Prof. Dr. Stanislaw Ignatowicz

Research potential of

the Department of Applied Entomology of Warsaw University of Life Sciences

for solving problems of pests affecting fruit crops

Warsaw University of Life Sciences

SZKOŁA GŁÓWNA GOSPODARSTWA WIEJSKIEGO
W WARSZAWIE

Since 1816. .. as the Agronomical Institute at Marymont, Warsaw

Warsaw University of Life Sciences

Now, … at Ursynów, Warsaw …

Warsaw University of Life Sciences

Oldest, but modern, and largest agricultural university in the Central Europe with

- 13 faculties
- 27,000 students.

Faculty of Horticulture and Landscape Architecture with

- 9 departments,
- 3 sections,
- 1,340 students.


NAJLEPSZY KIERUNEK STUDIÓW

Tytuł przyznany w 2012 r.
dla kierunku
OGRODNICTWO
na Wydziale Ogrodnictwa
i Architektury Krajobrazu
Szkoły Głównej Gospodarstwa
Wiejskiego w Warszawie

Warsaw University of Life Sciences

Faculty of Horticulture and Landscape Architecture; Department od Applied Entomology

Department of Applied Entomology

Academic Staff (7):

- Dr. Anna TOMCZYK, Full Professor, Head of the Department
- Dr. Stanisław IGNATOWICZ, Full Professor
- Dr. Malgorzata KIELKIEWICZ, Associate Professor
- Dr. Marek KOZLOWSKI, Associate Professor
- Dr. Mariusz LEWANDOWSKI, Assistant Professor
- Dr. Katarzyna MICHALSKA, Assistant Professor
- Dr. Ewa PUCHALSKA, Assistant Professor

Research Staff (3):

- Dr. Slawomir LUX, Associate Professor for REGPOT Project
- Dr. Hanna LEGUTOWSKA, Research Associate
- Dr. Ewa SZLENDAK, Research Associate

Department of Applied Entomology

Emeritus Professors (3):

- Dr. Jan BOCZEK, Dr. h. c.
- Dr. Zbigniew T. DABROWSKI
- Dr. Danuta KROPCZYNSKA-LINKIEWICZ

Post-graduated Students (8)

- Alicja CHORAZY, M. Sc.
- Anna CZAPLA, M. Sc.
- Tobiasz DRUCIAREK, M. Sc.
- Jakub GARNIS, M. Sc.
- Monika GODZINA, M. Sc.
- Marcin GRABOWSKI, M. Sc.
- Michal REUT, M. Sc.
- Sylwia KAROLCZYK, M. Sc.

Department of Applied Entomology

Experimental orchards of the Faculty of Horticulture and Landscape Architecture

HPLC Laboratory

Department of Applied Entomology

Our Department co-ordinates The FP-7 REGPOT interdepartmental project

„Warsaw Plant Health Initiative”

The Project will ensure better integration of the WPHI Departments with European Research Area through upgrading its research, human and material capacity.

Main fields of research of the Department of Applied Entomology

- Basic and applied research on ecological, behavioral and physiological aspects of **mites** and insects to enhance pro-ecological integrated pest management (IPM) in field crops, greenhouses and structures

DIRECTIVE 2009/128/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 21 October 2009 establishing a framework for Community action to achieve the sustainable use of pesticides (L 309/71)

Application of the alternative methods in codling moth control to enhancement ecological stability of apple orchard

- The efficacy of codling moth male disruption techniques and application of Carpovirusine Super SC (viral preparation) in comparison to two synthetic insecticides was evaluated under orchard conditions.
- The two alternative control methods proofed their efficacy.
- The alternative methods led to increase of pest natural enemies and significantly reduced burdensome of orchard protection against pests.

Pheromone dispenser

Assessing environmental risks of releasing exotic biological control agent of mites, thrips and whitefly

- Many exotic species of predatory mites are used as biological control agents.
- These agents can cause problems such as eradicating local natural enemies.
- Monitoring program is used to record possible impact on native predatory mites.

The Risk Assessments Method by Joop van Lenteren, Wageningen, NL.

Main fields of research of the Department of Applied Entomology

- The effect of enhanced biodiversity by various ecological infrastructures on pests and their natural enemies

Movement of predatory mites among herbal weeds and strawberry plants

- *Amlyseius andersoni*, a predatory mite for the two-spotted spider mites, migrates successfully from a herb to strawberry plants.

- It can make up a good and effective complementation of predatory mites that are used to control spider mites instrawberry plantations.

Evaluation of the effect of vegetation surrounding strawberry and raspberry plantations as resources for predatory mites

- The mite community evaluation included both the phytophagous and predatory mite species (Phytoseiidae) on the field margin as well in the close distance to the crops.

- The weeds growing on field margins mainly served as a “bridge” for predatory mites migrating from trees and shrubs of hedges or woodland patches surrounding plantations.

Main fields of research of the Department of Applied Entomology

- Physiology and chemistry of plants infested by mites and insects
- Natural and induced resistance of plants against pests

Physiology and chemistry of plants infested by mites and insects

Effects of

- resistance inducers,
- plant growth promoting rhizobacteria,
- biostimulants

on the plants infested by spider mites.

Can they change the reaction of injured plants to the spider mites?

Can they affect the development of pest population?

Main fields of research of the Department of Applied Entomology

- Phytofagous entomofauna on highbush blueberry plantations and their control

Pests of highbush blueberry plantations

- Aphids,
- leaf rollers,
- tip midges (*Dasineura*),
- strawberry root weevil, *Otiorhynchus sulcatus,*
- fruit worm (*Grapholitha packardi*).

Control of the strawberry root weevil with entomopathogenic nematodes

The strawberry root weevil (*Otiorhynchus ovatus*)

Main fields of research of the Department of Applied Entomology

- Eryophyid mites as pests and their control

Eriophyoid mites as pests of fruit crops

- The superfamily Eriophyoidea
- Obligatory phytophagous mites
- They attack all parts of plants except roots.
- They feed both on plant surface and in tissues.
- They cause direct damage to the host plant.
- They produce a variety of different abnormalities and distortions.
- Over 3,800 species known, and 340 species occur in Poland.

Eriophyoid mites produce a variety of different abnormalities and distortions: erinea, leaf deformation, discoloration, rusting.

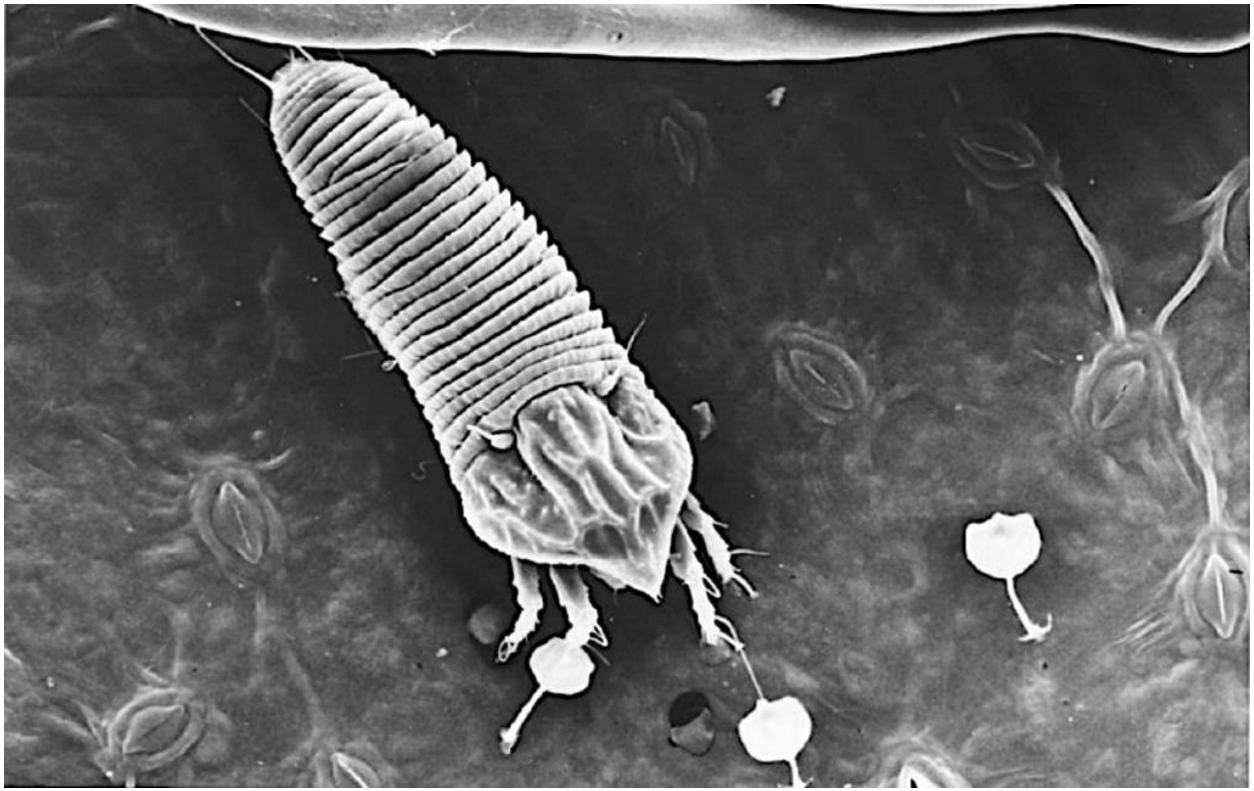
Eriophyoid mites as pests of fruit crops

Our research potential:

- Identification of eriophyoid mites.
- A rearing method of mites was elaborated.
- Calculation of some of the biological parameters are enabled.

http://www.sel.barc.usda.gov/acari/images/eriophyid/cthistlemite.jpg

Basic and applied research on behavioral aspects of eriophyoid mites



Michalska, K. 2011. Daily production of spermatophores, sperm number and spermatophore size in two eriophyoid mite species. Experimental and Applied Acarology, 55: 349–359.

Pests of dried fruits


Indian meal moth larva

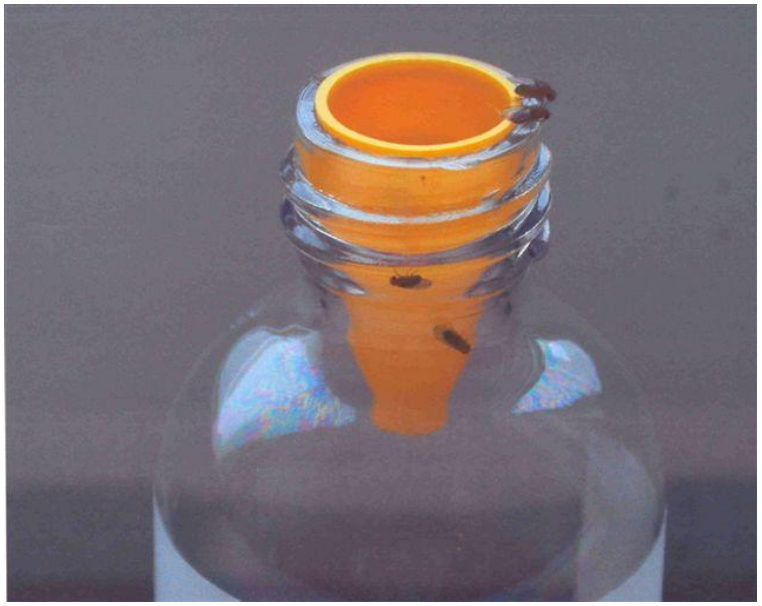
- Drying fruits is one way to preserve their delicious taste and flavors for the winter.

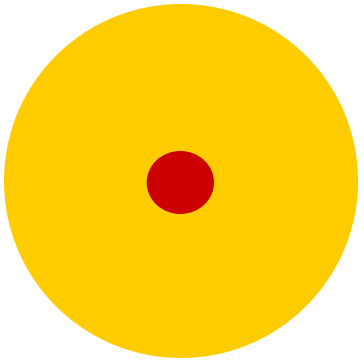
- Dried fruits are subject to contamination by some stored product pests, like the Indian meal moth, *Plodia interpunctella*.

- Our aim is to develop the integrated pest management (IPM) program for these pests according to the HACCP rules.

Waiting … for *Drosophila suzukii*

A trap for monitoring the fruit flies





A fruit fly view at the trap

Our studies confirmed that a high efficiency of the trap is result of both: the good attractants and the color of the trap.

SME:

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Thank you for attention (!)