeholders involved in bee health to identify different needs to improve data sharing and management. A general agreement on the overall benefits of data sharing was reached and stakeholders committed to work towards setting up an EU Bee Partnership, facilitated by EFSA.

The DG focussed on the need for harmonised data across Europe and on the ways to strengthen collaboration among beekeepers, bee inspectors, industry, farmers, veterinarians, scientists and other stakeholders in order to collect, share and analyse relevant bee health data.

As a first step in this initiative, the EU Bee Partnership DG was tasked with elaborating its own terms of reference, addressing the following:

- vision, objectives, scope and deliverables (i.e. what we seek to achieve),
- [stakeholders](#), roles and responsibilities (i.e. who will take part in it),
- resource, financial and quality [plans](#) (i.e. how it will be achieved),
- [work breakdown structure](#) and schedule (i.e. when it will be achieved), and
- success factors, risks and constraints.

The final terms of reference will be presented at the Bee Week Scientific Symposium and the European Parliament's High Level Conference, during the European Week of Bees and Pollination in June 2018.

1.2.1. Methodology of the EU Bee Partnership Discussion Group

1.2.1.1. Composition and selection of members

Following the launch of an official call to stakeholder organisations for nominating experts to the EFSA Bee Stakeholder Discussion Group, stakeholder organisations submitted nominations for their experts.

EFSA selected 10 stakeholder representatives from the candidates proposed by the organisations on the list of registered EFSA stakeholders, to participate in the Bee Partnership DG⁴. Non-registered stakeholder organisations interested in nominating a member for this Discussion Group were required to first submit a request to become registered as an EFSA stakeholder, following the procedure established in the Decision of the Management Board of EFSA.

The EU Bee Partnership DG is composed of representatives from registered stakeholders in each of the following categories: (i) consumer organisations and NGOs; (ii) farmers, primary producers and associations of practitioners; (iii) business, food industry and distributors in relation with food safety, bee health and sustainable pollination; and (iv) academia. The selected members represent beekeeper associations, conservation organisations, farmer associations, plant protection and veterinary medicine industry, risk assessors, scientists and veterinarians.

⁴ Minutes of the meeting of the Selection Board for the Discussion Group on EU Bee Partnership for Data Sharing, 2017. <https://www.efsa.europa.eu/sites/default/files/beeDiscussionGroup-m.pdf>

As stipulated in Article 3 of the decision on the criteria for establishing a list of registered stakeholders and the establishment of the Stakeholder Forum and Stakeholder Bureau⁵, non-registered stakeholders may be invited to the meetings of the EU Bee Partnership DG based on the need for specific expertise or technical knowledge. Any involvement of non-registered stakeholders was communicated in a transparent and timely manner.

1.2.1.2. Roles and responsibilities regarding the EU Bee Partnership Discussion Group

The EU Bee Partnership DG was coordinated by EFSA, which provided the chair, rapporteurs and secretariat and was responsible for drafting the minutes of the meetings.

1.2.1.3. Frequency and topics of meetings

The EU Bee Partnership DG met three times between December 2017 and April 2018 in Brussels to draft the terms of reference for its future operation. The success of this initiative relies on principles of willingness, openness, transparency and trust.

2. EU Bee Partnership – Terms of Reference

2.1. Vision, objectives, scope and deliverables

2.1.1. Vision

It is critical that pollinators thrive and prosper, for international food security, sustainable agriculture, and nature conservation. Data limitations, in terms of data quality and quantity are an important constraint to an improved understanding of bee health, and limit action to address important challenges. The EU Bee Partnership, a diverse group of stakeholders representing data sources and needs, will facilitate data collection, management, sharing and communications for the benefit of bee health. To this end, the Partnership welcomes additional contributors.

2.1.2. Objectives

The objective of the EU Bee Partnership is to improve data collection, management, sharing and communications to achieve a holistic approach to the assessment of bee health in Europe and beyond. The Partnership can effectively contribute through the development and promotion of data standards for bee health, by identifying areas of need, and to promote solutions.

While the focus is on data collecting and sharing, to identify the specific data requirements, the members of the partnership would need to identify the ultimate data uses. The Discussion Group expressed interest in having a catalogue of data gaps and needs which could lead to recommendations, including research priorities.

⁵ Decision of the Management Board of the European Food Safety Authority on the criteria for establishing a list stakeholders and the establishment of the Stakeholder Forum and Stakeholder Bureau, 2016.
<http://www.efsa.europa.eu/sites/default/files/Document18992.pdf>

2.1.3. Scope

The scope of the EU Bee Partnership will consider honey bees, for which knowledge and good datasets are available and which are within the scope of the EFSA bee guidance (EFSA, 2013), with the potential for subsequent expansion to include bumble bees and solitary bees.

The DG was aware of the EU Pollinators Initiative⁶, which is focused on pollinators and coordinated by DG Environment. Although there are differences in the scope of the EU Bee Partnership (honey bees, bumble bees, solitary bees) and the EU Pollinators Initiative (all pollinators), there is considerable overlap with respect to the likely drivers of the decline of diverse pollinator populations, including land use, nutrient and nesting site availability, intensive agricultural management and pesticide use, environmental pollution, invasive alien species, pathogens and climate change.

The DG was also conscious of the DG AGRI's Civil Dialogue Group on Animal Products, which includes the beekeeping sector and which recognises the need to respond urgently to key challenges to the multifactorial issue of bee health.

Pollinator loss is a global issue, and the EU Bee Partnership also acknowledges the importance of collaborative linkages with relevant regional and global initiatives on bees. The Food and Agricultural Organization (FAO) has established the Global Action on Pollination Services for Sustainable Agriculture⁷, whereas the OECD has developed an initiative to share regulatory approaches used by OECD countries to mitigate pesticide risks to insect pollinators⁸. The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) recently released an assessment report on pollinators, pollination and food production⁹. The Partnership will also collaborate with the global COLOSS association (prevention of honey bee COlony LOSSes) and with the Apimondia working group on standardised data, to avoid overlap and instead foster for mutual benefit. The European model for bee data sharing may be of benefit to other regions globally.

2.1.4. Deliverables

2.1.4.1. Broad aspirations

The Discussion Group identified the following six broad themes of potential work, including:

1. Developing an **inventory of data on the health of honey bees, bumble bees and solitary bees**, focusing on:
 - a definition of bee health for bumble bees and solitary bees¹⁰
 - data availability
 - a review of data quality and of methods used to gather data
 - the identification of gaps in data and in data management
2. The need for **data harmonisation**, including collection and management, with consideration of:
 - interoperability between databases (e.g. with COLOSS database)
 - standardisation, harmonisation and validation of collected data, to facilitate robust analysis

⁶ EU Pollinators Initiative. http://ec.europa.eu/environment/nature/conservation/species/pollinators/index_en.htm

⁷ Food and Agriculture Organization of the United Nations. FAO's Global Action on Pollination Services for Sustainable Agriculture. www.fao.org/pollination/en/

⁸ OECD. Managing Pesticide Risk to Insect Pollinators. <https://www.oecd.org/chemicalsafety/risk-mitigation-pollinators/>

⁹ IPBES. The assessment report on Pollinators, Pollination and Food Production. https://www.ipbes.net/sites/default/files/downloads/pdf/individual_chapters_pollination_20170305.pdf

¹⁰ A definition of a healthy honey bee colony is presented in EFSA'S HEALTHY-B Opinion (2016). This opinion does not provide equivalent definitions for bumble bees and solitary bees. <https://www.efsa.europa.eu/en/efsajournal/pub/4578>

- the use and development of standard methods (e.g. the COLOSS BEEBOOK), including landscape elements (land use data/databases), and the location of hives (under double-blind system) using the GPS system
3. The development of **tools for bee health assessment**, to assist beekeepers, farmers and other interested parties, including:
 - New methods and tools for data collection, including consideration of the potential of citizen science
 - The development of relevant phone apps
 - Training for data collection
 4. Provision of advice to decision-makers about standardised methods for data collection and management
 5. A dedicated dissemination strategy
 6. Securing EU resources (e.g. EFSA or EEA or both)

Since many stressors for bee health are shared between species, colony health of managed honey bees can be used as a sentinel for the population health of wild bees, e.g. to identify areas, where wild bees may also be at risk. Data on honey bee colony losses gathered by the COLOSS network (www.coloss.org) suggest a considerable variation of losses in both space and time. An analysis of trends is therefore a long-term objective of the Discussion Group, as this would allow an improved understanding of the underlying factors behind losses of managed honey bees and the decline of wild bees and possibly other pollinator species.

It was agreed that the Discussion Group could make a recommendation about where data collection should be stopped; i.e. if the focus should shift and if there is a need for more data in one specific area rather than another. This can be illustrated with the example of counting bees in the field, which can provide an estimate of population size, not about whether a population can survive. In this situation, the shift should be made from field survey data to estimates of effective population sizes using genetics.

2.1.4.2. Specific deliverables

It was agreed in the first 12 months that the EU Bee Partnership would focus on one or more of the above-listed themes, prioritising those where rapid progress is possible. This will include work towards a definition of health relevant to bumble bees and solitary bees.

Within the prioritised theme(s), the following specific deliverables are envisaged:

- Define the question(s) of interest.
- Define a 'proof of concept', essentially the scope of a clearly defined 'pilot project' relevant to the question(s) of interest and incorporating several data sources.
- Identify the key data that would be required to answer the identified questions of interest.
- Conduct an inventory of those key data that are currently available.
- Identify data gaps (after comparing data that will be required versus that which is currently available).
- Identify research that would be required to fill these data gaps.

2.2. Stakeholders, roles and responsibilities

The following include details of stakeholders who participated in the EU Bee Partnership Discussion Group.

2.2.1. European Professional Beekeepers Association

The European Professional Beekeepers Association (EPBA) is an association of beekeeping organisations of EU Member States. The Mission of EPBA is the Europe wide and international

cooperation of its members as well as the coordination of activities, in particular the representation of the interests of beekeepers, with a focus on commercial and professional beekeepers, as well as the representation of related environmental interests towards all relevant authorities, institutions, politicians, media and the public on international, European, Member States', regional and local levels¹¹.

At the last 45th Apimondia International Apicultural Congress, a new working group specifically on the standardisation of data on bees and beekeeping was established. The EPBA coordinates this working group that could feed into the EU Bee Partnership. The collaboration platform "BeeXML.org" for the standardisation of the exchange of data about bees and beekeepers is part of this working group. Various domains of bee-related data are considered and some could be complementary to the data gathered by the EU Bee Partnership, e.g. data on global honey production.

2.2.2. Apimondia

Apimondia (International Federation of Beekeepers' Associations) promotes scientific, [ecological](#), social and [economic](#) apicultural development in all countries and the cooperation of [beekeepers'](#) associations, scientific bodies and of individuals involved in [apiculture](#) worldwide¹². The organisation organises international congresses and symposia and operates for the benefit of the international beekeeping community through scientific commissions in areas of pollination and biodiversity, risk assessment, technology and quality of bee products, bee health, rural development, apitherapy, bee biology, bee economy, food security and safety, trade and livelihoods.

Apimondia is present in all EU member states. The Bee Partnership will provide the industry with a better understanding of the current situation and will also guide strategic thinking into the future. Through experts of the scientific and regional commissions, Apimondia views the Bee Partnership as an opportunity to participate in the development of knowledge and scientific facts for dissemination to the international beekeeping community. Apimondia is a conduit to the bee keeping community throughout Europe, and will seek to put into practice every initiative that can contribute to improving apicultural practice and rendering the obtained products profitable.

2.2.3. Association of Veterinary Consultants

The Association of Veterinary Consultants (AVC) is composed of independent, self-employed veterinary specialists. The AVC aims at pushing veterinary support and science in the animal health and food sector by supporting global harmonisation of standards for animal health and animal derived products, assuring animal, user and environmental safety and other ethical principles as defined in the AVC¹³. For bees, the AVC has expertise in the evaluation of safety and efficacy of products against bee diseases including Varroa and fowlbrood and the regulation of veterinary medicines including minor species like bees. The AVC highlights the global use of non-licensed chemicals for the treatment and care of bee colonies, within and outside the brood period. As in other food-producing animals, there is the need for compliance of beekeepers with current regulatory requirements to apply appropriate care and treatments as are applied in other areas of food-producing animals. In order to improve bee health, the AVC recommends improvement of knowledge about the factors influencing bee health and improving current knowledge and application of bee care measurements, thus preventing bee colonies suffering from diseases. In order to improve bee health and avoid threats by diseases, the development of updated and new diagnostic tools as well as well proven products under a regulated scheme are strongly supported.

The AVC calls for support from the EU Bee Partnership for appropriate training of veterinarians to enhance veterinary scientific expertise. In several EU member states, initiatives on this have been started (e.g. Belgium, UPV: www.varroa.be; France, www.sngtv.org; Germany, Fachgruppe Bienen der DVG, <http://www.dvg.net/index.php?id=1833>; Spain, <https://avespablog.wordpress.com/>; Italy,

¹¹ European Professional Beekeepers Association. <http://www.professional-beekeepers.eu/>

¹² Apimondia. <http://federation.apimondia.org/>

¹³ Association of Veterinary Consultants. <http://www.avc.at/>

<http://www.izslt.it/apicoltura/svetap>); UK, <https://britishbeevets.com>) and AVC is strongly supporting the building of a strong professional network.

2.2.4. European Federation of Honey Packers and Distributors

The European Federation of Honey Packers and Distributors (FEEDM) represents the interests of the European honey business. The priority of the association is to defend and promote honey as a pure and natural product. The Federation supports good apiculture practice and aims at improving the quality standards of the product. The members of FEEDM commit themselves to the integrity and quality of the products, which are subject to their business¹⁴.

The Bee Partnership offers FEEDM the potential for increase quantity and quality of honey. The FEEDM could provide data on honey production but it will not always be reliable. The FEEDM is also interested for the beekeepers to be supported from the EU Bee Partnership for sharing the cost for pollination services (i.e. in some countries beekeepers have to pay a fee to farmers to locate their hives close to the crops whereas they could receive payment from the farmers to offer pollination service to them and at the same time they lose bees because of the pesticides). The FEEDM can share relevant data about honey trade and production each time they are available.

2.2.5. European Crop Protection Association

The European Crop Protection Association (ECPA) represents the crop protection industry in Europe. ECPA is innovative and science-based to provide solutions to keep crops healthy and to keep the food supply safe, affordable, healthy and sustainable. ECPA promotes modern farming practices and champions the use of crop protection technology important for the sustainable intensification of agriculture. ECPA raises awareness and stewardship for the further safe and sustainable use of pesticides in Europe, encouraging management practices that safeguard harvests, human health, and the environment¹⁵. For the bees, the ECPA gathers data on regulated PPPs applied to crops. These data relate to specific protection goals, taking into account effects on colony larvae and honey bee behaviour, among others (see below). Data are collected from lab and field studies (semi fields with tunnels and open field studies to test effects at colony level).

The ECPA could contribute to the EU Bee Partnership by sharing data it generates on the health status of colonies recorded from experimental control (to compare with general data) to help predict the survival rates of these colonies. Additional measures in controls include foraging activity on crop, behaviour, colony strength, presence of queen, pollen storage and area of nectar or honey, area containing cells with eggs, larvae and capped cells, development of brood, where available overwintering success.

The ECPA expects from the EU Bee Partnership support to make its regulatory testing easier, i.e. agreed colony-level criteria that may be used routinely to better select its colonies, trending of colony numbers vs overwintering success, disease trends within an area, modelling to better predict colony's survival chances and better select those that are suitable for research purposes. These factors would also help the ECPA to improve its stewardship and monitoring contributions – e.g. monitoring of colony health traits, effectiveness of risk mitigation measures in the field. Crop Protection Industry, in generating data to evaluate the effects of their products on the honeybee, has with the years built its own expertise on the criteria that best reflects potential effects at colony level, and in the same time that makes a “healthy colony” and is willing to share with the Discussion Group.

2.2.6. International Confederation of European Beet Growers – CIBE

The International Confederation of European Beet Growers (CIBE) defends and represents the interests of beet growers vis-à-vis European institutions and international organisations since 1927. CIBE is composed of national and regional associations from 18 European beet-producing countries. These include 140,000 growers from 16 EU countries (Austria, Belgium, the Czech Republic, Denmark,

¹⁴ European Federation of Honey Packers and Distributors. www.feedm.com

¹⁵ European Crop Protection. <http://www.ecpa.eu/>

Finland, France, Germany, Greece, Hungary, Italy, the Netherlands, Poland, Romania, the Slovak Republic, Sweden, the United Kingdom) and roughly 130,000 growers from 2 non-EU countries (Turkey and Switzerland). CIBE facilitates contact between members and provides platforms for information, analyses and exchanges¹⁶.

CIBE recognises that the work of the Bee Partnership can contribute to further improvement of good agricultural practices. CIBE could contribute to the EU Bee Partnership by collecting and sharing data on pesticides use in agriculture, in particular sugar beet growing, and data on good agricultural practice favouring bee health (i.e. data on how farmers in general, and beet growers in particular, provide food and habitat for bees on farmland). CIBE could also provide support, in cooperation with beekeepers' associations, in the development of voluntary initiatives bringing farmers and beekeepers together to help improve conditions for honey bees (e.g. keeping beekeepers notified when neighbouring farmers are applying insecticides to their crops).

2.2.7. European Network of Scientists for Social and Environmental Responsibility

The European Network of Scientists for Social and Environmental responsibility (ENSSER) is committed to "(i) transparent, high quality scientific information that focuses on the ecological, health, and socioeconomic aspects of technology use and (ii) the assessment of alternative options within technology policy, strengthening innovation and long term sustainability, meanwhile prioritising public and environmental safety. The objective of ENSSER is the advancement of public-good science and research for the protection of the environment, biological diversity and human against adverse impacts of new technologies and their products"¹⁷.

ENSSER brings together independent scientific expertise to develop public-good knowledge for the critical assessment of existing and emerging technologies. ENSSER highlights the need for an EU-wide monitoring of wild bees and access to the regulatory studies on new emerging pesticides (e.g. effectiveness of pesticides on pests: mode of action, required dose).

2.2.8. BeeLife European Beekeeping Coordination

BeeLife European Beekeeping Coordination is an association formed by professionals of the beekeeping sector and experts from the beekeeping sector, first-hand knowledge on pollinators' health and activity, from different countries of the EU. Its main activity is the study of the impact on bees of environmental threats such as pesticides or genetically modified organisms (GMOs)¹⁸.

The EU Bee Partnership needs to support beekeepers and develop an epidemiological approach. There is a need to expand data collection efforts, by increasing the number of hives with automatic monitoring, and increasing the number of sensors and parameters monitored. BeeLife expects active discussions within the EU Bee Partnership on the gathering of information on environmental threats (i.e. pesticide exposure and land use). In order to promote data sharing (open management of raw data), there is a need for a thorough discussion on confidentiality and data protection issues. BeeLife has members throughout the EU and can ask them to contribute data from specific observations, including sampling and pesticides analysis. Furthermore, BeeLife will promote the objectives of the Platform on data sharing throughout all the other platforms and associations participating to them.

2.2.9. Pesticide Action Network – Europe

Pesticide Action Network (PAN) is a network of over 600 non-governmental organisations, institutions and individuals in over 60 countries worldwide working to minimise the negative effects of hazardous pesticides and to replace their use with ecologically-sound and socially-just alternatives. Its projects and campaigns are coordinated by five autonomous Regional Centres. PAN Europe is the regional

¹⁶ International Confederation of European Beet Growers. <http://www.cibe-europe.eu/Home.aspx>

¹⁷ European Network of Scientists for social and environmental responsibility. <https://ensser.org/>

¹⁸ Bee Life European Beekeeping Coordination. <https://www.bee-life.eu/>

centre in Europe. It brings together 38 consumer, public health, and environmental organisations, trades unions, women's groups and farmer associations from across Europe¹⁹.

PAN Europe has been working on bees and pesticides for many years now and would like to contribute to the partnership, with knowledge and practical experience from the veterinary, beekeeper and environmental point of view. PAN Europe has particular interest and expertise in EU legislation.

2.2.10. International Biocontrol Manufacturers Association - IBMA

IBMA is an organisation of biocontrol companies whose experts cover various fields of expertise, including: rearing and mass production of beneficial arthropods, in particular pollinators e.g. bumblebees; development, registration and placing on the market of biological plant protection products; technical support to retailers, farm advisers and farmers all over Europe; regulations for the evaluation and risk assessment of PPPs; collection, analysis and interpretation of data; preparation of databases, and many more.

Through the Bee Partnership, IBMA recognises that there will be opportunities for the design and conduct of studies to address identified concerns. Subject to confidentiality issues, IBMA can provide data on the effect of plant protection products on managed bees. Thanks to its members and staff, IBMA is in continuous contact with all relevant stakeholders interested in the topic, i.e. farmers, Agri-Cooperatives, beekeepers, plant protection services, risk assessors, industry and scientists in the EU, and can therefore provide valuable contributions to the Discussion Group. Since our Members are active in different EU member states, IBMA can provide expert advice and help in identifying suitable sources of information and in the dissemination of knowledge and collected data. It can also provide contact details for national scientists who are working on these issues.

2.3. EFSA

EFSA can also be considered one of the stakeholders in the Bee Partnership. EFSA is an important beneficiary of the work of the EU Bee Partnership, noting that the sharing of high quality data is a critical constraint to regulatory science relevant to bee health. As a stakeholder to the Partnership, EFSA can provide specialist skills, in particular those integral to the design of data models to facilitate harmonised data collection and management.

2.4. Observers

2.4.1. Prevention of honey bee colony losses – COLOSS

COLOSS (prevention of honey bee COLony LOSSes) is an international, non-profit association headquartered in Bern, Switzerland, which is focused on improving the well-being of bees (in particular the Western honey bee *Apis mellifera*) at a global level. As at the end of April 2018, the COLOSS network includes 1085 members from 95 countries and is composed of scientific professionals (i.e. researchers, academics, veterinarians, agriculture extension specialists and students). Cooperation and open dialogue to achieve a better understanding of the reasons why bee populations are threatened in today's world are key to COLOSS.

The COLOSS network and monitoring efforts should be integrated into this Partnership initiative to avoid redundancies and instead foster mutual enrichment. Integration will maximise the effective usage of COLOSS data for the broader benefit of all involved stakeholders, incl. policy makers. On the other hand, COLOSS will benefit from other data gained by this Partnership initiative. The COLOSS network has particular specialist expertise in the design and conduct of large-scale surveys, experiments and ring tests, often EU-wide. In particular, the large-scale experiments are a unique contribution of COLOSS to this Partnership initiative and are essential to determine whether correlations that may be identified during monitoring studies are in fact causal.

COLOSS can also link this EU initiative with ongoing global efforts for mutual benefit, for example in the USA.

¹⁹ Pesticide Action Network Europe. <http://www.pan-europe.info/profile>

2.4.2. European Union Reference Laboratory for honey bee health

The activities of the EU Reference Laboratory (EURL) for honey bee health are wide-ranging, covering the major bee diseases (parasitic, bacteriological and virological) as well as exotic pests (insects and Acari) which threaten the bee populations. Moreover, the EURL for honey bee health also works on plant protection products, due to their possible impact on honey bee health. The laboratory develops and validates relevant assays for measuring insecticide residues at low concentration levels²⁰. In 2012-2014, EURL on honey bee health launched the EPILOBEE project (Jacques, 2016), the first active harmonised surveillance programme to estimate the overwintering and seasonal colony mortality rates over two years (4,758 apiaries). A statistical analysis conducted on the typology of beekeepers, education of beekeepers, beekeeping practices, previous winter mortality, prophylaxis showed the importance of these risk factors in explaining trends of bee mortality.

The Bee Partnership has the potential to assist the EURL with methods standardisation. In particular, data collected by the Partnership can be used to estimate test (or method) sensitivity and to develop quality criteria suitable for bees. Should the EU Bee Partnership be willing to develop further such surveys, the EURL on honey bee health could provide support based on the experience gained from the EPILOBEE project (e.g. dissemination of knowledge, networking, harmonisation of analytical capacities for reliable diagnosis of honey bee diseases).

2.5. Others

A number of other organisations are critical to the work of the EU Bee Partnership, including the European Parliament, the European Commission, and European agencies such as the European Environment Agency (EEA), the European Medicines Agency (EMA) and the Joint Research Centre (JRC, the EU Science Hub).

The Partnership is open to other participants with a shared vision, and those who can contribute to and benefit from data sharing for bee health. For the broader scientific community, the Bee Partnership offers the potential for improved data sharing, both in terms of accessibility and efficiency, to facilitate work to address key questions. It should also facilitate harmonisation in data collection and management, with a focus on those variables that are critically important to bee health.

2.6. Resource, financial and quality plans

The Discussion Group identified the need for both short- and long-term funding: *short-term* to support the proposed 'proof of concept' on data sharing, and *long-term* to allow the EU Bee Partnership to sustainably address data sharing for the benefit of bee health. A phased approach to funding is proposed, but with clear recommendations that long-term resources are needed.

During the first 12 months, in-kind contributions from stakeholders will be used to support a pilot study demonstrating proof of concept. A coordinator will be required from within the Partnership, and the potential for EFSA involvement during this period will be explored, but will include the contribution for data hosting (Knowledge Platform, Zenodo).

Drawing from experiences during this period, a proposal will be developed, including accurate costings, outlining the work programme of the Partnership into the future. Approximately 12 months after initial establishment, this proposal will be presented to the European Parliament, seeking confirmation of Parliament willingness to support the Partnership in exploring financing.

Into the future, it was agreed that at least one of the Partnership meeting each year will be coordinated by EFSA. This would be held, if possible, ahead of the annual Bee Week in Brussels to support the Partnership's reporting back to the European Parliament on progress made.

Possible financial contribution by both EFSA and EEA (European Environment Agency) should be further explored.

²⁰ ANSES – European Union Reference Laboratory for Honeybee Health. <https://sites.anses.fr/en/minisite/abeilles/eurl-bee-health-home>

The Discussion Group has identified additional expertise that may be required, depending on the questions posed, including:

- Social sciences
- Economics
- Meteorology
- IT expertise

Expertise in data models and statistics may also be needed, to facilitate data harmonisation and analysis.

2.7. Work breakdown structure and schedule

With respect to the six deliverables identified above, it is proposed that each would be delivered during consecutive 2-month periods:

1. *At 2 months:* Defining the question(s) of interest
2. *At 4 months:* Defining a 'proof of concept' relevant to 1., essentially the scope of a clearly defined 'pilot project' incorporating several data sources
3. *At 6 months:* Identifying the key data that would be required to answer the questions identified in 1.
4. *At 8 months:* Conducting an inventory of those data from 3. that are currently available
5. *At 10 months:* Identification of data gaps between 3. and 4.
6. *At 12 months:* Identification of research that would be required to fill the data gaps identified in 5.

2.8. Success factors, risks and constraints

2.8.1. Success factors

The DG suggested the following factors to assess the success of the Partnership on data sharing and collection on bee health:

1. The EU Bee Partnership is perceived as a reliable source of data and of advice on data collection, management and analysis
2. Objective data and information are available to help support sound decision-making at all levels
3. There is a measurable positive impact on bee health

2.8.2. Risks and constraints

A number of risks were identified, including:

- *Funding*, both short- and long-term
- *Confidentiality*, with the potential to limit data accessibility
- *Time, resource and project coordination*, noting that scope of the work envisaged
- *Lack of motivation among stakeholders*

The following strategies for risk mitigation are proposed:

- *Funding, including time, resource and project coordination.* A phased approach is proposed. During the first 12 months, a pilot project will be conducted to demonstrate proof of concept. This will lead to a detailed proposal for external funding to allow sustainable support of the Partnership into the future.

- *Confidentiality.* The work will be conducted in full compliance with the General Data Protection Regulation (GDPR) (EU) 2016/679.
- *Lack of motivation among stakeholders.* In the longer term, this is closely linked with funding, noting the importance of coordination and other resources to enable the project to be successfully completed. It is critical that the project delivers benefits for all participants, which will be facilitated with an effective communications strategy.

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Abbreviations

AVC – Association of Veterinary Consultants;

CIBE – International Confederation of European Beet Growers;

COLOSS – prevention of honey bee COLony LOSSes;

DG – Discussion Group;

ECPA – European Crop Protection Association;

EEA – European Environment Agency;

EFSA – European Food Safety Authority;

EMA – European Medicines Agency;

ENSSER – European Network of Scientists for Social and Environmental Responsibility;

EPBA – European Professional Beekeepers Association;

EURL – European Union Reference Laboratory for honey bee health;

FAO – United Nations Food and Agriculture Organization;

FEEDM – European Federation of Honey Packers and Distributors;

GDPR – General Data Protection Regulation;

IBMA – International Biocontrol Manufacturers Association;

IPBES – Intergovernmental Science Policy Platform on Biodiversity and Ecosystem Services;

JRC – Joint Research Centre;

OECD – Organisation for Economic Cooperation and Development;

PAN – Pesticide Action Network – Europe;

SEA – Stakeholder Engagement Approach.