

**Institute of Plant Protection of the National Academy of Agrarian
Sciences of Ukraine (IPP NAAS)**

Institute of Plant Protection: Scientific Capabilities and Collaboration Opportunities

Kyiv 2026

The Institute of Plant Protection

Established in 1946

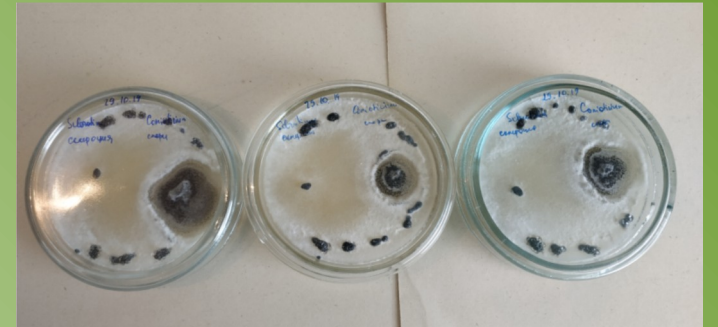
Leading research institution of NAAS

National expertise in plant protection

Fundamental and applied research

Scientific support for Ukrainian agriculture

International cooperation



Main Scientific and Innovation Activities

Integrated Pest Management

Digital Plant Health Monitoring

Molecular Genetics & Resistance Breeding

Biological Control & Microbial Technologies

Agroecosystem Biodiversity

Climate Change Adaptation

Agroecotoxicology & Pesticide Risk Assessment

Research laboratory of IPP NAAS

- **Laboratory of Phytopathology**
- **Plant Forecasting and Quarantine Laboratory**
- **Laboratory of Analytical Chemistry and Pesticide Toxicology**
- **Laboratory of Entomology and Crop Resistance to Pests**
- **Laboratory of Plant Ecological Genetics and Biotechnology**
- **Nematology Laboratory**
- **Laboratory of Microbiological Plant Protection Methods**
- **Laboratory of Agricultural Plant Disease Immunity**
- **Pesticide Application Technology Laboratory**
- **Department of Intellectual Property and Innovation Marketing Research**

PLANT PROTECTION



NEW BIOLOGICAL PRODUCT FOR THE PROTECTION OF GREENHOUSE VEGETABLE CROPS AGAINST PLANT-PARASITIC NEMATODES



DISEASE MANAGEMENT SYSTEM FOR WINTER WHEAT, 10 ha



TECHNOLOGY FOR THE APPLICATION OF PLANT PROTECTION PRODUCTS IN ORGANIC PEA PRODUCTION (2 ha)



TECHNOLOGICAL REGULATIONS FOR PESTICIDE APPLICATION IN POTATO PLANTINGS AND WINTER RAPESEED AND SUNFLOWER CROPS (10 ha)



FIELD EVALUATION METHODOLOGY FOR ASSESSING THE RESISTANCE OF MAIZE HYBRIDS TO THE COTTON BOLLWORM (3 ha)



OPTIMIZED APPLE ORCHARD PROTECTION SYSTEM AGAINST PHYTOPHAGOUS MITES (2 ha)

Laboratory of the Microbiological Method of Plant Protection

Main Areas of Research

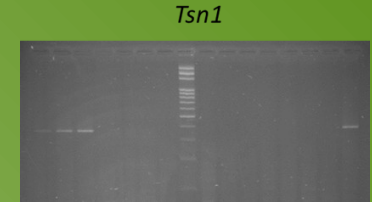
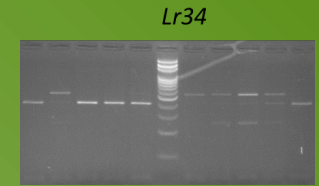
- Development of recommendations for the application of biological plant protection products in open-field and greenhouse vegetable production.
- Development and selection of microbial strains for the production of biological plant protection products.
- Implementation of small-scale production technologies for microbiological preparations.
- Development of environmentally safe technologies for protecting agricultural crops against harmful organisms under organic farming systems.



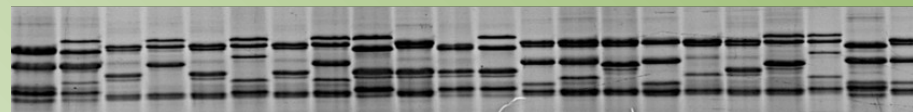
LABORATORY OF PLANT ECOLOGICAL GENETICS AND BIOTECHNOLOGY

Key Research Directions:

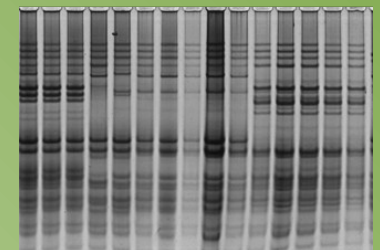
- ✓ Identification of disease resistance genes using molecular markers in wheat and other crops.
- ✓ Identification of phytopathogens using molecular markers.
- ✓ Identification of alleles at storage protein loci in wheat and related species. Analysis of identity and varietal homogeneity of wheat samples by electrophoresis of storage proteins.
- ✓ Development of wheat material with disease resistance genes and grain quality genes by marker-assisted selection



SDS electrophoresis



APAGE



Laboratory of analytical chemistry and toxicology of pesticides (analytical chemistry of pesticides)

Key research direction:

- creation of a database on the properties of pesticide active substances based on an integral indicator;
- development of algorithms and methodologies for the systematic analysis of pesticides in matrices;
- development of a methodological framework for the determination of multiple pesticide residues (quantitative multi-residue method) to ensure effective ecotoxicological monitoring;
- development of innovative products for the simultaneous determination of active substances in matrices;
- creation of a dynamic database of ecotoxicological criteria for assessing the potential environmental hazard of pesticides, their predictive screening in agroecosystems, and the improvement of existing plant protection strategies against harmful organisms.



Laboratory of analytical chemistry and toxicology of pesticides

Current practical developments

“Methods for determining active substances...” in various matrices (14 patents);

Methodological guidelines for the determination of active substances in various matrices



Laboratory of analytical chemistry and toxicology of pesticides (toxicology of pesticides)

Main Areas of Research

- Theoretical substantiation of the development and improvement of the insecticide portfolio to enhance their efficacy, environmental safety, and to prevent the development of resistant populations of major agricultural crop pests.
- Scientific justification of the principles for the rational use of pesticides within integrated plant protection systems.
- Monitoring the susceptibility of natural populations of major pests of cereal crops, potatoes, and fruit crops to insecticides, as well as studying insecticide and acaricide resistance in both harmful and beneficial arthropod species.
- Investigation of the biological and physiological effects, as well as the residual effects, of newly developed insecticides on pest insect species under combined and sequential application of toxicants.

Research Outcomes

- Improved chemical protection systems for cereal crops, potatoes, rapeseed, soybean, and fruit crops have been developed and incorporated into integrated pest management (IPM) systems for these crops.
- The development of insecticide resistance has been identified in populations of the Colorado potato beetle, sunn pest, cereal aphids, and mites. Measures to prevent and manage resistance development have been proposed.

Populations cultivated in laboratory



Tetranychus urticae Koch



Schizaphis graminum Rond

Laboratory of Entomology and Resistance of Agricultural Crops to Pests

Practical Developments

1. Crop Protection Systems

- winter and spring wheat;
- seed clover;
- potato;
- sugar beet;
- maize;
- protection against major insect pests.

2. Protection of Urban Green Plantings

- protection of horse chestnut against the horse chestnut leaf miner (*Cameraria ohridella*).

3. Protection of Stored Grain

- integrated systems for the control of stored-product insect pests.

4. Sources of Pest Resistance

- identification of resistance sources in winter wheat, potato, and clover against major insect pests.

5. Integrated Protection of Fruit Orchards

- long-term monitoring of the species composition and harmfulness of major pests in orchards of the Steppe and Forest-Steppe zones of Ukraine;
- technology for protecting apple orchards against phytophagous mites;
- application of pheromone traps for seasonal monitoring of lepidopteran pests;
- environmentally friendly apple protection systems based on insect growth regulators and behavior-modifying compounds.

6. Monitoring of Pests in Urban Phytocenoses and Their Population Management

- monitoring of insect pests of ornamental trees and shrubs in urban plantings, parks, public gardens, streets, and other urban green areas;
- assessment of pest abundance and harmfulness;
- development of environmentally safe pest management measures.

The Laboratory's scientific developments provide effective, environmentally safe, and economically sound protection of agricultural crops, fruit orchards, and urban green plantings.



Laboratory of phytopathology

Phytoexamination of agricultural and ornamental plants

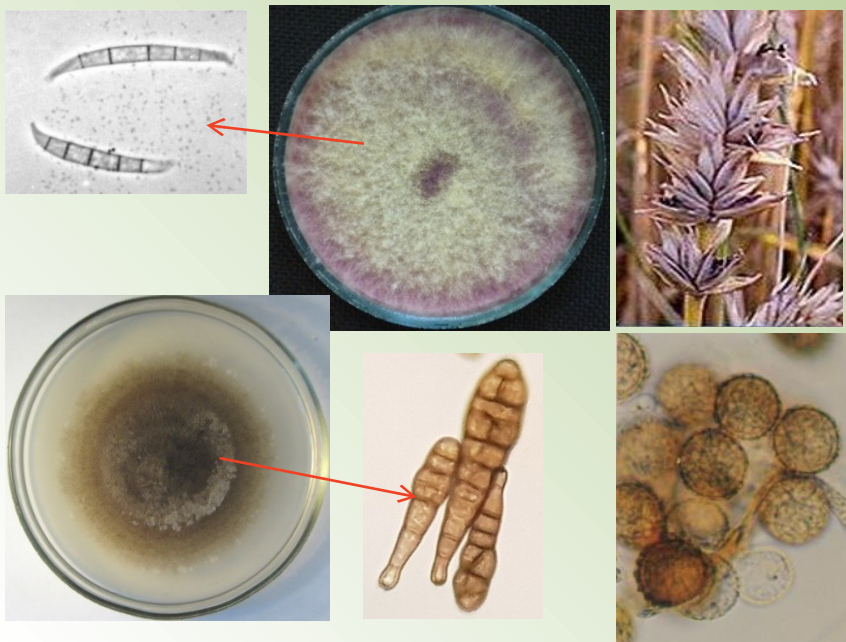
Evaluation of sensitivity of fungal isolates to fungicides *in vitro*

Development of inoculum of fungal pathogens for artificial inoculation

Phytoexamination of seed material, determination of sowing qualities of seeds. Determination of wheat grain contamination by *Tilletia* spp

Mycological analysis of substrate

Evaluation of efficiency of fungicides on agricultural crops



Laboratory of Pesticide Application Technology

Main Areas of Scientific Research:

- Evaluating the effectiveness of the updated range of plant protection products in various soil and climate zones of Ukraine;
- Phytosanitary monitoring of harmful organisms in crop agroecosystems;
- Development of application guidelines for plant protection products aimed at reducing the pesticide load on the agroecosystem.

Practical Developments:

- Technical guidelines for the application of modern pesticides to control harmful organisms in major crop fields;
- Protection systems for potatoes, corn, sunflowers, and rapeseed against pests, diseases, and weeds;
- A method for the combined use of chemical and biological agents in a system for protecting tomatoes from diseases.



Laboratory of nematology



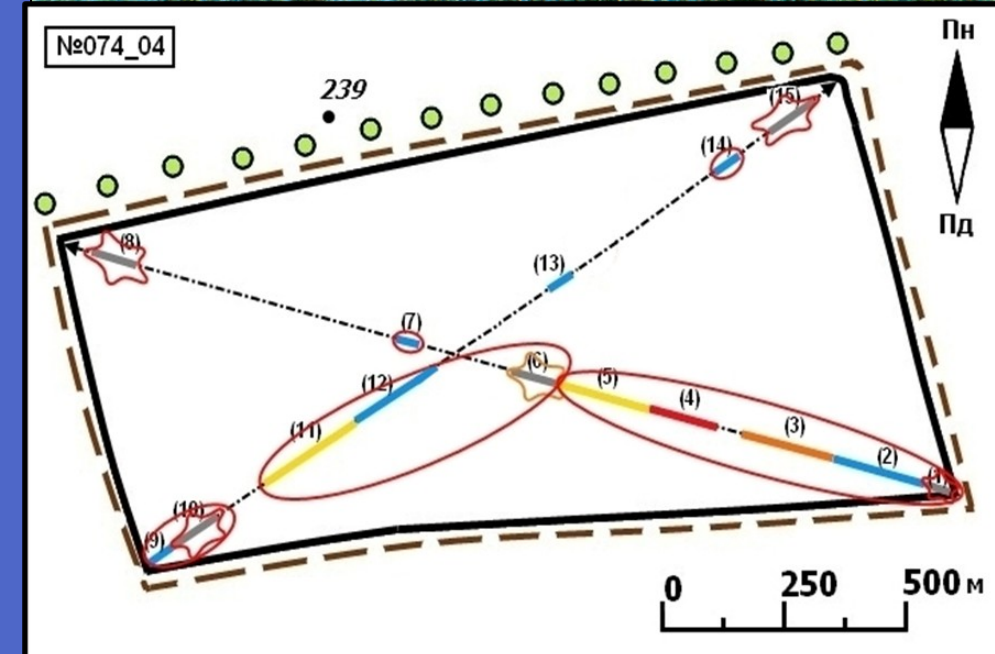
1. Nematological examination of agroecosystems of sugar beet, canola, potato, soybean, grain and other crops.

2. Detection of nematodes in nurseries and greenhouse complexes on vegetable, berry and flowering plants.

3. Inspection of agroecosystems and making map of invasion distribution

4. Testing varieties for nematode resistance

5. Study of the efficacy of pesticides against nematodes under artificial infestation conditions and in the laboratory



Laboratory of plant forecasts and quarantine

Key Research Directions:

- ✓ Research into patterns of changes in phytosanitary status over many years, with subsequent identification of the most characteristic factors influencing this.
- ✓ Creation of a long-term forecast of the development of harmful organisms based on an analysis of the phytosanitary state of agrocenoses of Ukraine in modern conditions, and recommendations for plant protection.
- ✓ Creation of multi-year electronic archives of weather conditions and the number of major pests in the climatic zones of Ukraine.



Thank you !

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