First International Training Course

Course presentation

InnOBreed is a collaborative research project funded under Horizon Europe, with the objective of establishing a European collaborative network for organic fruit breeding to meet the increasing demand for organic, healthy food among European consumers and address the impacts of climate change on agriculture. The achievement of this objective requires promoting the exchange of technologies, expertise, protocols, and methods, as well as fostering a community of stakeholders who share this collective knowledge base. To this aim, it is imperative to educate researchers and practitioners within the conceptual framework of the European collaborative network for organic fruit breeding. The inaugural course is designed to support this objective by facilitating the sharing of knowledge on:

- Collection, management and evaluation of fruit tree genetic resources
- Genetic diversity assessment and exploitation
- Organisation and use of descriptors of phenotypic traits
- Evaluation of fruit tree biotic and abiotic stresses
- Principles of fruit tree breeding for qualitative and quantitative traits
- Principles of fruit tree breeding for adaptation to biotic and abiotic stresses
- Principles of rootstock breeding
- Non-destructive evaluation methods: the NIR spectra

Format: online lectures + exercises

Scope: (PhD) students and researchers interested in organic breeding

Location: Zoom conference platform

Date: 14th-16th May 2024

Language: English

Participants will be provided with a certificate of attendance.

The project has received funding from the European Union's Horizon Europe programme under Grant Agreement No 101061028.

Agenda

	Tuesday 14th May	Wednesday 15th May	Thursday 16th May
2.00-3.00 pm	How to safeguard and actively evaluate local fruit tree genetic resources? • Principles and methods to collect genetic resources and their long-term evaluation. • How to develop and use assessment scales and descriptors for the evaluation of phenotypical traits related to fruit trees biotic and abiotic stresses. (Walloon Agricultural Research Center CRA-W)	How to directly valorise best performing fruit tree cultivars from genetic resources collection? (Walloon Agricultural Research Center CRA-W)	Principles of organic participatory apple breeding approaches (Walloon Agricultural Research Center CRA-W and Öko-Obstbau Norddeutschland ÖON)
3.00-4.00 pm	Principles of commercial variety testing for organic fruit production (Research Institute of Organic Agriculture FiBL)	From genetic resources evaluation to new cultivar breeding. (Principles of pome fruit breeding, disease tolerance and quantitative traits using neglected landraces as putative parents) (Walloon Agricultural Research Center CRA-W)	Genetic diversity of fruit tree crops: from assessment to exploitation and conservation (Consiglio per la ricerca in agricoltura e analisi dell'economia agraria CREA)
4.00-5.00 pm	Pest and disease management in commercial variety testing for organic fruit production (Insights into the variety testing at FiBL in Switzerland) (Research Institute of Organic Agriculture FiBL)	Pear rootstock breeding (Institute of Agrifood Research and Technology IRTA)	Plant in vitro culture as a tool for breeding (Institute of Agrifood Research and Technology IRTA)
5.00-6.00 pm			The NIR technologies as a tool for the evaluation of fruit quality. (Walloon Agricultural Research Center CRA-W and France's National Research Institute for Agriculture, Food and Environment INRAE)

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Teachers

Dr. Michael FRIEDLI

Michael Friedli received his Master in agricultural sciences with a major in crop science from ETH Zurich in 2011. He received his PhD from ETH Zurich in 2015 where he focused on the establishment and application of phenotyping methods to measure leaf and canopy growth in the laboratory and field. He is currently leading the group of fruit production in the crop science department at FiBL Switzerland with a focus on variety testing and cultivation technique.

Clémence BOUTRY

Clémence Boutry received her Master in agricultural sciences with a major in crop science from ETH Zurich in 2019. She is currently working in the group of fruit production in the crop science department at FiBL Switzerland with a focus on variety testing and cultivation technique.

Dr. Marc LATEUR

Marc Lateur is a Senior scientist, PhD in agronomical sciences (2001) and Scientific Director of the Biodiversity and Plant & Forests Breeding Research Unit at the Agricultural Research Centre at Gembloux (CRA-W) - Belgium. He is the current Chairman of the European Cooperative Programme for Plant Genetic Resources (ECPGR) Working Group for Malus & Pyrus Genetic Resources and Fruit collection Manager, releaser of selected old disease tolerant fruit cultivars and is leading participative apple and pear breeding programs focused on durable disease resistance, fruit quality by using as parents, the best performing old local varieties.

Dr. Baptiste DUMONT

Baptiste Dumont is a PhD in biological sciences and senior researcher at the Biodiversity and Plant and Forests Breeding Research Unit at the Walloon Agricultural Research Center (CRA-W) (Gembloux, Belgium). He is currently working full time on the InnOBreed project on fruit tree genetic resources evaluation and characterization. He is also involved in pre-breeding and participatory organic breeding programs aiming to select for more robust cultivars adapted to low-input organic farming systems.

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Niklas OESER

Niklas Oeser received his B.Sc. in horticulture at FH Erfurt in 2017. Since then he is working as scientific assistant in research projects meanwhile with a focus on pome fruit breeding and as advisor for organic fruit growing at ÖON, the Research and advisory Service for Organic fruit growing in Northern Germany, located at AESTEBURG Fruit growing center Jork.

Dr. Sabrina MICALI

Sabrina Micali holds a PhD in Crop Genetic Improvement. Since 2010 she has been a research scientist at CREA (Italy) where she has been carrying out her activity at the Research centre for Olive, Fruit and Citrus crops based in Rome, working on the genetics and genomics of fruit tree species, with a particular focus on the Prunus genus.

Dr. Luis ASIN

Luis Asin studied Agricultural Engineering at UdL-Lleida, finishing his studies in 1992. He recived his PhD from the UdL-IRTA centre on integrated control of cereal pests in 2000. His work focuses on the use of phyto-regulators for vigour control and load regulation, tree training and conduction systems, improvement of fruit quality (colouring, russeting, sugar content, ...), evaluation of plant material (perer varieties and rootstocks), obtaining interspecific perer rootstocks. He is currently head and reseracher of the Fruit Production Programme at IRTA–Fruitcentre (Lleida) Spain.

Dr. Ramon DOLCET

Ramon Dolcet studied Agricultural Engineering at UdL-Lleida. He obtained a PhD in Horticulture at OSU (Corvallis, Oregon). His thesis focused on the application of in vitro culture techniques on fruit tree propagation, and breeding through selection of adventitious mutants for in vitro tolerance to an abiotic stress. Since 1991 his research has focused on propagation, sanitation, embryo rescue, generation of doubled habloid lines (DHLs), mutant generation, in vitro selection of plants. He is currently head and researcher of Plant in Vitro Culture Laboratory at IRTA–Fruitcentre (Lleida) Spain.

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Dr. Sylvie BUREAU

Sylvie Bureau is a Senior scientist, she hold her PhD in agronomical sciences and Fruit physiology at Montpellier University. She is currently Research Engineer at INRAE Transform Department in SQPOV Research unit at the PACA Research Centre in AVIGNON – France. She is the current responsible of the technological analytical platform on Fresh and Processed fruit and Vegetable. She is in charge of the research activities on NIRs and PIRs spectroscopy in relation with fruit & vegetable quality assessment.

Dr. Audrey Pissard

Audrey Pissard received her PhD in agronomic biological and environmental engineering at UCL in 2008. At CRA-W she works on different research topics concerning agricultural products quality using infrared spectroscopy. Several projects aimed to determine the nutritional parameters and maturity stage of fruits with NIR. Since 2021, she is responsible of the NIR laboratory.

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