

Pre-breeding strategies for obtaining new resilient and added value berries

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Abstract

The BreedingValue project drives sustainable and competitive strawberry, raspberry and blueberry, known by its high economic impact and potential production across Europe (being the most important in EU berry industry) addressing the need for new cultivation systems as well as high-quality produce due to current challenges posed by climate change and environmental preservation. With this main objective the BreedingValue project will provide knowledge and tools to utilize strawberry, raspberry and blueberry GenRes and pre-breeding material to increase breeding companies capacity to create new cultivars with resilience to different and changing climatic conditions, as well as adaptability to different cultivation systems. Equally important, achievements targeted at producing consumer-desirable fresh-fruit cultivars of berries with high nutritional quality. This project will apply the most recent technical advances: a) to identify conserved and maintained germplasm of the main genera appropriate for sustainable berry production throughout the EU; b) to apply new and advanced genotyping and phenotyping tools for the characterization of local races and varieties, breeding populations and pre-breeding material; c) to identify the genetic base of the most important resilience traits and fruit quality traits for selecting new

cultivars with increased adaptability to different and changing climatic conditions and cultivation systems; d) to develop studies on EU consumers preference; e) to apply Life Cycle Analyses to evaluate the ecological benefits derived by the application of resilient pre-breeding material and varieties; f) to generate a novel efficient data analyses strategy; g) to develop prototype visualization tools; and h) to disseminate and communicate the results to breeders, GenRes managers, researchers, growers, market organizations, consumers, food industries, health authorities and regulatory and legislative authorities. The final outcome of the project will be the larger inclusion of Berry GenRes in different EU public and private GenRes collections and breeding programs that will bring benefit to the society for increased competitiveness of Eu berry industry and consumer accessibility to better and healthy fruit.