



Innovative
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Terrestrial
Ecotoxicology.



Terrestrial Ecotoxicology.

As a focus point in an ever-changing environment, terrestrial ecotoxicology is possibly the most transitional field in terms of regulatory requests and needs. Additional and new laboratory testing requirements, novel higher-tier studies and complex risk assessment procedures are now standard requirements for dossier submission for agrochemical, chemical and biocidal products.

General.

With an operational team of experts who possess extensive, long-term experience within GLP environments, our services are focused on, but not limited to, conducting studies with pollinators, non-target arthropods, soil organisms and non-target plants, either under laboratory, semi-field or field conditions. Custom-made setups and special study requests are part of our daily expertise. Active participation in international work groups like OECD, ICP-PR and BART enable us to have a leading position concerning both technical and regulatory requirements.

Laboratory Pollinator Studies.

IES Ltd performs laboratory studies on pollinating insects (honey bees, bumble bees, solitary bees) to assess adverse effects of chemicals and plant protection products. Our study types include acute oral and contact toxicity, chronic feeding tests and in vitro bee larvae studies.

Semi-field Tunnel and Field Bee Studies.

With the company being located in a rural area, it enjoys direct access to experimental fields in the proximity of the facility. The undertaking of Oomen feeding tests and semi-field (tunnel test, OECD 75) or field studies with pollinating insects including honey bees, bumble bees and solitary bees is possible right outside the laboratory. The effects of plant protection products on mortality, behaviour and brood development are investigated using digital assessment and performed routinely. Based on recent research and the most up-to-date authority requests, we recommend the combination of (semi-) field bee studies with the analytical measurement of residues in different matrices like pollen, honey or nectar. Even large-scale exposure studies including in-field forager sampling, multiple species and prolonged exposure times are feasible.

Non-target Arthropods.

At IES Ltd we conduct Tier I to Tier III studies on non-target arthropods with plant- and soil-dwelling organisms including *Typhlodromus pyri*, *Aphidius rhopalosiphii*, *Chrysoperla carnea*, *Coccinella septempunctata*, *Poecilus cupreus* and *Aleochara bilineata*. The aim of these studies is to assess potential side effects of plant protection products on mortality and reproduction. Specially extended setups, aged residue testing indoors and outdoors as well as Chinese registration projects according to ICAMA guidelines, such as *Bombyx mori* and *Trichogramma* spp., can be conducted at our facilities.

Soil Organisms.

IES Ltd performs laboratory studies with several soil organisms including earthworms (*Eisenia fetida*), predatory mites (*Hypoaspis aculeifer*) and collembola (*Folsomia candida*) to assess potential acute and chronic effects of chemicals. Care is taken on further (sub-lethal) endpoints alongside the standard test setup, in order to be prepared for future recommendations and authority requests.

Non-target Plant Studies.

Non-target plant studies (seedling emergence, vegetative vigour and chronic plant studies) are either carried out in the greenhouse or under semi-field conditions to investigate acute or chronic effects of chemicals on seedling emergence and the growth and reproduction of plants. Further endpoints such as root length, shoot length or yield can also be assessed.