



The Food and Environment
Research Agency

National Bee Unit

Protecting the honey bee



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OUR ROLE

We protect the honeybee; an essential pollinator of crops and wild plants, and support the beekeeping industry through:

- Controlling serious endemic pests and diseases to minimise the economic and environmental impact as much as possible.
- Advising beekeepers on the recognition and control of pests and diseases to make the industry more self-sufficient.
- Minimising the risk of importation of exotic pests and diseases and managing the risks should serious exotic organisms be discovered.

The National Bee Unit (NBU) does this using an integrated programme of apiary inspections, disease diagnosis, research, training and extension, provided by a team of scientists and experienced practical beekeepers.

We also provide specialist advice and technical consultancy services on bee health to Government departments, beekeepers and industry.



OUR STAFF

Our highly specialised team includes skilled technical staff that are either apiculture specialists or scientists trained in beekeeping. Some have experience working abroad, including managing beekeeping businesses and providing consultancy services to overseas governments. Such work leads to extensive national and international contacts in apiculture, insect pathology and environmental science, and membership of international groups working in related areas.

The NBU runs about 150 professionally managed honeybee colonies to support training and both statutory and commercial work.

Bee health inspection

NBU Regional Bee Inspectors organise bee health inspections using a staff of highly skilled beekeepers as Seasonal Bee Inspectors, under the guidance of the National Bee Inspector.

The Bee Health Inspectorate not only looks for and treats notifiable diseases, but also trains beekeepers, assists with field trials and research, and provides first hand up-to-date information on industry issues.

The team completes a targeted statutory disease inspection programme for Defra and the Welsh Assembly Government, comprising 5,000 to 6,000 apiary visits each year, inspecting between 24,000 and 29,000 colonies, approximately 10% of colonies in England and Wales.

A sophisticated IT system called BeeBase supports the bee health programme, including custom designed databases comprising mapping, Geographical Information Systems (GIS) and spatial analysis capabilities. This aids the routine work of the NBU, and also provides valuable information that feeds into research programmes and pest risk analysis services.



CONTINGENCY PLANNING AND SURVEILLANCE

The NBU has also developed a bee health contingency plan to deal with the invasion of exotic pests. This covers the emergency action necessary to either attempt to eradicate the pest or contain it within a restricted area. The Bee Health Inspectorate conducts surveillance programmes for the small hive beetle (*Aethina tumida*) and *Tropilaelaps* spp. in apiaries identified as being at risk. Both pests have recently been made notifiable within the European Community.

Advice and consultancy

GOVERNMENT AND INDUSTRY

The work of the NBU covers many issues, not just bee husbandry and health. We provide advice to government departments and beekeepers on related topics including EU directives, formal health risk assessments for bee imports and contingency planning. A further specialism is to offer advice on the effects of pesticides on bees and other beneficial insects, and additionally on the registration of bee-related veterinary products.

OVERSEAS

The NBU offers overseas apiculture experience and training to workers from abroad in beekeeping techniques, bee disease control measures, diagnostics and bee pathology. We are also involved in training other scientists in bee-related field studies looking at the environmental effects of agrochemicals; this is done on an international scale. An important element is to foster strong working relationships with other researchers, both in the UK and abroad, and we collaborate with key honeybee researcher teams throughout the world. Recent consultancies have included Israel, Malta, Iran, China, South Africa, Chile, Romania, New Zealand and Uganda.



PEST AND DISEASE DIAGNOSIS

Statutory diagnosis for European foul brood and American foul brood is provided free of charge by our diagnostic staff of trained beekeepers who understand the practical issues that face beekeepers with disease problems in their colonies. Pests such as varroa (including mites resistant to veterinary medicines) and exotic pests such as the small hive beetle (*Aethina tumida*), *Tropilaelaps spp.* and other Asian mites can also be identified. In addition, the NBU offers beekeepers a chargeable diagnosis service for honeybee pests and diseases (including viruses); please contact the NBU for more details.



Training and extension

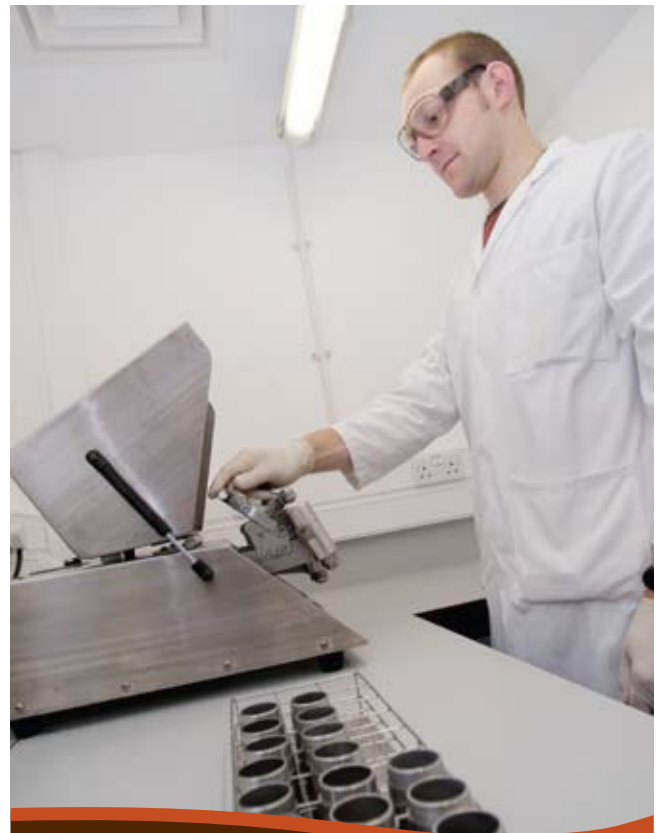
One of the major roles of the NBU is to provide training and extension services for beekeepers.

This involves running training courses on subjects such as the recognition and management of honeybee diseases, and best practice for bee husbandry. These courses are typically provided by the Bee Health Inspectorate, although some are based at York. We work closely with national and regional beekeeping associations to ensure that the training provided is suitable and relevant to the needs of the industry. Themes include general good husbandry practice, integrated pest management, managing varroa, foul brood recognition and control and queen rearing.

Research and development

The NBU has an active research programme, with the aim of providing beekeepers with the best advice for husbandry and disease control. Many aspects of disease prevention and management are investigated using the very latest technologies, historic data and GIS. Our extensive field team have a major role in undertaking our research.

The NBU has international collaborations with institutes and universities to conduct applied science to support the bee health programme. A list of the current projects can be found on the R&D pages of BeeBase. Our aim is to help beekeepers; the NBU's research is aimed at providing practical tools to make this possible.



BEEKEEPING ASSOCIATIONS

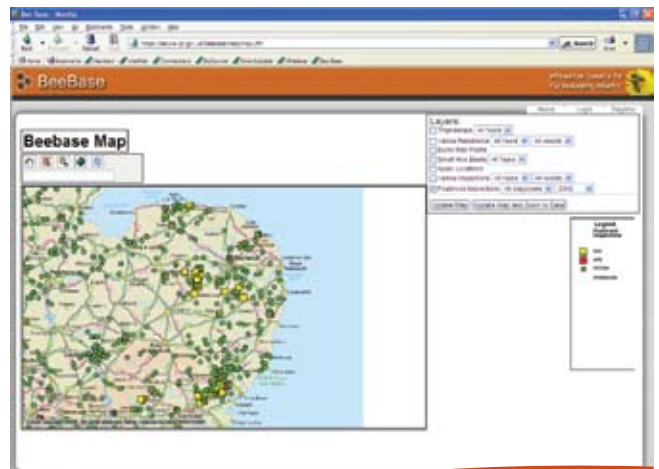
In many areas, beekeeping associations operate disease control and self-help schemes and provide practical advice to members on disease recognition, varroa control and good husbandry. Contact your local association, bee inspector, or Disease Liaison Contact (DLC) for further details; the NBU office can provide you with contact information if necessary.

Consumer and environmental protection

The NBU is contracted to take honey samples directly from beekeepers on behalf of the Veterinary Medicines Directorate (VMD) as part of Defra's statutory residue monitoring programme – the National Surveillance Scheme.

Each EU Member State has a statutory responsibility to monitor food for residues to ensure safety for the consumer. This scheme helps to protect consumers by minimising the risks of residues in harvested honey entering the food chain.

The NBU also works within Defra's Wildlife Incident Investigation Scheme (WIIS), which monitors the effects of pesticides on wildlife, pets and beneficial insects (such as honeybees and bumblebees). This scheme sets the standard internationally for environmental monitoring of its kind and is held in very high regard.



BeeBase

A recent development has been the new data management system called BeeBase. BeeBase is a web-enabled database, which contains all the apicultural information relating to the statutory bee health programme in England and Wales. This project was supported by the Defra Challenge Fund and was developed by the Knowledge Management Network on behalf of the NBU. For the first time it allows stakeholders (Appointed Bee Inspectors, Defra policy divisions, members of the beekeeping industry and the public) to access information held within the database. There are different tiers of information available, depending upon the access rights of the stakeholder. Some areas are open to the public such as information on the functional activities of the NBU, legislation, pests and diseases including their recognition and control, interactive maps, current research areas, publications, advisory leaflets and key contacts. Other areas are restricted, for example beekeepers can register online as a Beekeeper and view their own apiary records, diagnostic histories and details.

To access this information warehouse and management system visit www.nationalbeeunit.com

Commercial services

The NBU has full Good Laboratory Practice (GLP) compliance, an internationally recognised standard for production of regulatory data.

This has enabled us to develop and conduct toxicity tests with honeybees for pesticide registration purposes for several years, using our professionally managed apiaries. We have significant expertise in this area, which we use to design customised tests both in the UK and overseas. The NBU is vastly experienced in testing the efficacy and safety of veterinary medicines such as potential new varroacide. These can be done either in the laboratory or the field. Environmental impact studies, such as assessing the impact of agrochemicals on the environment and honeybees, are also undertaken.

LABORATORY TESTS

Laboratory toxicity tests on adult worker honeybees are conducted in accordance with international guidelines. We also have the ability to assess the acute contact and oral toxicity of chemicals to bumble bees. In the past few years, this area has been expanded to encompass assessments of the effects of insect growth regulators and other substances on honeybee brood. The NBU is amongst the most experienced in Europe in directing these studies and are leaders in this new and developing area.

SEMI-FIELD AND FIELD TESTS

On a larger scale, semi-field tests with honeybees or bumblebees are undertaken in bee-proof polytunnels or in computer-managed glasshouses. We have licensed spray applicators as well as horticultural experts, and can undertake work on all aspects of a study, including in-house residue analysis. We can also conduct full-scale field trials. Our network of bee inspectors gives us access to a wide range of field sites throughout the UK.



OUR QUALITY STANDARD

The NBU is certified as compliant with the OECD principles of Good Laboratory Practice (GLP) and ISO 9001, much sought after, externally audited, international standards for assuring the quality of science management. This ensures that all our customers benefit from a consistent, tightly managed and well-documented approach to all our work.

WANT TO FIND OUT FURTHER INFORMATION?

BeeBase is regularly updated with the latest news and information, at www.nationalbeeunit.com

The website gives a great deal of information about the NBU and its work.

There is also a general e-mail address, nbu@fera.gsi.gov.uk, to which you can send any enquiries about honeybees.

History of the NBU

The first Government involvement into the beekeeping industry was in the 1940s when the Ministry of Agriculture and Fisheries (MAF) regulated the provision of sugar to beekeepers under wartime rationing.

The first legislation applied to beekeeping was the Foul Brood Disease of Bees Order, 1942. Since then there have been several changes in legislation. Bee health is now subject to the current legislation The Bee Diseases and Pests Control Order 2006 as well as being governed by European law. This legislation designates American foul brood (AFB), European foul brood (EFB), Small hive beetle and *Tropilaelaps* mites as notifiable pests and diseases and defines the action that may be taken in the event of outbreaks. The Order also defines the importation requirements of honeybees and bumblebees. Further information is also available on BeeBase Online.

In the 1950s the National Agricultural Advisory Service (NAAS) was responsible for bee health work. Based at Rothamsted Lodge, Harpenden, Hertfordshire and Trawscoed in Wales, the primary remit of the bee units was disease monitoring and control of bee diseases.



In 1979 the units were amalgamated to form the Agricultural Development and Advisory Service (ADAS) National Bee Unit (NBU), located at Luddington Experimental Horticulture Station, just outside Stratford-upon-Avon. The ADAS NBU provided statutory and advisory services to MAFF and beekeepers throughout England and Wales on all aspects of apiary management and bee health as well as carrying out R&D work.

In 1991, following the privatisation of ADAS, the NBU joined the Central Science Laboratory (CSL) and in 1994 took on the responsibility of the MAFF Bee Disease Inspection Service. The NBU moved to York in 1996 when CSL relocated to a new, purpose-built laboratory on the outskirts of the city.

Since April 2009, NBU has been part of The Food and Environment Research Agency, formed by the merger of CSL with Defra's Plant Health Division (including Bee Health Policy and the Plant Health and Seeds Inspectorate), the Plant Variety Rights Office and Seeds Division, and the Government Decontamination Service.