



BRESOV

Breeding for Resilient, Efficient and Sustainable Organic Vegetable production

BREEDING FOR RESILIENT, EFFICIENT AND SUSTAINABLE ORGANIC VEGETABLE PRODUCTION: THE H2020 BRESOV PROJECT

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(on behalf of the BRESOV Consortium)

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The BRESOV project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 774244.

Overview

Exploitation of **genetic resources**, in terms of formulating **climate-resilient** cultivars addressed to **vegetable organic production** systems under current and future scenarios of climate change

Three crops: brassicas, beans and tomatoes

- 🌱 4 years
- 🌱 22 partners
- 🌱 9 EU28 countries (*IT, BE, ES, PT, CZ, FR, UK, RO, GER*)
- 🌱 2 Associated countries (*Switzerland, Tunisia*)
- 🌱 2 Third countries (*China, South Korea*)

BRESOV Partners at a Glance



Objectives

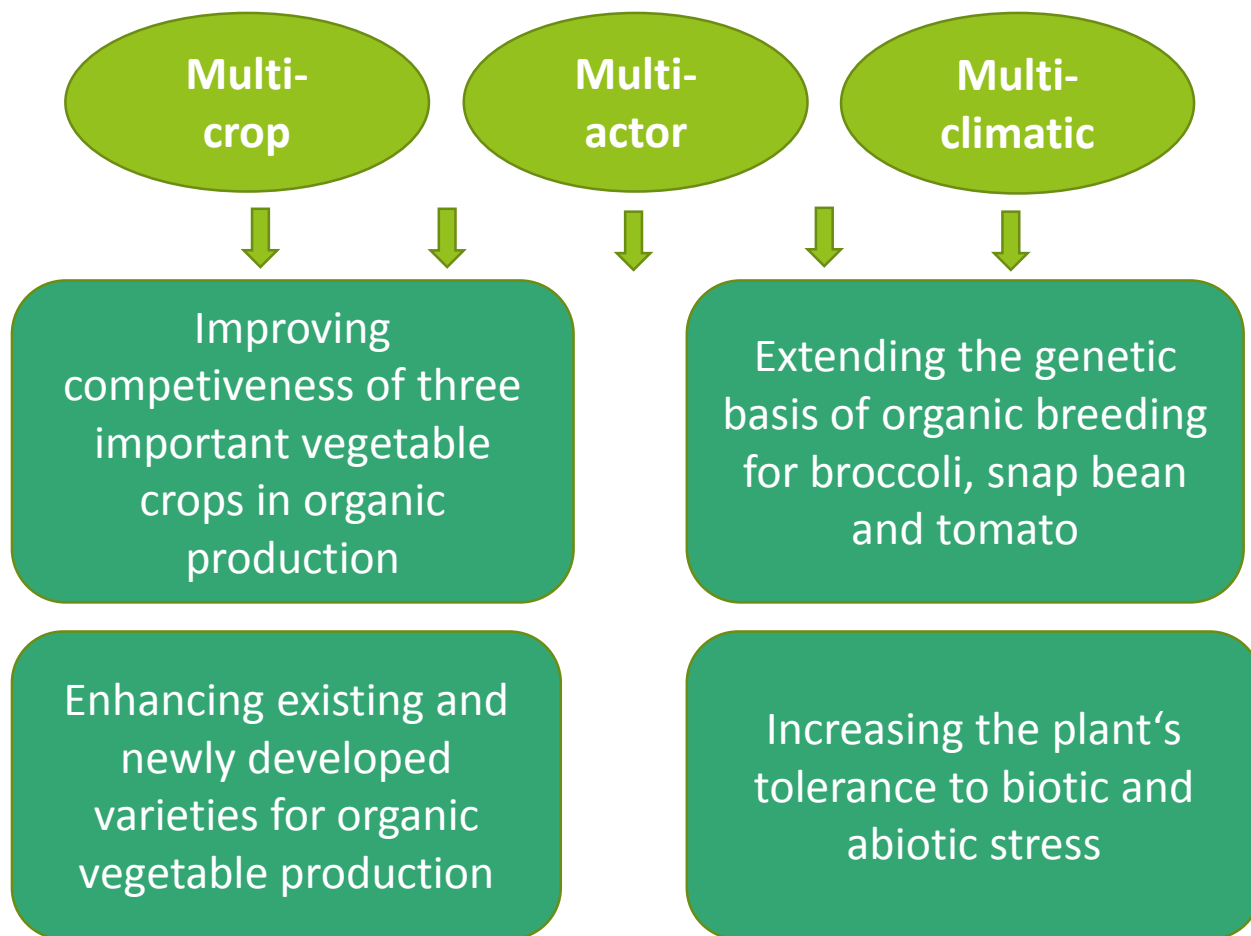
The **overall aim** of BRESOV is to improve the **competitiveness** of the three crops (brassica, bean, tomato) when grown in an **organic production system**:

- a) Establishing **core collections** of non-redundant genotypes for each species.
- b) Exploring the **genetic basis of main traits for organic cultivation** and **develop molecular markers** for assisted breeding of new cultivars (OP cultivars, inbred lines and hybrids) adapted to organic farming agro-systems for **biotic and abiotic stresses** on several organic vegetable farming systems in different European and non-European locations.

Objectives

- c) Increasing quality and quantity of **organic vegetable seed availability** for the growers of **different European geographic/climatic conditions** by developing methodologies that ensure the availability of organic seed of high quality.
- d) Improving the **adaptability** of the target crops in organic vegetable farming systems and the **interaction between the new cultivars and the soil microbiome**.
- e) Demonstration/testing/training activities to **disseminate the outcomes of the project** in view to innovate vegetable organic farming to the BRESOV stakeholders: one of our primary goals is to make **organic agriculture accessible** to more growers.

Approach and expected results



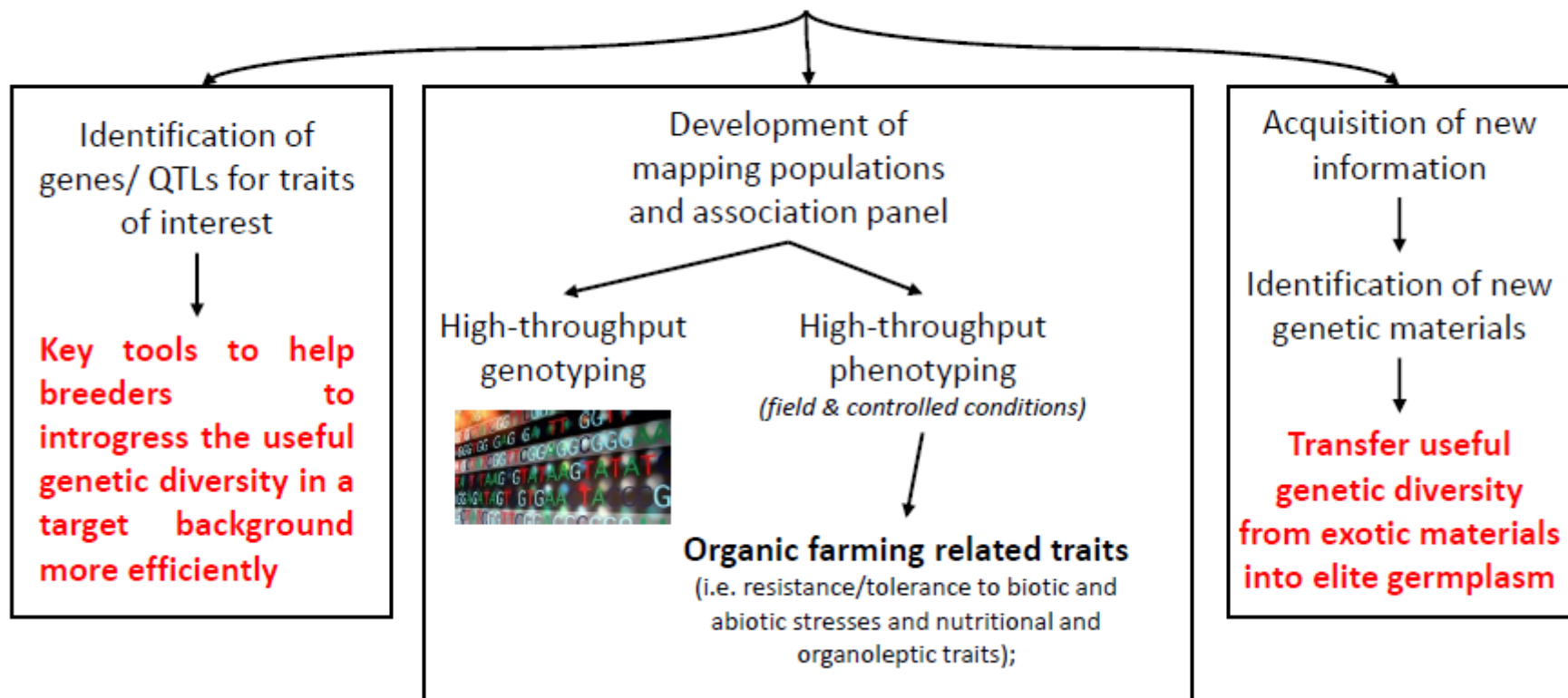
Consortium overview

- BRESOV follows a **multi-actor approach** involving academia, industry and farmers
- **External stakeholders** (seed and breeding companies, growers) support BRESOV through strategic advise, field testing
 - e.g. Gautier Semences (FR), OBS Innovation (FR), Semiorto Sementi (IT), Sativa Rheingau AG (CH) etc.
- **Important dates:**
 - 01/05/2018: Project starts
 - 30/04/2022: Project ends

WP2 Objectives → Pre-breeding

Objectives of WP2 as described in the DoA

Number	Description
O2.1	Characterize genetically and phenotypically genetic resources (CWRs, LRs and improved varieties) and use this information by specific core collections, association panels and mapping populations.
O2.2	Provide high-throughput genomic data of associations panels and mapping populations, which <u>will include also genetic information already available</u> , along with phenotypic data related to organic farming-related traits.
O2.3	Identify genes and/ or QTLs controlling organic farming related traits by using GWAS, linkage mapping and population genomics, and exploit this information to identify interesting lines/ genotypes and to develop molecular markers to be used in future breeding for organic farming environments.
O2.4	Integrate all data (genotypic and phenotypic information) from WP2 and WP3 in a common database for each crop, <u>promoting comparison of different results and analyses</u> ; the database will be accessible for the consortium during the project and will be available for the scientific community at the end of the project.



WP3 Objectives → Breeding

Objectives of WP3 as described in the DoA

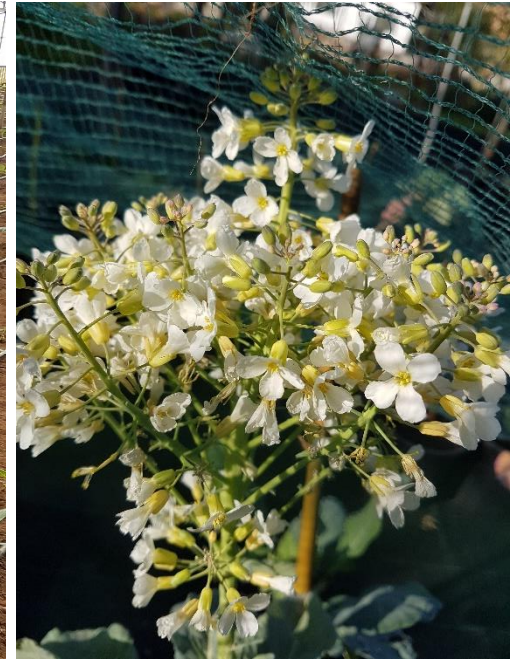
Number	Description
O3.1	Select germplasm in the BRESOV repository that are resilient, and adapted to organic agriculture
O3.2	Identify sources of tolerance or resistance to prevalent pests and diseases under organic conditions
O3.3	Breed new elite materials for organic agriculture
O3.4	Evaluate quality traits for selecting high-added value cultivars and materials for organic agriculture

Beans field



Field_beans_VRDS

Brassicas field



Field_brassica_UNICT

Tomato field



Field_tomato_UPV

WP4 Objectives → Seed quality

🌱 Objectives of WP4 as described in the DoA

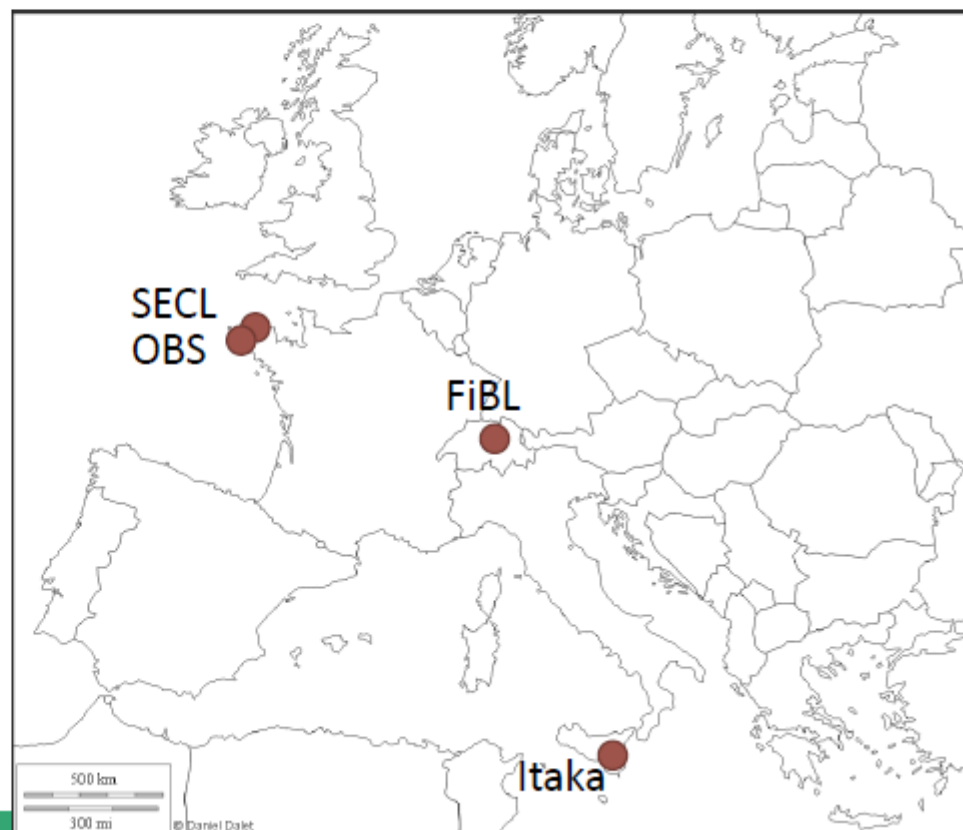
Number	Description
O4.1	Develop protocols adapted to the specific conditions of organic farming to improve organic seed yield
O4.2	Determine products and tools to control the sanitary and genetic quality of organic seed lots.

WP4 organization

T4.1 - Determination of the optimal agronomic conditions for organic seed production

Sites for the growing trials :

- Sicily (ITAKA) => **tomato – greenhouse/tunnel / brassica / snap bean**
- Switzerland (FiBL) => **tomato – greenhouse**
- France (SECL22/OBS) => **tomato – greenhouse / brassica / snap bean ?**



WP5 Objectives → Evaluation on-farm

Number	Description
O5.1	Evaluate a shortlist of breeding lines compatible with organic farming for the production of crops of enhanced quality and marketing value.
O5.2	Provide farmers with new materials to be tested alongside commercial organic varieties on-farm.
O5.3	Enhance crop performance (i.e. stress tolerance and nutrition) using bioactive products.
O5.4	Promote crop rotations for improved performance of brassicas, snap bean and tomato crops.

What is our Research Question and why are we doing this?

Pre-breeding lines are selected for their interesting cluster of traits for organic agriculture. In practice and compared to the organic standards in each region:

are they easily cultivated?

how do they perform alongside the standard cultivars and the requirements of the market? T5.1&5.2

Can crop performance be naturally enhanced (bioactive products, crop rotation) T5.3 & 5.4?

WP6 Objectives → Communication

N°	Description
O6.1	Communication, create visibility and encourage project outreach
O6.2	Disseminate results to targeted stakeholders and the scientific community
O6.3	Training of relevant stakeholders
O6.4	Foster innovation management by maximising the exploitations of results

Communication and dissemination strategy

Target audience:

- Scientific Community & Scientific Networks
- Breeding, Seed & Farming Companies & Associations
- European Commission, EU Institutions & Policy Makers
- Organic Food Market, NGOs, Broad Public & Consumers

Communication channels:

- Project website: www.bresov.eu
- Social media channels:



- **Twitter: @BRESOV_EU** https://twitter.com/BRESOV_EU



- **Facebook:** www.facebook.com/BresovEU/

Social media



Tweets 10 Following 180 Followers 41 Likes 24



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An @EU_H2020 project shaping the future of organic breeding and farming. #InvestEUresearch

Belgium

bresov.eu

Joined June 2018

Born on 30 May

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Message

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Tweets Tweets & replies Media

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BRESOV_EU @BRESOV_EU · Jun 7

This project receives funding from the @EU_H2020 Research & Innovation Programme. Any related tweets reflects only the views of the project owner.

1 1 2

BRESOV_EU @BRESOV_EU · Jun 18

Last Friday, @BRESOV_EU representatives took part in the #H2020 Coordinators Day in #Brussels. #food4thought #agri #research #bioeconomy



You, Ferdinando Branca, EURICE - European Research and Project Office and European

Networking

ESA Stand at
Flagship Conference
2nd FOOD 2030 High
Level Event
14-15 June, Plovdiv



BRESOV_eu

Published by Alexandra Sabou [?] · June 15 at 3:19pm · 🌐

We are slowly reaching the end of the second day of the #Food2030EU conference here in Plovdiv, Bulgaria! Two full days of full of promising discussions, fruitful encounters & insightful debates about the common food security challenges that Europe 🇪🇺 is facing nowadays. Together with other #H2020 projects, we are proud to mention that BRESOV_eu has been showcased during the conference! Thank you to all those who have visited us at the #Food2030EU Food Village! #EmbracingNature #Food2030EU



BRESOV Kick-off Meeting - June 25-27, 2018





Links with other EU projects

LIVESEED will help to establish a level playing field in the organic seed market across Europe, improve the competitiveness of the organic seed and breeding sector, and encourage greater use of organic seeds by farmers.

ECOBREED will improve the availability of seed and varieties suitable for organic and low- input production, focusing on four crop species, i.e. common wheat, potato, soybean and common buckwheat.

TRADITOM has phenotyped and genotyped 1200 local varieties of tomato from the Mediterranean region and established a core collection.

G2P-SOL is genotyping the European Solanaceae genetic resources.

TomGEM is dealing with the mining of a vast range of genetic resources to identify cultivars/genotypes displaying yield stability under heat stress conditions and to uncover loci/genes controlling flower initiation, pollen fertility and fruit set.

DIVERSIFOOD evaluates and enriches the diversity of cultivated plants within diverse agroecosystems to increase performance, resilience, quality and use through a multi-actor approach



In these EU funded projects some BRESOV's partner are involved / some results will be used by the BRESOV project



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**III International Organic Fruit Symposium
and
I International Organic Vegetable Symposium
Catania 5-8 October 2020**

Thank you for your attention....

