InHort
INSTYTUT OGRODNICTWA
PAŃSTWOWY INSTYTUT BADAWCZY

The National Institute of Horticultural Research

Skierniewice, **POLAND**







The National Institute of Horticultural Research in Skierniewice, Poland is a governmental R&D organization supervised by the Ministry of Agriculture and Rural Development.





Established on **January 1st, 2011,** by merging two research units with a long tradition and outstanding achievements in horticultural sciences: **The Research Institute of Pomology and Floriculture** (established in 1951) and **The Institute of Vegetable Crops** (established in 1964). The new Institute is a legal and organizational successor of its predecessors and inherited their staff and properties as well as rights and obligations.



Professor
Emil Chroboczek
(1902 – 1978)

1964 r.





Professor
Szczepan A. Pieniążek
(1913 – 2008)

1951 r.



The National Institute of Horticultural Research

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AUTHORIZATIONS TO GRANT SCIENTIFIC DEGREES

agricultural sciences, agriculture and horticulture








DOCTORAL SCHOOL "AgroBioTech PhD"

Doctoral School is run by:

- Institute of Agricultural and Food Biotechnology – State Research Institute in Warsaw,
- The National Institute of Horticultural Research in Skierniewice,
- The Plant Breeding and Acclimatization Institute – National Research Institute in Radzikowo,
- Institute of Plant Protection – National Research Institute in Poznań.

The school operates on a modular-semester system of classes.
The education spans 8 semesters and concludes with the submission of a doctoral thesis.







STRUCTURE – 10 Scientific Departments

- Applied Biology
- Horticultural Crop Breeding
- Plant Cultivation & Fertilization
- Microbiology & Rhizosphere
- Cultivar Testing, Nursery & Gene Bank Resources
- Plant Protection
- Agroengineering
- Fruit and Vegetables Storage & Processing
- Division of Apiculture (in Pulawy),
- Department of Food Safety (Laboratory)



8 MODERN RESEARCH AND DEVELOPMENT CENTERS

- HortiFood Processing Centre
- Regional Centre for Horticultural Biodiversity
- Laboratory of Postharvest Physiology of Horticultural Products
- Centre for Innovative and Sustainable Horticultural Technologies

year 2021





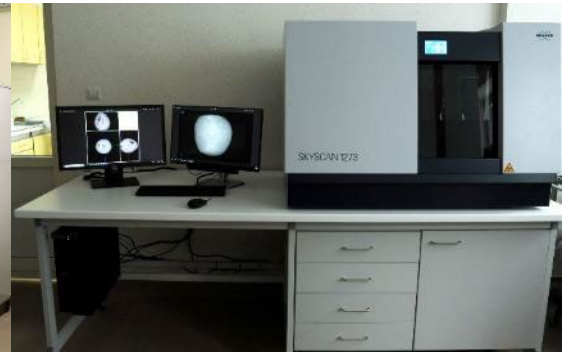




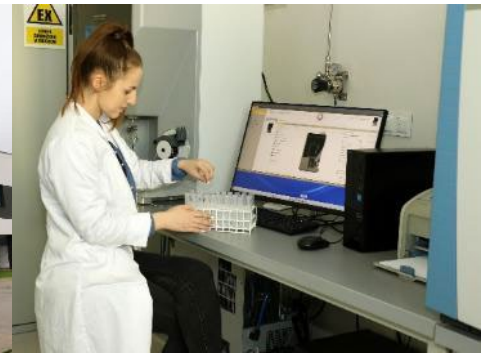
year 2022

year 2023









year 2024

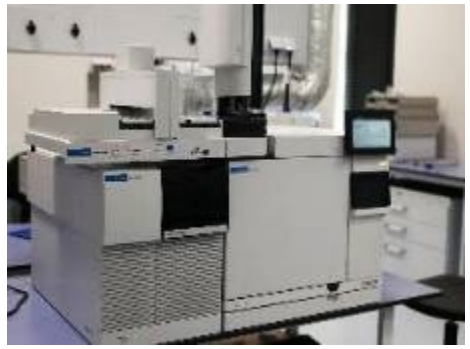
8 MODERN RESEARCH AND DEVELOPMENT CENTERS

InHort INSTYTUT OGRODNICTWA PAŃSTWOWY INSTYTUT BADAWCZY

- Food Safety Laboratory

year 2024






- Bee Products Quality Testing Laboratory





year 2025

KRAJOWY PLAN ODBUDOWY

Rzeczpospolita Polska

Sfinansowane przez Unię Europejską NextGenerationEU

8 MODERN RESEARCH AND DEVELOPMENT CENTERS

- Department of Horticultural Crop Breeding









year 2025

KRAJOWY PLAN ODBUDOWY
Rzeczpospolita Polska
Sfinansowane przez Unię Europejską NextGenerationEU

8 MODERN RESEARCH AND DEVELOPMENT CENTERS

- Department of Agroengineering

Exhibition hall, warehouse hall, innovative sprayer washing station, photovoltaic installation







year 2025

Recording and streaming studio, InHort, Pomologiczna 18





FIELD RESEARCH FACILITIES

- Experimental fields and orchards (165 ha)
- Facilities under covers (~2 ha)
- Apiaries










ECOLOGICAL EXPERIMENTAL ORCHARD and VEGETABLE FIELD





area ~ 10 ha

CERTIFICATES AND AUTHORIZATIONS FOR FOOD PRODUCTION

Certificate in Organic Plant Production

- ECOLOGICAL EXPERIMENTAL ORCHARD in Nowy Dwor-Parcela
- ECOLOGICAL EXPERIMENTAL FIELD in Skierniewice

Certificate in Organic Beekeeping Production

- ECOLOGICAL APIARY at the Beekeeping Plant in Pulawy

Authorization from the Chief Inspectorate of Plant Protection and Seed (GIORiN) to conduct specialized research, including:

- assessment of the effectiveness of plant protection products,
- dealing with quarantine organisms







FIELD COLLECTIONS OF FRUIT PLANTS – **5503 genotypes**

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PAŃSTWOWY INSTYTUT BADAWCZY

- Apple – 2022 (including from the expedition 660)
- Pear – 614 (including from the expedition 255)
- Plum – 330
- Sour Cherry – 212
- Sweet Cherry – 335
- Peach – 136
- Apricot – 100
- Hazelnut – 77
- Walnut – 67
- Rootstocks of Fruit Trees – 198
- Wild Species of Fruit Trees – 264
- Strawberry – 251
- Raspberry – 98
- Blackberry – 43
- Currants – 152
- Gooseberry – 41
- Highbush Blueberry – 80
- Cranberry – 49
- Grapevine – 360
- Others – 74 (Actinidia, Black elderberry, Chinese magnolia vine, Edible honeysuckle, siberian blueberry, Sea buckthorn, Rose hip, Barberry)



FIELD COLLECTIONS OF VEGETABLE PLANTS – 1020 genotypes

- Garlic – 635
- Shallot – 281
- Wild *Allium* – 104

The collections of vegetable plants managed by the Institute number over 12 000 objects. They are preserved in the form of seeds deposited in the National Center for Plant Genetic Resources in Radzików. They will ultimately be transferred to the Regional Center for Horticultural Biodiversity.



FIELD COLLECTIONS OF ORNAMENTAL PLANTS – 1210 genotypes

- Lily – 222
- Narcissus – 147
- Tulip – 522
- Gladiolus – 61
- Rose – 258



FIELD COLLECTIONS OF MELLIFEROUS PLANTS IN PULAWY – 243 genotypes



LABORATORIES

Besides research, the Institute is also involved in commercial activities, especially in food analysis. Several Institute's laboratories has ISO/IEC 17025 and/or GLP certificates and perform analysis (pesticide residues, heavy metals, nitrites and nitrates and mycotoxins) for food producers and wholesalers. It is estimated that Institute's laboratories have 50% share of commercial food analysis market in Poland.







ACCREDITED LABORATORIES

Laboratory of Quality Investigation of Horticulture Products

Scope of analysis:

- micro and macroelements for agricultural purposes
- nitrates/nitrites
- heavy metals

Food Safety Laboratory

Scope of Analysis:

- pesticides residues

Bee Products Quality Testing Laboratory

Scope of analysis:

- determination of the composition and properties of bee products
- quality assesment of bee products
- identification of honey varieties










Projekt HORTIQD

HORIZON-CL4-2023-DIGITAL-EMERGING-01

„Automated monitoring in horticulture through spectral analysis with quantum dot detectors and highresolution optical filters”

The aim: Building a relatively cheap camera based on quantum dot technology and performing measurements in the SWIR (Short-Wave InfraRed) range of 1000-2000 nm. Using artificial intelligence (AI) to recognize abiotic and biotic causes of stress in apple cultivation. Testing the system in field conditions (orchard)

Coordinator: FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Monachium): 11 partners



(Źródło: www.imec-int.com)

HARVBOT project

"An autonomous, economical, machine with a modular design for identifying and harvesting apples using artificial intelligence„ (2023-2026)



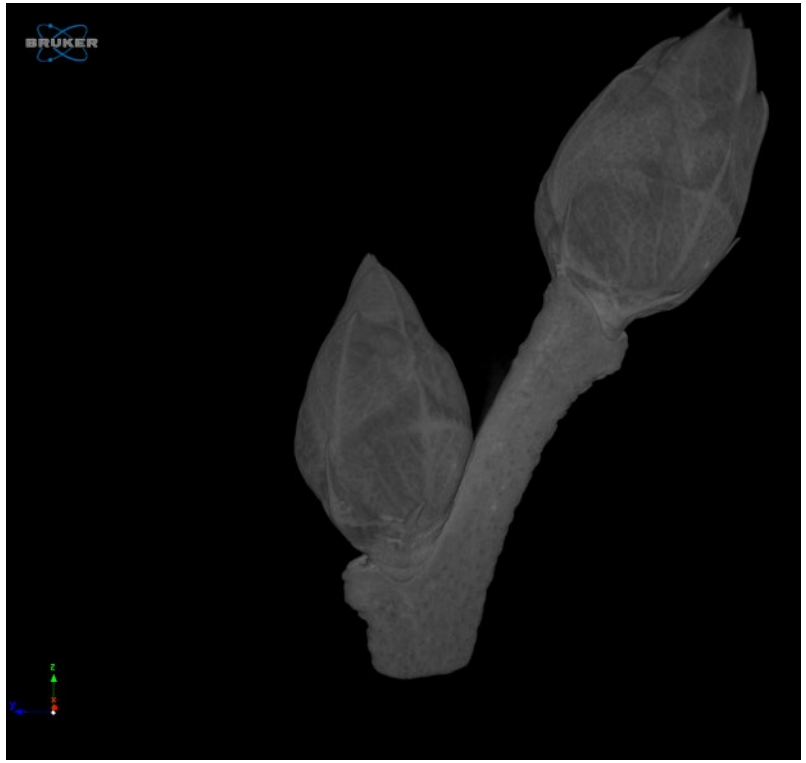
MODERN POSTHARVEST **TECHNOLOGIES**

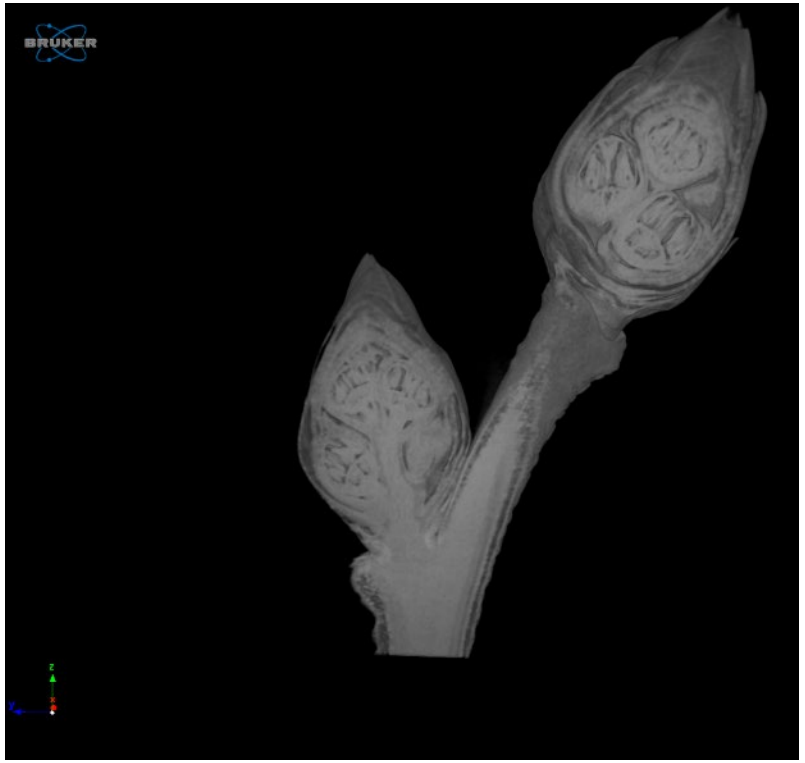
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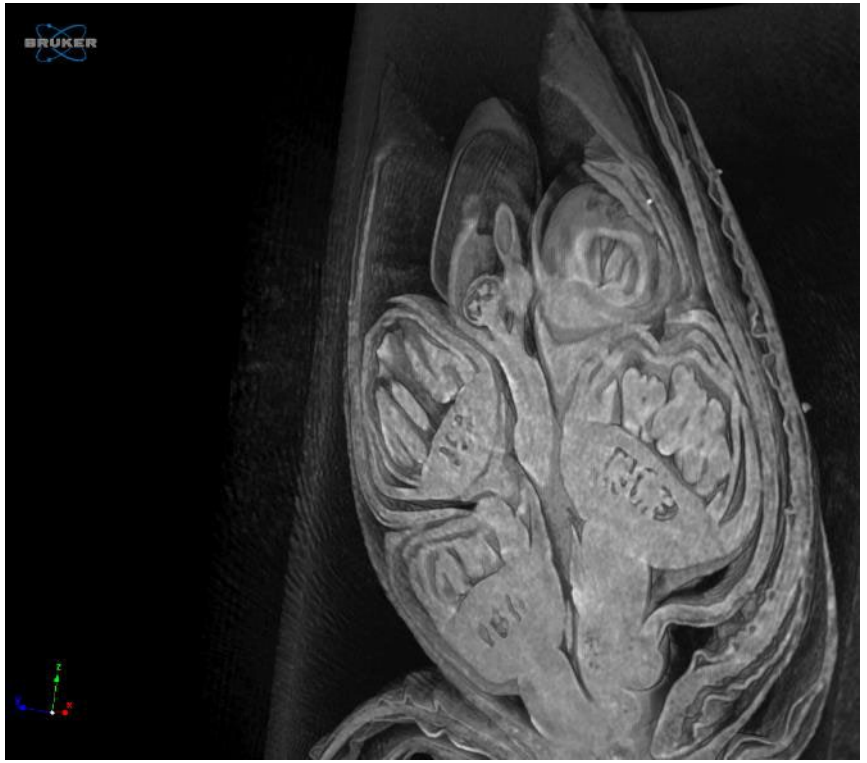


27 cooling rooms; 100 CONTAINERS FOR CA STORAGE WITH ULTRA LOW OXYGEN, DYNAMIC CONTROLLED ATMOSPHERE (DCA-CF; RQ, ILOS PLUS), POSTHARVEST TREATMENTS (1-MCP, ETHYLENE, OZONE, HOT WATER), NON-DESTRUCTIVE MEASUREMENTS OF MATURITY AND QUALITY OF HORTICULTURAL CROPS

SkyScan 1273

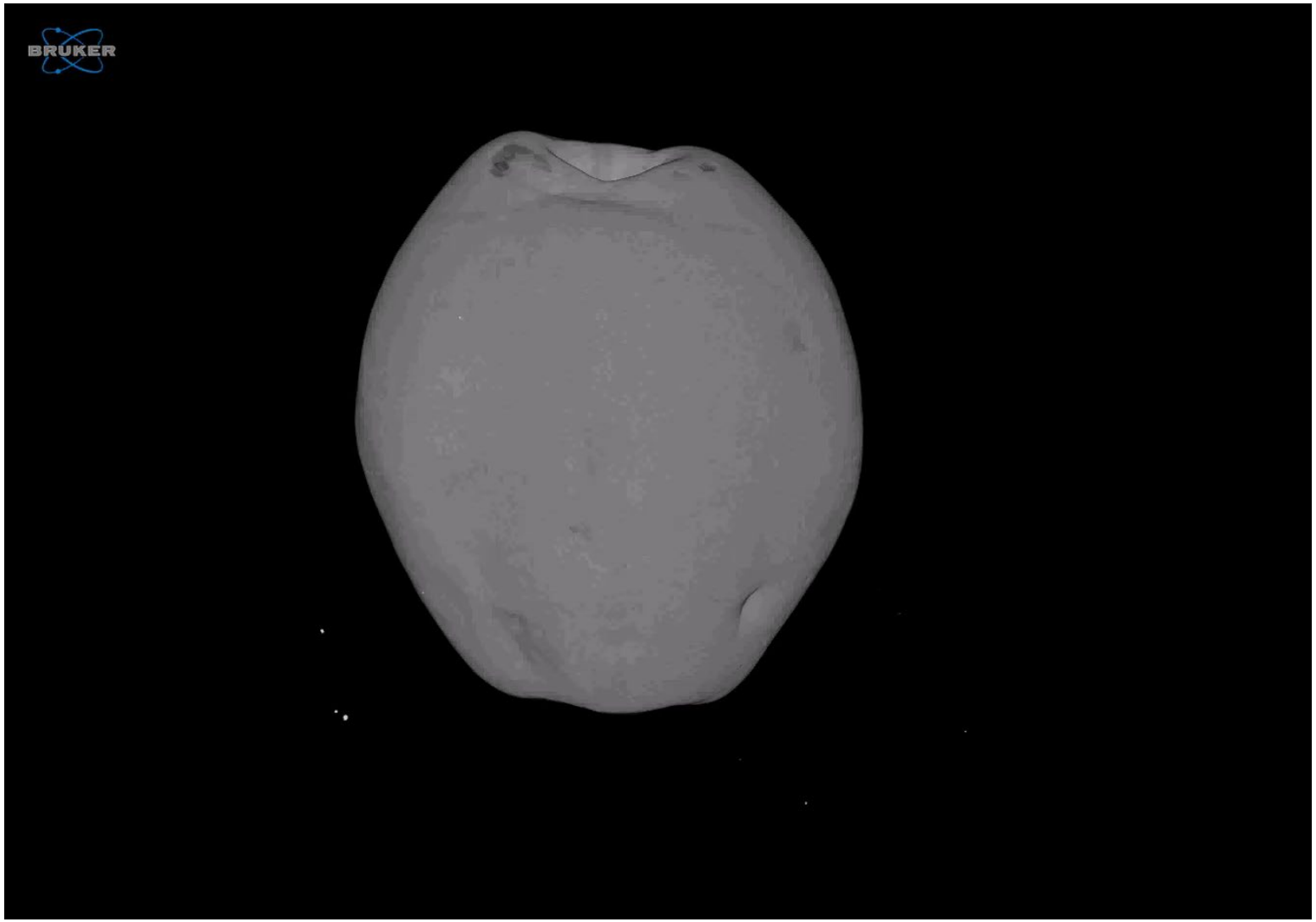






Flower buds of blueberry plants

MODERN POSTHARVEST **TECHNOLOGIES**



INTERNATIONAL COOPERATION

The Institute actively contributes to building the European Research Area. We have established cooperative links with numerous horticultural research centers and clusters across Europe. Several joint research projects, co-financed by the European Commission and other international organizations, have been initiated as a result.









INHORT IS AN ACTIVE MEMBER OF:

- EUFRIN – European Fruit Research Institute Network
- European Technology Platform „Food for Life”
- EUCARPIA – European Association for Research on Plant Breeding
- EFSA – European Food Safety Authority
- EURONION – European Onion Association
- APIMONDIA – International Federation of Beekeepers' Associations
- APISLAVIA – Federation of Beekeeping Organizations






EUROPEAN PROJECTS (2004–2024)

- Horizon 2020 – 5
- Horyzont Europa – 6
- 7th EU Framework Programme – 11
- 5th and 6th EU Framework Programme – 4

127 projects financed by EU structural funds including:
Smart Growth Operational Program,
Operational Program Infrastructure and Environment,
Regional Operational Program, Rural Development Programme.







HortiFoodTrends "Berry fruits – superfruits for health and vitality"

Project leader: InHort: Project Coordinator: Monika Mieszczakowska-Frąc; Deputy Coordinator: Dorota Konopacka



The objective of the project is to strengthen the scientific excellence and innovation capacity of InHort in the field of novel food product development, considering the needs of the end user (consumers and food processing sector), by establishing a long-lasting, interdisciplinary collaboration network with Kobenhavns Universitet (UCPH), Ass Groupe Ecole Superieure Agricultures (ESA) and Centre De Recherche De L'institut Lyfe (LYFE).

https://www.hortifoodtrends.eu

DISSEMINATION OF RESEARCH RESULTS







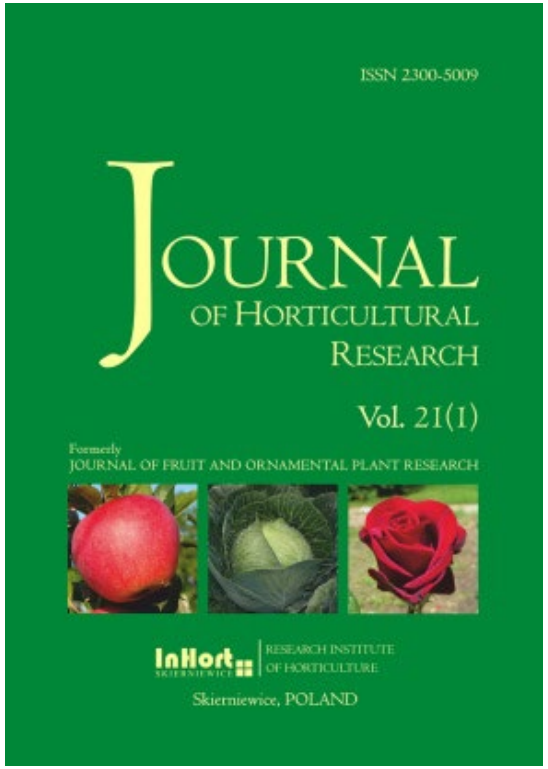




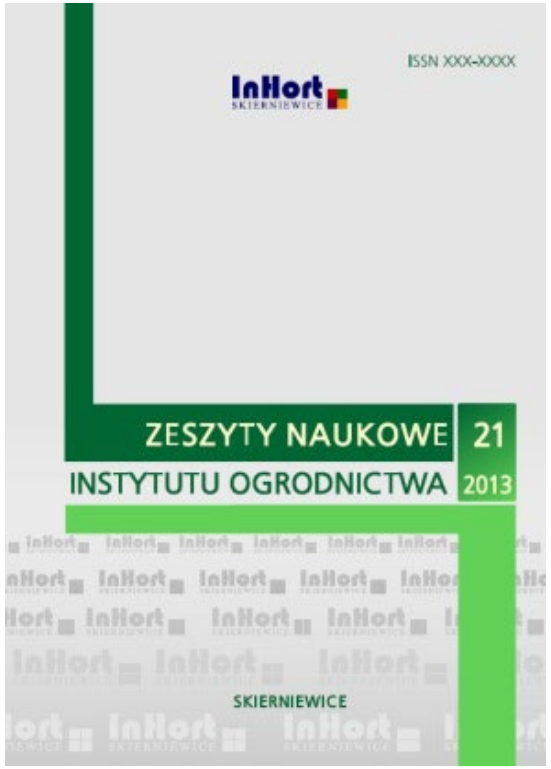


RESEARCH PUBLISHING

- Journal of Horticultural Research
- Journal of Apicultural Research
- Zeszyty Naukowe Instytutu Ogrodnictwa







INSTITUTE ALSO SERVES AS AN IMPORTANT TEACHING AND TRAINING CENTER













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PAŃSTWOWY INSTYTUT BADAWCZY

CENTER FOR INFORMATION AND IMPROVING KNOWLEDGE ABOUT POLLINATING INSECTS

Implementation of the project under the Ministry of Education and Science program titled 'Science for Society'













Informal meeting of the European Union's agriculture Ministers



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THANK YOU FOR ATTENTION!



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