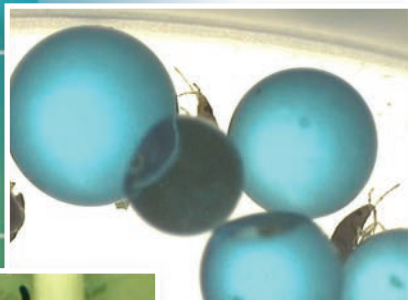


# Terrestrial Toxicology



Springborn Smithers Laboratories offers a full terrestrial toxicology testing program second to none. Studies are routinely performed on test organisms including terrestrial plants, beneficial arthropods, terrestrial insects and invertebrates and soil microflora. By taking advantage of Springborn Smithers' sophisticated chemistry instrumentation and environmental fate laboratories, studies may also incorporate analytical chemistry and residue analysis, as well as the fate of the test substances, especially in the higher tier tests. Springborn Smithers also has the expertise necessary to design unique studies to meet your specific testing needs. Springborn Smithers' Wareham laboratory maintains two free-standing greenhouses with a growing area of over 1100 square feet.

## SCREENING TESTING

- Crop safety
- Insect efficacy
- Plant efficacy
- Sensitive insect bioassay

Springborn Smithers Laboratories has a unique testing program to assist in determining product safety. Newly manufactured products are tested against an existing standard for crop safety and efficacy.

## GENETICALLY-MODIFIED PRODUCTS

- PIP (plant incorporated products)
- Cry (crystal insecticidal proteins)

Springborn Smithers Laboratories has developed unique testing methodologies for incorporating PIPs, proteins and transgenic pollens into artificial diets to expose nontarget insects.

## CONTACT

Business Development  
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# Terrestrial Toxicology



## NONTARGET SPECIES TESTED

- *Apis mellifera* (honeybees)
- *Orius insidiosus* (minute pirate bug)
- *Danaus plexippus* (monarch caterpillars)
- *Chrysoperla carnea* (green lacewing)
- *Hippodamia convergens* (ladybird beetle)
- *Coleomegilla maculata* (pink spotted beetle)
- *Eisenia fetida* (earthworm)
- *Folsomia candida* (springtail)
- *Onthophagus gazella* (dung beetle)
- *Enchytraeus albidus* (pot worm)

The earthworm and springtail tests can include both acute and reproductive endpoints. Springborn Smithers' scientists have been instrumental in developing innovative new testing procedures, such as the minute pirate bug, which have led to significant advancements in some testing procedures.

## EXAMPLES OF STUDIES OFFERED

- OECD 208(a) Terrestrial Plants (seedling emergence)
- OECD 208(b) Terrestrial Plants (vegetative vigor)
- OPPTS 850.4100 Terrestrial Plant Toxicity, Tier 1 (seedling emergence)
- OPPTS 850.4150 Terrestrial Plant Toxicity, Tier 1 (vegetative vigor)
- OPPTS 850.4225 Seedling Emergence, Tier 2
- OPPTS 850.4230 Early Seedling Growth Toxicity Test
- OPPTS 850.4250 Vegetative Vigor, Tier 2
- Crop Safety and Efficacy Testing
- OECD 207 Earthworm Acute, and OECD 222 Earthworm Chronic Tests
- OECD 214 and OPPTS 850.3020 Honeybee Contact
- OECD 213 Honeybee Oral Tests

## GUIDELINES SUPPORTED

EPA, EU, OECD, ISO, FDA, EPP0, IOBC, BART, ESCORT

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