



Department
for Environment
Food & Rural Affairs

Bee Health Evidence Plan

Policy portfolio: Plant Health

Policy area within portfolio: Bee Health

Timeframe covered by Evidence Plan: 2013/14 – 2017/2018

Date of Evidence Plan: March 2013

This evidence plan was correct at the time of publication (March 2013). However, Defra is currently undertaking a review of its policy priorities and in some areas the policy, and therefore evidence needs, will continue to develop and may change quite rapidly. If you have any queries about the evidence priorities covered in this plan, please contact StrategicEvidence@defra.gsi.gov.uk.

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1. Policy context

What are the key policy outcomes for the policy programme/area?

Bee Health is an area under the Plant Health Policy programme.

This area contributes to three of the Defra Departmental Objectives;

- Help to enhance the environment and biodiversity to improve quality of life
- Support a strong and sustainable green economy, including thriving rural communities, resilient to climate change
- Prepare for and manage risk from animal and plant disease

There are 4 key outcomes for this policy area which require evidence;

- Evidence generated and used effectively to support Defra policy on bee health.
- Policy on bee health informed by evidence, agreed by stakeholders and delivery bodies, promoted successfully in negotiations and implemented.
- Defra's bee health policy on statutory disease control implemented in England and Wales.
- Healthy Bees Plan implemented on behalf of Defra and WG, guided and steered by the Bee Health Advisory Forum.

For bee health, estimates of the value of pollination services in England and Wales range from £124m to £277m annually based on the value of crops that are thought to be pollinated by honey bees. The value of honey produced in England and Wales is estimated to be between £26.1m - £38.6m, with a self sufficiency rate for the UK of 21% in 2009. The benefits of bee health are estimated to exceed the costs by a factor of 10:1. These data are derived from an economic analysis carried out in 2012 and planned for publication in 2013¹.

The regulatory controls are based on EU and UK legal provisions. The rationale for Government intervention in this area relates to the issue of market failure. Market mechanisms alone may fail to prevent or correct negative economic and environmental impacts that could arise from trade of bees, thereby reducing UK agricultural output, increasing production costs and damaging ecosystems. The evidence supports delivery of these controls balanced with the need to minimise regulatory burdens on the trade.

The aim is to achieve a sustainable and healthy population of honey bees for pollination and honey production in England and Wales via collective action by government, beekeepers and associations to improve our resilience to exotic pests and diseases and to limit the impact of endemic pests and diseases.

¹ Figures are from the final report for Project PH0442 – 'Gathering the economic evidence for the bee health, plant health, varieties and seeds sectors and interventions' to be published on the Defra science pages following approval.

Bee health policy is coordinated across the UK and links, normally through Defra's Animal Health Programme, to EU and international negotiations on bee health issues.

2. Current and near-term evidence objectives

What are the current and near-term objectives for evidence and how do they align to policy outcomes?

Current and near term objectives cover work that is already underway and that will be delivered in the next 1-3 years.

There is a variety of factors affecting the long term sustainability of a healthy bee population in England and Wales which includes exotic pest and disease threats, the large number of amateur beekeepers, estimated to be 36,400 in comparison to 465 bee farmers, and effective management of serious endemic pests and diseases. Current pest and disease risks to honey bees in England and Wales include American and European Foulbrood (AFB and EFB), *Varroa* and *Nosema* which are already present in the UK and exotic pests such as Small hive beetle (SHB), *Tropilaelaps* mites and the Asian hornet. Evidence is gathered from a variety of different sources including research, input from stakeholders, social science, economic analyses and monitoring carried out by the Fera National Bee Unit as part of the inspections programme. Only a relatively low level of resources is allocated to research with funds balanced between exotic and endemic threats.

Research

- Different methods are being developed including horizon scanning to identify and assess exotic pest and disease threats, diagnostic tools for detection of exotic pests and diseases, strategies for eradication or management of exotic pests and diseases. This should help meet the outcome of effective biosecurity to prevent/manage introductions of exotic pests and diseases.
- The factors affecting pest spread and disease epidemiology are being analysed which should allow more effective control methods to be developed for managing serious pests and diseases including novel husbandry techniques so that the impact of serious endemic pests and diseases is kept to the lowest level possible. This is particularly applicable to AFB and EFB.

Monitoring and surveillance

- These activities provide evidence about the levels of endemic pests and diseases with the aim of keeping the impact to the lowest levels possible.

Social research

- The barriers to effective husbandry particularly with respect to behaviour are being identified so that behaviours can be better understood and influenced to ensure that all beekeepers adopt effective husbandry practices.

The Quarterly Review covering delivery of the MoU with the National Bee Unit's Inspectorate and science specialists is the main route by which evidence needs are currently identified and prioritised.

Economic analyses

An economic analysis of bee health has been carried out to gain a better understanding of the businesses subject to bee health regulations, including assessment of sector structure, costs, income and demography (see footnote¹). This also included a cost-benefit analysis to understand the full impact of Government intervention and which should allow the costs of any future changes to be calculated.

3. Future evidence needs

What are the longer-term evidence needs for the policy area/ programme?

Social and economic analyses will be strengthened. In addition there are continual technological advances (for example genomics and post-genomics) and it will be important to consider how these can be adopted for example to improve diagnostics and risk assessment. Evidence gathered from emerging technologies and different sources of information (e.g. remote sensing and citizen science) are also likely to play a key role in policy development.

A review was carried out from 2011-12 on honey bee pest and disease control policies. The review group concluded that overall the policies had been effective in reducing notifiable disease risks (AFB and EFB) and preparing for exotic risks. The review also agreed that there was scope to update and re-shape policies so that they were more forward-looking and were better focussed in tackling the underlying causes and not just the symptoms. Future policies should be expanded to (i) cover Varroa, a non-statutory pest but still a major problem for beekeepers and (ii) to ensure early detection of exotic pests.

Although these changes do not involve a change in legislation, there will be a change in emphasis and therefore a consultation with stakeholders is being carried out. This is due to close in March 2013 and therefore in the light of the responses received the longer term evidence needs will need to be reassessed.

Proposals were made which include specific suggestions for how to refine and amend current policies. These will have specific evidence needs, potentially requiring changes to the prioritisation of research, surveillance and monitoring needs as outlined below:

- Ensuring greater empowerment of beekeepers and increased self-reliance, including development of apiary-based diagnostics for them to use as part of disease control and influencing behaviour;
- Risk assessment to identify potential exotic threats and capture the likelihood and impact of these threats;
- Improving resilience to exotics in particular with respect to possible treatments;

- Tailoring the government's response to reflect beekeepers' disease history, experience and competence. In some cases taking a more rigorous response and in others allowing beekeepers greater autonomy for disease management and control and formalising deregulatory approaches (recognition and reward);
- Better partnership working with beekeeping associations to help raise the profile and importance of disease prevention practices (in the minds and actions of beekeepers);
- The proposals cover different ways of working and where necessary evidence from pilot studies will demonstrate whether an approach is likely to be effective and can also be used to monitor once the policy has been implemented.

In 2007 the EU Commission published its blueprint for a new Animal Health strategy to run from 2007-2013 - "Prevention is better than cure". One of the objectives of the strategy is to revise the regulatory framework and deliver a new Animal Health Law which will also cover honey bees. The Commission highlighted a reduction in administrative burdens and costs as a key objective. This could potentially have a major impact on policy and further evidence will be required to prepare and implement such changes. Proposals for a new Animal Health Law are expected during 2013.

4. Meeting evidence needs

What approach(es) will be taken to meeting evidence needs?

Government and industry partners are involved in defining and meeting evidence needs. This includes the Devolved Administrations (DAs) and other government agencies.

The Bee Health Advisory Forum (BHAF) (formerly the Healthy Bees Plan Project Management Board) which is made up of Government and relevant stakeholders provides input on evidence priorities. The Science and Evidence Advisory sub-group of the BHAF has a specific role in capturing stakeholders views on evidence gathered as well as needs and priorities.

A large proportion of the evidence (at least 70%) comes from programmes within the Food and Environment Research Agency (Fera) including; the Inspectorates Programme (which encompasses the National Bee Unit) and the Plant Protection Programme. The main sources of evidence are:

- Surveillance and monitoring data gathered from inspection activities which by their very nature contribute to evidence, although this is not necessarily their primary purpose. In other cases, activities are more directly aimed at producing portfolios of evidence, e.g. for monitoring potential links between outbreaks of AFB and proximity to honey packing houses.
- Pest Risk Analyses (PRAs), including economic and environmental impacts, as well as cost-benefit analyses, regulatory impact assessments, assessment of risk

management options and action recommendations, development of contingency plans, policy and lessons-learnt reviews, policy consultations and horizon scanning.

- Maintaining historic datasets and databases including BeeBase.
- Research in support of developing optimal policies on specific pests and for surveillance, eradication and containment approaches which includes projects funded from the Plant and Bee Health R&D programme as well as the Fera Horizon Scanning and Technology Implementation programme for small, short projects.

Evidence is also gathered from Government colleagues in other EU member states and other EU organisations, for example the EU Reference Laboratory. Evidence may also be commissioned directly from organisations in other EU member states and internationally. This is particularly useful when gathering evidence about threats which are not present in the UK but present a risk for the future.

Other approaches for gathering evidence are through alignment, partnerships, coordination and cooperation with other programmes, e.g. via ERA-Nets and the LWEC (Living With Environmental Change) Insect Pollinators Initiative.

Informal collaborations are maintained with colleagues with responsibility for meeting evidence needs in other Defra departments including Animal Health, Biodiversity, Crops, Pesticides and the Veterinary Medicines Directory. Joint evidence activities with these programmes could be considered in the case of a high priority need.

5. Evaluating value for money and impact

What approach(es) will be taken to maximise and evaluate value for money and impact from evidence?

Achievement of the policy objectives will be assessed against success criteria or Key Performance Indicators given under the Bee Health Policy section of the Business Plan and the Fera MoU to be agreed on an annual basis.

Where evidence is gathered from research projects, value for money is ensured through governance by a steering group, whose membership includes the end-users of evidence and, where relevant, other scientists and stakeholders. This ensures that objectives are relevant, fit-for-purpose and delivered on time and to a high standard (e.g. underpinned through quality standards such as GLP, GEP, Defra's code of practice and ISO).

Evidence from research projects are published in peer reviewed scientific journals, trade and stakeholder journals as well as being presented at conferences and stakeholder forums.

Although there is only a small number of bee pests and diseases subject to statutory action, policies for controlling the spread of endemic pests and diseases and improving preparedness against exotic threats must be prioritised. Success of these policies and

their evidence base can be gauged by how effectively outbreaks of endemic pests are detected and controlled and the continued absence of exotic pests. A major part of the Bee Health Policy Review, which included beekeeping stakeholders and scientists, a form of peer review, focussed on assessing the available evidence from a number of different sources including the results from the Defra funded Random Apiary Survey and stakeholders and NBU experiences to assess the effectiveness of the current policies and evidence base.

Following closure of the consultation and assessment of the responses, an implementation plan will have to be developed. The plan is likely to involve changes in operational policy and therefore evidence will have to be gathered to determine the impact of these changes. The evidence will be reviewed annually but subject to peer review at regular intervals.

A contingency plan has been developed for the potential arrival of exotic pests and this was agreed by the Bee Health Advisory Forum (BHAF). Regular exercises take place to test the effectiveness of the plan and these are subject to a lessons learned review process. Continued engagement with the BHAF is seen as an essential mechanism for assessing the evidence and effectiveness of the current policies for bee health. Dissemination of evidence based best practice is mainly routed through the NBU's bee base website, trade press and beekeeper training events led by NBU staff.