

Non-Target Arthropods on Plants

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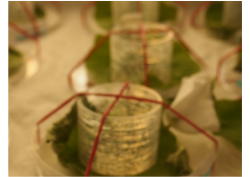
Non target arthropods on plants are invertebrates that play an essential role in ecosystems as pest controllers. Ecotoxicological data is required to confirm the impact on these non-target species.

Laboratory Studies

Eurofins Agrosience Services offers a wide range of standardized Tier I laboratory studies, performed according to the recent IOBC/WPRS guidelines, with parasitoids (*Aphidius rhopalosiphi*, *Trichogramma cacoeciae*), predatory mites (*Typhlodromus pyri*), aphidophagous predators (*Chrysoperla carnea*, *Coccinella septempunctata*) and anthocorid bugs (*Orius laevigatus*). Test organisms are exposed to treated glass surfaces, such as slides or petri dishes. Studies are designed as limit tests or dose response tests including LR and ER determination.

Extended Laboratory Studies

Eurofins Agrosience Services conducts Tier II studies if the results of Tier I studies do not discount risks to non target arthropods. Studies can be conducted with *Aphidius rhopalosiphi*, *Trichogramma cacoeciae*, *Typhlodromus pyri*, *Chrysoperla carnea*, *Coccinella septempunctata* and *Orius laevigatus*. Test organisms are exposed to treated plant material (leaf discs, detached leaves or whole plants) under laboratory conditions. Plants, e.g. bean (*Phaseolus vulgaris*) and barley (*Hordeum vulgare*) are sprayed in the laboratory, in the field, or outdoors near the testing facility using field application equipment. Standard studies can be performed throughout the year, provided that plants can be cultivated indoors (laboratory /greenhouse) during winter.



Aged Residue Studies

Studies on the effects of aged residues towards non target arthropods are designed to assess plant protection products (PPPs) degradability under outdoor climatic conditions. Leaves for exposure are taken from field crops or from potted plants sprayed outside, simulating a field application. Residual toxicity is evaluated in several bioassays started at defined intervals after treatment. Studies can be linked to residual analysis performed in-house.

Plants can be protected from rain during the ageing of pesticide deposits under a UV-permeable automatically operable glass roof. Aged residue studies can be conducted between May and October (last applications August / September). The choice of plants depends on the crop where the tested product is used and / or suitability for the test organism. Most frequently, apple (*Malus domestica*) and maize (*Zea mays*) are used. In addition, leaves of sweet pepper (*Capsicum annuum*), wine (*Vitis vinifera*) and other suitable plants can serve as substrate for exposure. Ageing studies under laboratory conditions using special lamps with a spectrum resembling daylight conditions can also be conducted.

Semi-field Studies

A test system has been developed to conduct studies closely simulating field conditions. Test organisms are exposed in cages under natural climatic conditions, sheltered from rain by a UV- permeable roof. Methods are established for *Aphidius rhopalosiphii*, *Chrysoperla carnea* and *Coccinella septempunctata*. Semi-field studies can be performed in Germany between May and August.

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