

Your Vision, Our Bee Ecotoxicology Regulatory Expertise

These semi-field and open field testing facilities at Fera can support honey bee brood feeding and effect testing requirements. Semi-field tests, such as honey bee brood tests according to OECD 75, are run under tunnel conditions alongside monitoring software and photographic methods.

These tests monitor the eggs, young and old larvae as well as the effects that plant protection products (PPPs) have on the development of the different brood stages.

Study Type	Key Regulations	How?
Acute & Oral Toxicity Adult	<p>Honey Bee: OECD 213 and 214</p> <p>Bumble Bee: OECD Guideline 246 & OECD Guideline 247</p>	<ul style="list-style-type: none"> • With honey bees & bumble bees (solitary bees - Fera are members of the International Commission for Plant Pollinator Relationships (ICPPR) non-Apis working group helping to develop new test methods) • Oral and contact exposure routes • Testing for mortality • Laboratory based
Chronic & Oral Toxicity Adult	<p>Honey Bee: OECD Guideline 245 for the Testing of Chemicals: Honey bee (<i>Apis mellifera</i> L.), chronic oral toxicity test (10 day feeding test in the laboratory)</p>	<ul style="list-style-type: none"> • With honey bees • Continuous oral exposure • Testing for mortality and sub-lethal effects (feeding behaviour) • Laboratory based
Toxicity Larval, Single Dose	<p>Honey Bee: OECD Test Guideline 237: Honey Bee (<i>Apis mellifera</i>) Larval Toxicity Test Following Repeated Exposure</p>	<ul style="list-style-type: none"> • With honey bees • Combined oral and contact exposure routes • Single application • Testing for mortality and sub-lethal effects (growth) • Laboratory based
Toxicity Larval, Repeat Dose	<p>Honey Bee: OECD Guidance Document 239: Honey Bee (<i>Apis mellifera</i>) Larval Toxicity Test Following Repeated Exposure</p>	<ul style="list-style-type: none"> • With honey bees • Repeat application • Combined oral and contact exposure routes • Assessment of the effects on honey bee brood development - mortality and sub-lethal effects (emergence and abnormalities) • Laboratory based
Cage, Tunnel Semi-field	<p>Honey Bee: OECD 75</p>	<ul style="list-style-type: none"> • With honey (or bumble / solitary) bees • 7 day (minimum) exposure to treated crop • Evaluates potential for effects on bee brood development - mortality, brood development and colony survival and condition • Option to measure residues in pollen, nectar, wax and honey • Field based
Field - Post Registration Monitoring / Residue Monitoring	<p>Honey Bee: Study specific</p>	<ul style="list-style-type: none"> • With honey bees • Monitoring bee behaviour, colony survival and development • Determination of residues in pollen and nectar • Field based

In order to protect both bee colonies and crops, it is therefore vital that PPP suppliers and developers work closely with organisations that can provide this level of analysis and insight required for existing and the new MRL technical guidelines.

Historically, honey has been excluded from supervised field trials and the MRLs for PPPs in honey has been set by default to a level of 0.05mg/kg, as the methodology on the data required was not established. If data is required there are two routes; tunnel/field studies or direct colony feeding studies, that need to be performed.

Partnering with a trusted partner like Fera Science gives you access to a unprecedented wealth of experience with particular strengths in bee survival and next generation diagnostic with the ability to apply multidisciplinary perspectives in resolving your product's unique challenges. Together with providing you with data collection and endpoints required to comply with the Regulation (EU) No 283/2013, Annex 6.10.

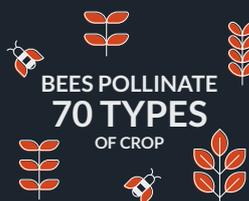
Be Informed About Bees

Pesticides, or other plant protection products (PPPs), are used worldwide to protect crops and increase agricultural productivity. Hence why controls are placed on the application of such products to reduce potential contamination of the environment, bees and ultimately the food we eat.

It is, therefore, necessary to determine the safe Maximum Residue Limits (MRLs) for pesticide residue that is legally permitted in or on food or feed.

MRL builds-in a safety margin 100x that of the actual safety level for a pesticide residue. Food products that exceed a MRL are not allowed on the market. Honey bees make honey from pollen and nectar collected from flowers.

They live in large colonies with one queen, many sterile females workers and some male drones. Bees are vital to the environment's survival and probably less known are wild bees such as solitary bees, bumble bees and stingless bees that also play an important role in ecosystems and pollination.



The best known primary products of beekeeping are honey and wax, but pollen, propolis, royal jelly, venom, queens, bees and their larvae are also marketable primary bee products.

According to the European Commission, which sets the MRLs for all food and animal feed, the amount of residues found in food must be safe for consumers and must be as low as possible.

ONE BEE COLONY



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Speak to our experts about your Tunnel/Field Studies or Direct Colony Feeding Studies needs

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