WORKSHOP
Advancing Berry Breeding:
From Phenotyping to Genomic Innovation

02 - 03 **APR** 2025

📍 Marche Polytechnic University, Ancona, Italy

🎧 Also accessible online

AGENDA

Wednesday, 2nd April 2025

14:00   **REGISTRATION**

14.30   **WELCOME AND INTRODUCTION OF THE BREEDINGVALUE PROJECT**
Bruno Mezzetti, UPM

14:45   **BERRY GENETIC RESOURCES: Importance of a large germplasm and breeding material for BV; Results of phenotyping**
Klaus Olbricht, Hansabred

15:15   **NEW PHENOTYPING METHODS – Application of NIR spectroscopy for the rapid quality assessment of different strawberry cultivars**
Manuela Mancini, UPM

15:30   **NEW PHENOTYPING METHODS – Strawberry root phenotyping**
Tuuli Haikonen, LUKE

15:45   **NEW PHENOTYPING METHODS – Use of ground based hyperspectral imaging for high throughput field phenotyping**
Dominic Williams, JHI

16:00   **How can we translate strawberry flavour into chemical compounds for breeding?**
Sonia Osorio, UMA

16:15   ☕ *Coffee break*

16:45   **SENSORY QUALITY AND CONSUMER ACCEPTANCE OF BERRIES: Towards satisfied berry consumers - an introduction to activities**
Saila Karhu, LUKE

16:55   **SENSORY QUALITY AND CONSUMER ACCEPTANCE OF BERRIES: Short and Long-Term Future Visions for Enhancing Fruit Quality in Cultivated Berries**
Terhi Latvala, LUKE

17:15   **SENSORY QUALITY AND CONSUMER ACCEPTANCE OF BERRIES: Panel and consumer contribution to characterize and valorize berry GenRes**
Stefano Predieri, CNR-IBE

17:35   **RESULTS FROMTHE OPEN CALL #4: Toolkits of sensorial qualityassessment for berry breeders**
Stefano Predieri, CNR-IBE

Experiences and feedback from Open Call #4 participants:

17:45
- ***Lithuanian Research Centrefor Agriculture and Forestry***, *Neringa Rasiukevičiūtė*
- ***Angus Soft Fruits***, *Lucy Wilkins*
- ***G-Berries***, *Alessandro Gasparrini*

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18:00   **From Bits to Bytes: Software Development for Genetics, Genetic Resources and Plant Pre-Breeding**
Sebastian Raubach, James Hutton Institute

18:15   **Integrating and Maintaining BerryData: The Germinate Database and beyond**
Björn Usadel / Elisa Senger, Forschungszentrum Jülich

18:30   **End of day 1**

Thursday, 3rd April 2025

09:00   **WORKSHOP ON MARKER-ASSISTED SELECTION, GENOME-WIDE ASSOCIATION STUDIES AND GENOMICSELECTION IN BERRY BREEDING PROGRAMS – WELCOME AND INTRODUCTION**

09:15   **Tracing strawberry population structures: The legacy of domestication and intertwined breeding**
Jakob Junkers, NIBIO

09:35   **Multi-model GWAS reveals key loci for horticultural traits in reconstructed garden strawberry**
Attiq Rehman / Tuuli Haikonen, LUKE

09:55   **Genome-wide association studies (GWAS)in a diverse strawberry collection from IFAPA unveil loci controlling agronomic and fruit qualitytraits**
Pepe Sevilla / Iraida Amaya, IFAPA

10:15   **The BreedingValue low-density array for MAS in strawberry**
Iraida Amaya, IFAPA

10:40   ☕ *Coffee break*

11.10   **RESULTS FROM THE OPEN CALL #1 Marker-Assisted Selection (MAS) in strawberry**
Juliette Bénéjam, INRAE

11:30   *Perspectives, practical applications, challenges, and innovations from Open Call participant*:
  - **Angus Soft Fruits**, Lucy Wilkins

11:40   **Marker-assisted selection in raspberry: challenges and opportunities in the -omics era.**
Brezo Mateos, JHI

12:00   **RESULTS FROM OPEN CALL #3: Marker-Assisted Selection (MAS) and Genome wide association studies (GWAS). GWAS in Raspberries: Developmental and Fruit Traits.**
Philip Greenspoon, JHI (BioSS)

12:20   *Experiences and feedback from Open Call #3 participants*:
  - ***Angus Soft Fruits***, Lucy Wilkins
  - ***G-Berries***, Alessandro Gasparrini

12:35   🍴 *Lunch break*

14:30   **INTRODUCTION TO GENOMIC SELECTION (GS) AND AN EXAMPLE FROM THE BREEDINGVALUE project: Brief introduction on GS. What is it, how is done, what benefits for implementation in breeding programs**
Jahn Davik, NIBIO

14:50   **The benefits of GS in a cultivated strawberry breeding programme: an example of powdery mildew resistance**
Juliette Bénéjam, INRAE

15:10   RESULTS FROM OPEN CALL#2: Genomic prediction for strawberry. Predicting strawberry powdery mildew susceptibility in strawberry breeding material
Jahn Davik, NIBIO

15:30 *Experiences and feedback from Open Call #2 participant. Current and future benefits:*
- **Fresh Forward,** Johan Willemsen

15:40   ROUND TABLE ON MAS AND GENOMIC SELECTION OF BERRIES
Moderators: Jahn Davik, Beatrice Denoyes, Iraida Amaya, Bruno Mezzetti.
- Short talk (10 min.) about 'genomic informed breeding' from the sister EU project, Antonio Granell, HARNESSTOM

With the objective of encouraging reflection on how we can apply genomic tools in plant breeding. Focus:

- How MAS and genomic selection are changing berry breeding strategies.
- Success storiesor challenges in using thesetechniques in real-world berry breeding programs.
- Integration of traditional breeding methods with genomic tools.
- The feasibility and challenges of integrating genomic selection in small-scale vs. large-scale berry breeding.
- Future trends in the use of genomics for disease resistance or yield improvement in berries.
- How has marker-assisted selection advanced berry breeding, and what limitations remain?
- What role does GWAS play in uncovering traits of interest in berries, and how can these findings be used in breeding programs?
- What are the biggest hurdles in applying genomic selection in commercial berry breeding?
- How can breeders ensure that genomictechniques are cost-effective and accessible to small-scale farmers?

17:00   Conclusions and Closing Remarks
Bruno Mezzetti

breedingvalue.eu