



UPGRADE OF ENTOMOLOGY RESEARCH TEAMS

DEPARTMENT OF APPLIED ENTOMOLOGY



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FOCUS ON PLANT HEALTH

Research carried out by the staff of the Department of Applied Entomology is focused on the following goals:

(1) short-term, to close gaps in the present recommendations included in the Directive 2009/128/WE on IPM and

(2) long-term, to create and use new methods and techniques of identification and application of new semiochemicals (feromones, allelochemicals) and to broaden the knowledge concerning ecological relations to maintain herbivore pest population at a low level by:

- development and field verification of computer models of pest behaviour,
- identification of novel plant compounds affecting herbivore arthropods behaviour and performance and simultaneously maintaining crop plant in good shape,
- searching for factors involved in an induced plant resistance against herbivores and
- studying the role of biodiversity (including genetically modified organisms, GMO) in IPM enhancement.

AREA OF EXPERTISE

1. Basic and applied research on ecological, behavioral and physiological aspects of phytophagous and predatory Acari (with special emphasizes on Eriophyoidea).
2. Persistent vs temporal effects of enhancers of natural and chemical plant defence against arthropod herbivores.
3. Effect of ecological infrastructures on regulation of herbivorous pest populations, their natural enemies and pollinators.
4. Development and validation of stochastic modeling of on-farm pest behaviour and IPM with complex spatiotemporal mosaic of farming ecosystem.

AREA OF RESEARCH

1. The role of eriophyoid mites (Eriophyoidea) in the plant viruses transmission.
2. Identification of biochemical and physiological mechanisms involved in the plant induced resistance/tolerance to pests.
3. Exploring Polish traditional sustainable agriculture in search for a benchmark for biodiversity management in intensive agricultural systems in the European Union.
4. Quantitative ethological analysis of pest behaviour for developing computer models of pest behaviour.
5. Identification of new semiochemicals and their use in practical IPM.
6. Assessment of environmentally friendly methods of vegetable crop protection against pests.

EQUIPMENT

1. Fluidised bed coater – Mini-Glatt*
2. Gas Chromatograph Clarus 680* (PerkinElmer) with a flame ionization detector, coupled with Thermodesorber TurboMatrix ATD* (PerkinElmer)
3. Mini Spray Dryer B-290* (BÜCHI)
4. Microencapsulator B-390* (BÜCHI)
5. Portable Photosynthesis System LI-6400XT
6. Supercritical Fluid Extractor SFT-110XW* (Supercritical Fluid Technologies, INC.)
7. Basic analytical and measuring instruments: heating oven*, ultrasonic cleaner*, precise laboratory scale*, refrigerated centrifuge for Eppendorf tubes, spectrophotometers (Uvmini – 2140), Lab centrifuge with cooling MPW–350R, Freeze Dryer (CHRIST) ALPHA-1-2, HPLC KNAVER Eurochrom 2000

*equipment purchased with Warsaw Plant Health Initiative project funds

FLUIDISED-BED COATER MINI-GLATT



MINI SPRAY DRYER B-290



GAS CHROMATOGRAPH CLARUS 680

