

Launch of new EU Research Project BreedingValue: Developing new breeding strategies for resilient and highly nutritious berries

European research partners and breeders are coming together to jointly focus on a better understanding and adaptation of the genetic resources of strawberry, raspberry and blueberry for a sustainable berry production throughout the European Union.

Online, 20 January 2021 – Increased demand in berries across Europe meets the challenges brought on by climate change, environmental preservation and the need for new cultivation systems as well a high-quality produce. The new research project BreedingValue, a European collaboration of 20 partners from eight countries, launches today and will explore the most promising berry genetic resources (GenRes) to address these challenges. Receiving just short of EUR 7 million from the European Union’s Horizon 2020 Framework Programme, the project will be coordinated by the Università Politecnica Delle Marche in Ancona, Italy, over the next four years.

Berry production is widely established throughout Europe. Especially strawberry as the most important crop, but also raspberry and blueberry now play a significant role in European agriculture: strawberry (*Fragaria*) with a harvest area of 105,798 ha and total production of 1,275,946 tonnes compared to raspberry (*Rubus*) with 41,436 ha and 219,112 tonnes and blueberry (*Vaccinium* spp.) with 15,395 ha and 95,674 tonnes. These berries offer valuable prospects for the development and economy of rural areas in the EU due to their high-value, both in the fresh market segment and the processing industry. Considering the standard gross margins, they are far superior to crops such as wheat or corn and in response to an increasing market demand, cultivation has expanded continuously, mostly due to the recognition by the consumer of the higher sensorial and nutritional quality. Being the richest fruit in antioxidants, vitamins, minerals and fibre, they play a vital part of a healthy diet and are included in current dietary recommendations on the intake of fruits and vegetables. Growing these berries requires highly specialised knowledge and is, using the current cultivation systems, highly resource intensive. Current berry cultivars have a limited environmental tolerance which is determined by the plant’s germplasm and reduces resilience to different environmental factors. At the same time, the quality of the fruits determines the success in the market by meeting consumers’ expectations. Failure to produce high quality berries carries the risk of reduced profitability and sustainability for individual farmers but also the market as a whole due to high wastage.

This is where BreedingValue intends to leave a mark. The project aims at bringing together public and private actors, internationally renowned scientists, GenRes managers and SMEs, with substantial experience in managing and characterising berry GenRes as well as berry consumers across Europe for the use and development of germplasm and new genetic and phenotyping tools. This will allow for studying the current biodiversity of these crops by applying advanced genotyping and phenotyping tools, and identifying new pre-breeding materials to be used for the creation of new resilient cultivars with high quality fruit. In addition, BreedingValue intends to expand communication in the GenRes-breeding-consumer chain, both nationally and EU-wide, for the present and future benefit of berry breeders, nurseries, growers and consumers. Furthermore, in order to create a strong connection between public and private institutions, berry breeders will be invited to participate in open calls for proposals to collaborate on specific project activities, such as Marker-Assisted Selection, Genomic selection, Genome wide association studies and the development of methodological tool kits for sensorial quality assessment of berry genetic resources.

“Central to the success of BreedingValue is the establishment of a large network of experts in conservation, genetics, genomics, breeding, biotechnology, biochemistry, phytopathology, bioinformatics, statistics and the production of berries. This unprecedented multidisciplinary structure will help us attain and develop new insights, information and concepts benefitting the berry GenRes community and reinforcing the connection between EU producers and consumers.” says Prof. Bruno Mezzetti, Full Professor in Fruit Crop Breeding and Biotechnology in the Department of Agricultural, Food and Environmental and Crop Science at the Università Politecnica Delle Marche and coordinator of the BreedingValue consortium.

Overall, the 20 partners jointly pursue the following key objectives:

- Designing innovative breeding strategies providing berry producers with commercial cultivars ensuring resilience, without a fruit quality penalty, across a broad range of geographic conditions.
- Exploring berry germplasm with a particular focus on contemporary challenges in breeding, in order to assure genetic diversity and berry industry success across Europe.
- Improving characterisation and selection efficiency among berry germplasm by providing new modern genotyping and phenotyping tools for identifying, sharing and disseminating results on factors controlling resilience, stress tolerance, yield stability and fruit quality.
- Specifying and communicating sensorial quality factors and consumer quality preferences for different berry species in different parts of Europe.
- Identifying and introducing superior germplasm for public and private European berry breeding programmes, as a valuable source to develop cultivars ensuring high-quality yield by sustainable production methods under different climatic environments.
- Developing concepts and user-friendly tools for documentation, communication and visualisation of berry germplasm at European level and even beyond, which will reduce conservation risks and improve the utilisation of berry GenRes in breeding programmes.
- Consolidating networking on berry GenRes - breeding interface in Europe and provide participation, training and outreach to GenRes conservers, breeders, nurseries, growers, consumers and citizens.
- Improving the capacity of the EU berry industry in order to maintain high competitiveness at national and international level.

Prof. Mezzetti adds: “BreedingValue will greatly impact the competitiveness of the European berry production system. This is done, not only, through consolidating the capacities of public and private European institutions for the evaluation and use of genetic resources to develop new cultivars in compliance with the new vision of the European Green Deal, but also through increasing the quality of the fruits in response to the specific requests of the European consumers. To this end, we will develop innovative tools and materials for new resilient berry cultivars suitable for the sustainable cultivation systems that we need for the future and by applying a first comparative study about consumer preferences of berries throughout Europe. This, among others, will give us the necessary insights to show the potential for the development of resilient cultivars with high fruit quality and consumer acceptance.”

Partner institutions from Finland, France, Germany, Italy, Norway, Spain, Turkey and the United Kingdom will form the project consortium. The project will officially kick off its activities with a first virtual meeting from 20 to 21 January 2021.

Project Key Facts

Full Name: BreedingValue – Pre-breeding strategies for obtaining new resilient and added value berries

Start date: 1 January 2021

Duration: 48 months

Budget: 6.98 Mio €

Coordinator: Università Politecnica Delle Marche (UPM), Italy

Website: www.breedingvalue.eu

Project Partners

Finland

- Luonnonvarakeskus

France

- Centre De Cooperation Internationale en Recherche Agronomique Pour le Developpement - C.I.R.A.D. Epic
- Institut National De Recherche pour l'agriculture, l'alimentation et l'environnement
- Invenio

Germany

- Eurice - European Research and Project Office GmbH
- Forschungszentrum Julich GmbH
- Hansabred GmbH & Co.KG
- Julius Kuhn-Institut Bundesforschungsinstitut fuer Kulturpflanzen

Italy

- C.I.V. - Consorzio Italiano Vivaisti - Societa' Consortile A R.L.
- Consiglio Nazionale Delle Ricerche
- Sant'Orsola Società Cooperativa Agricola
- Università Politecnica Delle Marche

Norway

- Nibio - Norsk Institutt for Bioekonomi

Spain

- Fresas Nuevos Materiales S.A.
- Instituto Andaluz de Investigacion y Formacion Agraria Pesquera Alimentaria y de la Produccion Ecologica
- Universidad De Malaga

Turkey

- University of Cukurova
- Yaltir Tarim Urunleri Sanayi Ve Ticaret Anonim Sirketi

United Kingdom

- Niab Emr
- The James Hutton Institute

Press Release



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