

# Research and breeding ins of pomology – introduction and research activities



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# Introduction

- The history of the fruit research and breeding institute from year 1951

Main topics:

- Horticulture research of most fruit species of the temperate climate zone
- Field collections of genetic resources (gene bank) of 2 300 cultivars
- Breeding program of sweet cherries, apples, plums and apricots

Cryopreservation, healing of fruit cultivars by chemotherapy, termotherapy



## Activities

### Applied research:

- 30 licence agreements (cultivars, softwares)
- Cultivar licences in Czech Republic, EU, USA, Chile, China, Australia
- Utility models, functional samples, methodologies certified by an authorized body

### Cooperation with farmers

- Signalization of pests and diseases, advisory service
- International and domestic conferences, lectures, field days
- Contract research work



# Projects experience / Products

## For research organisation

International projects:

- **Horizon 2020:** BIOFRUITNET Boosting Innovation in Organic FRUIT production through strong knowledge NETworks (11/2019 - 10/2022) – 17 partners from 12 EU countries
- **KAPPA:** Healthy fruits in changing climatic conditions (1/2021 - 4/2024) – NIBIO Norway

National project:

- Several project supported by Ministry of agriculture, Technology agency focused on fruit growing – agrotechnology, plant protection, fruit storage

## For commercial organisation

- Cultivars of sweet cherries, apples, plums, apricots
- Laboratory testing – pathogenes, pesticides residua, bioactive compound

## Partners

### For research organisation

- Testing of cultivars in different climatic conditions
- Cooperation on research of fruit growing management, cultivar disease and pest resistance, fruit quality, fruit storage
- Exchange breeding programme, prebreeding, MAS – marker assisted selection
- Testing of disease pathogenes, virus and phytoplasma testing

### For commercial organisation

- Testing of plant health, residua of pesticides (MRL), fruit quality, content of different bioactive compounds, total antioxidant activities

## Interest

### For research organisation

Topics:

- agroecology, biodiversity increasing, plant protection management, precision agriculture, cultivar robustness, plant health, content of bioactive compound, cryopreservation, plant healing,

Projects:

- Adaptation of fruit trees to climate changes
- Research of fruit growing technologies for smart agriculture
- Healthy fruits, zero residua production

### For commercial organisation

- Testing of cultivars in different growing conditions

## Anything else?

- More than 87 cultivars of fruit species and rootstocks have been bred and registered in Holovousy
- The most successful are sweet cherries cultivars grown all over the world - "Kordia" and "Tamara,,
- Laboratory diagnostics of fruit crop pathogens in an accredited laboratory
- Use of molecular biology methods for assisted breeding in apple and cherry trees
- Determination of S-alleles in self-pollinated and cross-pollinated cherries
- Research and development in the field of diagnostics of fruit crop pathogens using ELISA and PCR methods



# Thank you for your attention!

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