RESEARCH, REARING AND COLLECTION SERVICES ON CORN ROOTWORMS

Locations Hungary, Switzerland

Dates 01/01/2010 - Ongoing

Summary

The western corn rootworm is a destructive pest of maize. Most damage is caused by larvae feeding on the roots, which becomes apparent when plants lodge. Drawing on some 15 years' experience as a research and development partner on corn rootworms, CABI has become a key service provider for field surveys, laboratory and field research on basic ecology and management of the pest, rearing including supplying eggs for research, and writing support.

The problem

The western corn rootworm, *Diabrotica virgifera virgifera*, is one of the most destructive pests of maize in North America and Europe. Most damage is caused by the larvae of this leaf beetle, which feed almost exclusively on maize roots, often causing plant lodging and therefore yield losses. Adults may occasionally reduce yields through intensive silk feeding, which interferes with maize pollination. The pest has been managed through crop rotation, granular soil insecticides, insecticide seed coatings, and/or transgenic maize which produces bacterial toxins. But the western corn rootworm has been proven capable of developing resistance against nearly all control measures. Research is therefore focused on developing novel, multiple-site-action and environmentally friendly control measures.

What we are doing

Drawing on more than 15 years' expertise on rootworms, and with a network of field stations and laboratories, CABI serves as a research partner and offers the following services:

- Conducting field and laboratory research on basic biology, ecology and management of all corn rootworm stages (including biological control with parasitoids, entomopathogenic nematodes and microbials; attract and kill methods; chemical tests; multi-trophic interactions; dispersal and flight behaviour; crop rotation studies; population comparisons)
- Rearing *Diabrotica v. virgifera* (diapause and non-diapause strains)
- Providing *Diabrotica v. virgifera* eggs for research
- Conducting field trials with natural and artificial pest populations in Hungary
- Surveying for natural enemies
- Conducting trials under quarantine conditions
- Conducting artificial diet bioassay for larvae and adults
- Supporting experimental design, research set-ups and proposal writing/ reviewing for maize pests
- Training in corn rootworm management, bioassays, and rearing
- Producing technical dossiers and publicity materials

Contact: diabrotica.services@cabi.org

Results so far

CABI has been a research and development partner on corn rootworms for over 10 projects spanning a period of more than 15 years, and has contributed to over 50 papers and a book on this pest. CABI engages widely with partners to find solutions for the management of maize pests, particularly rootworms. We work with many different players, including academic researchers, SMEs, larger agri-business industries, farmer associations and farmers. CABI also delivers over 200,000 rootworm eggs annually to partners for research. We hope to expand our collaboration for a joined effort in combatting this invasive maize pest.

Donors

GNIS - Groupement National Interprofessionnel des Semences et plants, section maïs et sorgho, gestionnaire du Fonds Diabrotica, e-nema GmbH, Germany, SCOPES, Switzerland, Syngenta Foundation, Landwirtschaftliches Technologiezentrum (LTZ), Germany, Bavarian State Research Center for Agriculture (LfL), Germany, Commission for Technology and Innovation (CTI), Switzerland, Agence nationale de la recherche (ANR), France, BioInv-4I, EU FP5 Diabrotica Marie Curie Postdoc Fellowship, EU FP6 policy support action DIABR-ACT

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