

The Wildlife Incident Investigation Scheme

What is the Wildlife Incident Investigation Scheme?

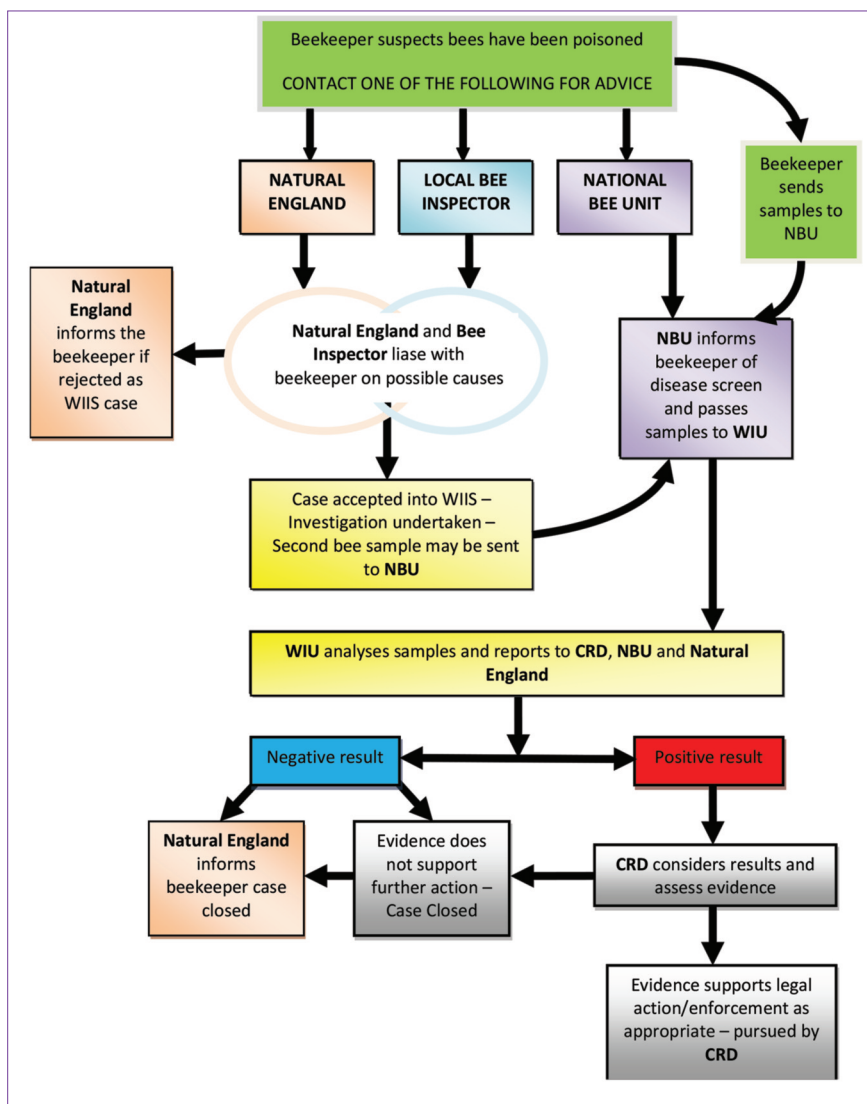
The Wildlife Incident Investigation Scheme (WIIS) monitors effects of Plant Protection Products (PPPs) on UK wildlife including honey bees. Set up to investigate suspicious wildlife deaths, WIIS also examines PPP usage as part of the pesticide approval process. By identifying post-registration issues, WIIS allows PPP approvals to be revised, ultimately resulting in changes to label recommendations.

Who is involved?

WIIS relies on members of the public and interested organisations reporting carcasses/suspected baits so that these can be submitted for chemical analyses. For incidents involving honey bees WIIS involves close collaboration between a number of separate agencies (see end of article for contacts). It is led by the Chemicals Regulation Directorate (CRD) which is the 'Competent Authority' for approval and regulation of pesticides. Natural England (NE) manages the Scheme in England on behalf of CRD and undertakes site enquiries into pesticide exposure. In Wales this responsibility



Dead and dying bees – victims of a suspect poisoning? Photograph courtesy of Natural England. (All other photographs are courtesy of The Food and Environment Research Agency, Fera, Crown Copyright and images supplied by the National Bee Unit at Fera.)



Flow Chart — The WIIS and how it works in England.

lies with Agricultural Rural Affairs Department (ARAD) on behalf of the Welsh Government (WG). The Food and Environment Agency (Fera) carries out disease screening and pesticide analyses. For incidents not involving honey bees, another agency is also involved — the Veterinary Laboratories Agency (VLA), which carries out post-mortems on other wildlife. Rapid communication between all these agents and tracking of incidents is facilitated by the WIIS On Line database (WIISOL); all parties can view incident details and upload information such as disease reports and analytical results. Two Fera teams are involved in honey bee incidents:

- The National Bee Unit (NBU) is responsible for sample receipt, initial assessment, adult bee disease diagnosis and liaison with beekeepers.
- The Wildlife Incident Unit (WIU) analyses bee samples (and a variety of animals' tissues, including gut contents, faeces, blood, urine, liver, kidney, lung etc.) for pesticides. Based on collated information from all agencies, the WIU interprets findings.

How are suspected bee poisonings reported to the WIIS?

This depends on where you live. In England reports may enter the scheme through a number of routes (see flow diagram); for example, through the WIIS telephone line, through NE or the NBU. However, the easiest way is to contact the NBU office or your Regional Bee Inspector (RBI) directly. Contact details can be found on the BeeBase website (www.nationalbeeunit.com). You can also post samples to the NBU: collect at least 200 (a large matchbox full) recently dead or dying bees, and send them in a cardboard container along with a letter outlining circumstances surrounding the incident. If

posting the sample is delayed, please seal and store it in a freezer until it can be sent off. Decomposed samples are more difficult to analyse for diseases and the fresher the bees are the greater the chances of identifying residues,

What happens when an incident is reported to the NBU?

A local bee inspector will contact the beekeeper to arrange a visit to the affected apiary site where he/she will assess the situation and the condition of the bees. If he/she finds good reason to suspect that a poisoning has occurred, a sample will be submitted to the NBU laboratory (either to supplement any bees previously submitted or as a first sample).

How are incidents reported under the WIIS?

On receipt at the NBU each sample is tested for common adult bee diseases (*Acarine*, *Nosema* spp, *Amoeba*) and, if present, any pollen found on the bees can be used to identify which forage plants may have been visited at the time of the incident. This is valuable information if poisoning is confirmed, misuse/abuse is identified and the case goes to court. The NBU will post the results of disease (and pollen analyses) to the initial sender. The sample is then transferred, with appropriate chain of custody paperwork, to the WIU.

If the case is later accepted for submission to the WIIS for investigation, samples will be analysed for pesticide residues. At the same time the NBU will contact NE or ARAD to alert them of a potential incident. A NE or ARAD Wildlife Adviser will liaise with the bee inspector and also contact the affected parties to gather additional information. For example, if specific field spray application is identified as a potential cause then details about the products used, time of spraying and growth stage of the crop will be collated; all spray applications must be logged by the farmer or contractor making the application. Beekeepers can provide other important facts, such as what the bees were foraging on, what was the weather like at the time of the incident or were any other beekeepers in the area also affected? Based on all available information, the Wildlife Adviser will decide whether pesticide use is likely to have been responsible for the loss of the bees and whether the case should be admitted to the scheme for full investigation. Incidents may not be investigated if they are not covered by the scheme, e.g. if poisoning is thought to have involved other pollutants. If the visit to the site or the post-mortem identifies the cause of death as something other than pesticide poisoning, samples may not be sent for analysis. The NE or ARAD Wildlife Adviser will inform the beekeeper whether the incident has been accepted into the WIIS.

What happens if a sample is accepted into the WIIS?

Incidents will be entered onto the WIISOL database. The Wildlife Adviser will compile a field investigation report including all of the information gathered from the beekeeper. The bee samples are transferred from the NBU to the WIU to measure any pesticide residues present. Chromatography instruments, connected to mass

spectrometers, provide a very high degree of certainty regarding identity and levels of any residues present. Typical limits of detection range from 0.05 to 0.5 nanograms per bee. Samples are screened for organophosphorus, organochlorine, carbamate, pyrethroid and neonicotinoid insecticides, fipronil, and some fungicides. Following field investigation, disease diagnostics, pollen screening and residue analysis, evidence is collated to determine whether a PPP killed the bees. Sometimes residues are absent, or present at sub-toxic levels, so the cause of death remains unknown.

In some instances lethal quantities of pesticide are detected, but are not due to misuse or abuse and the bees have died as a result of exposure to authorised use of PPPs, for example the bees were exposed to pesticides because their flight path happened to be across a field being sprayed according to label instructions. If significant levels of pesticides are found in bee samples and there is

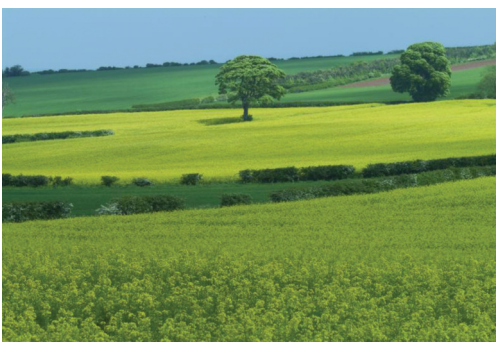
evidence of misuse or abuse of pesticides then legal action may be taken. The HSE considers whether this is appropriate. In some instances the police may also investigate.

How long will this take?

The NBU screens samples for disease within 48 hours of receipt before passing them to the WIU, who generally require up to twelve weeks to complete their analysis, particularly if there is little evidence as to possible cause. Once the whole investigation is complete and the case closed, the beekeeper will be informed by NE or the WG. If a case is taken forward for prosecution, resolution may take considerably longer. Over the last few years a common cause for concern has been secondary poisoning of managed honey bees following misuse of pesticides to control feral colonies. There have been successful prosecutions of pest control companies for failing to follow the guidelines. The results of the enquiries made by the WIIS are published quarterly on the CRD website.

How can bees be protected during spraying?

Any product harmful to bees will be labelled as 'harmful', 'dangerous',



Historically some insecticides on Oil Seed Rape have been a problem for honey bees.



Honey bees with corbicular pollen loads.

'extremely dangerous' or 'high risk'. All users must take this information into account when undertaking their risk assessment before use. It is also the legal responsibility of anyone using pesticides to follow the label instructions to the letter. Failure to comply leads to prosecution. *The Code of Practice for Using PPPs* (http://www.pesticides.gov.uk/safe_use.asp?id=64) states that before applying pesticides at times of year when bees are at risk or if a particular pesticide is known to harm bees, users should inform beekeepers or the local Spray Liaison Officer 48 hours in advance, to allow beekeepers time to take necessary precautions. Local Spray Liaison Officer details can be found on the BBKA website (http://www.bbka.org.uk/help/spray_liaison).

What about Scotland and Northern Ireland?

In Scotland samples are sent to the Science and Advice for Scottish Agriculture (SASA) in Edinburgh to be investigated. Veterinary support is provided by the Veterinary

Laboratories of the Scottish Agricultural College and by Lasswade Veterinary Laboratory. Samples from Northern Ireland go to the Agri-Food and Biosciences Institute (AFBI). As in the Scottish scheme, site visits are normally only carried out when pesticide poisoning has been found. Investigations can be carried out by the Health and Safety Executive Northern Ireland (HSENI) or by the police.

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Further Information

CRD Website: <http://www.pesticides.gov.uk>
Natural England Website: <http://www.naturalengland.org.uk>
WIU Website: <http://www.fera.defra.gov.uk/wildlife/wiu.cfm>
SASA Website: <http://www.sasa.gov.uk>
HSENI Website: <http://www.hseni.gov.uk>
WAG Website: <http://wales.gov.uk>

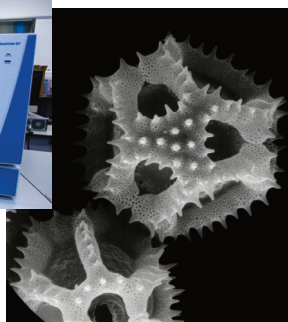
Useful Leaflet Reports (*Links available on BeeBase)

HSE — *Guidance on Treating Feral Colonies**
Crop Protection Association — *Bee Safe Bee Careful**
Defra — *Incidents Involving Pesticides and Animals**



Above: Pesticide analysis and interpretation of results at Fera.

Right: Pollen grains at high magnification (Scanning Electron Micrograph).



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