

LiveSeeding in a nutshell



Organic seed and plant breeding to accelerate sustainable and diverse food systems in Europe

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LiveSeeding in a nutshell

- Background
- Objectives
- Multi-actor approach & Living Labs implementation
- Pathway to Impact: PUSH – PULL - ENABLE

Different breeding strategies

- › **Conventional breeding:** **Status quo**
 - › Selection with application of seed treatments, herbicides, optimal nutrient supply
 - › Breeding goals and variety development for conventional / IP farming
 - › Test registered varieties under organic farming (organic variety trials)

- › **Breeding for organic farming** **Product oriented**
 - › Considering of the breeding goals of the organic agriculture
 - › No GMO (no cell fusion)
 - › Selection partly under organic farming conditions
 - › Last multiplication step under organic farming conditions

- › **Organic plant breeding:** **Process oriented**
 - › Breeding specifically /exclusively for organic agriculture
 - › Every selection step under organic conditions
 - › Breeding technics in harmony with the organic farming
 - › Multiplication steps under organic conditions

Improve integrity and competitiveness of organic sector by reaching 100% organic seed of cultivars suited for Organic Agriculture

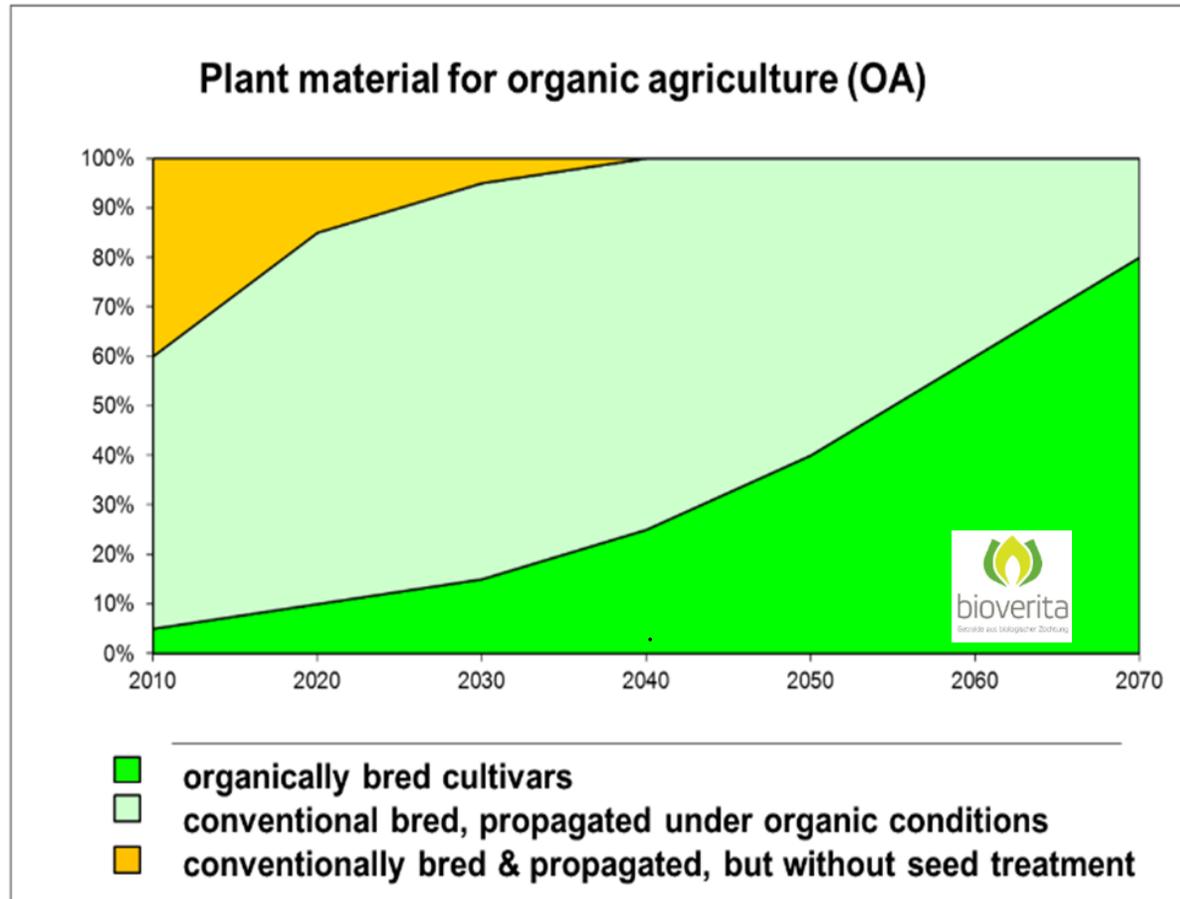


Figure 1 : Schematic time line to reach the goal of 100% organically propagated seed of suitable cultivars (light green) in short term and to foster cultivars specifically bred for organic farming systems (bright green) in the long term



Organic seed → Organic breeding

Plant Breeding	Variety testing	Seed propagation
Conventional breeding	Conventional	Conventional untreated End of derogation!
Conventional Breeding	conventional	Organic
Breeding for organic	Organic post registration testing	organic
Organic breeding	Organic VCU	organic

LiveSeeding in a nutshell

Organic seed and plant breeding to accelerate sustainable and diverse food systems in Europe

- 37 partners from 16 European countries
 - 32 from EU: BE, FR, DE, NL, SW, IT, ES, PT, HU, HR, SI, EL, RO, PL
 - 2 from Switzerland, 2 from UK, 1 affiliated partner in Italy
- several SME as subcontractors
- Innovation Action of Horizon Europe, GA ID: 101059872
- Total 6.6 Mio € (EU, SERI, UKRI)
- 4 years (Oct 2022 – Sept 2026)

- Sister project: InnOBreed on organic fruit breeding



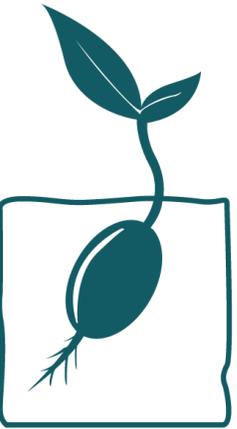
Project's general objective



Foster the growth of the organic sector and transition towards more sustainable local food systems by delivering high-quality organic seeds of diverse cultivars adjusted to organic farming for a wide range of crops

Objectives

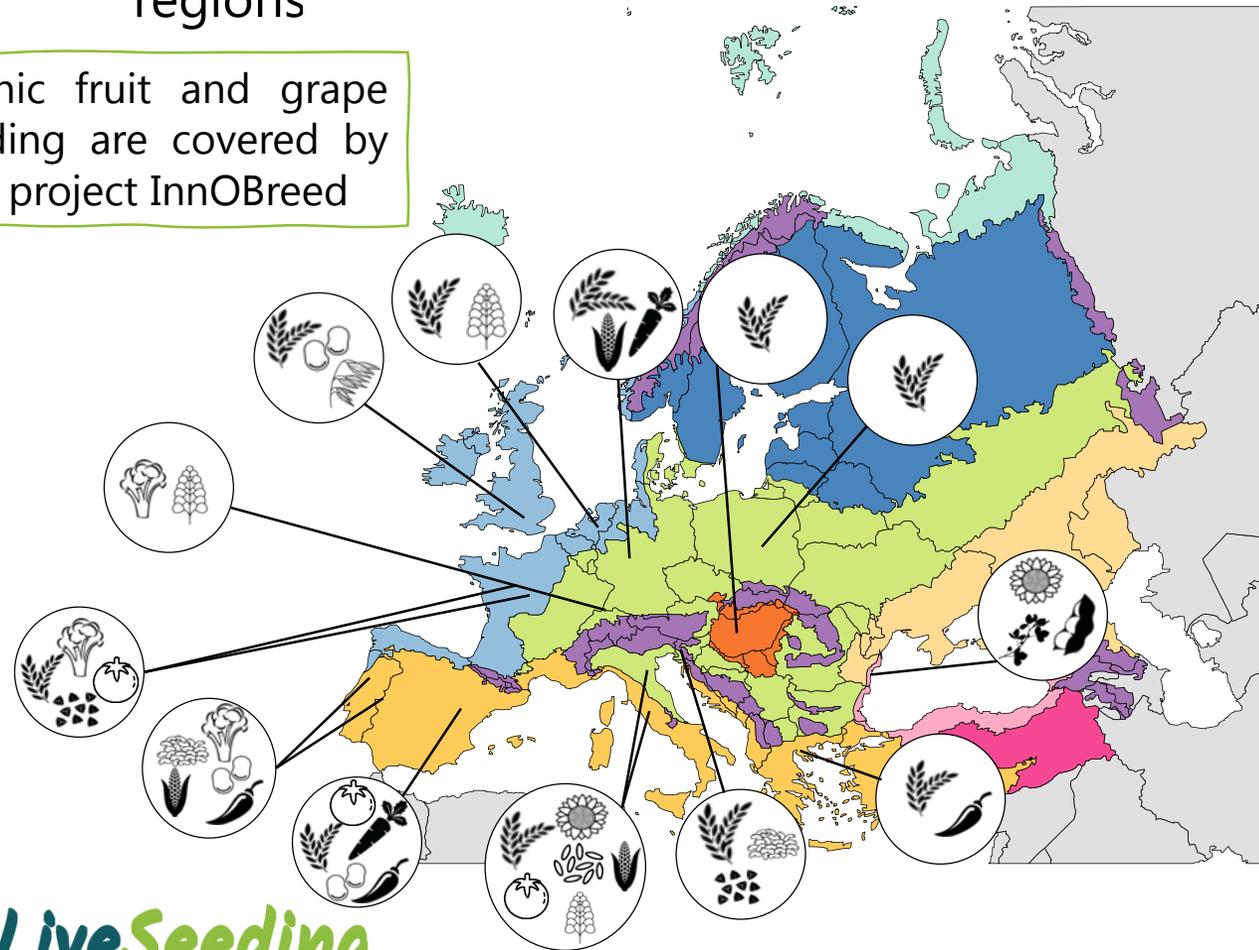
- Increase and optimize **crop diversity** to be used in organic farming systems
- advance pre- and post-registration **cultivar testing** dedicated to organic farming
- Increase **supply of organic seed**
- Increase **transparency** of the organic seed market
- Ensure efficient **scaling out and scaling up** of organic seed and breeding initiatives
- Promote **organic breeding** supported by value chain partners and society
- **Capacity building and participatory knowledge creation** from seed to plate
- Promote the **competitiveness of the organic seed and breeding sector**



Target crops and climatic regions

- 15 different crops of special relevance for the organic sector in different pedoclimatic regions

Organic fruit and grape breeding are covered by sister project InnOBreed



Biogeographical regions of Europe

- Arctic
- Boreal
- Atlantic
- Continental
- Alpine
- Pannonian
- Mediterranean
- Macaronesian
- Steppic
- Black Sea
- Anatolian

After a map by the European Environmental Agency: www.eea.eu.int

ARABLE Cereals



Wheat



Rice



Oat



Maize

Pseudocereals



Buck-wheat



Oil seed

Sunflower

Grain legumes



Broad bean



Lupin



Beans



Soybean

FODDER



Alfalfa

HORTICULTURAL



Pepper



Carrot



Tomato



Brassica

Multi-actor approach

Inter- and transdisciplinary partners

- ❑ 9 research institutions fully dedicated to organic
- ❑ 5 organic breeders and seed producers and representatives of the European consortium for organic plant breeding (ECO-PB)
- ❑ 2 organic farmers associations
- ❑ 7 universities and experts on genetics, participatory and molecular breeding, microbiome, plant pathology, citizen science, socio economy, policy
- ❑ 3 examination offices
- ❑ 15 SME and 2 large seed and breeding companies
- ❑ NGO (European Coordination Let's Liberate Diversity (ECLLD), Red de Ciudades por la Agroecologia (RCxAE)
- ❑ 4 IT experts

Additional supported by

- ❑ Broad Stakeholder group with over 200 participants
- ❑ International Advisory Board
- ❑ IPR Board



17 Living Labs

- Activities organized in **17 local/regional Living Labs** focused on 7 vegetable and 10 arable crops from breeding to value chain (from seed to plate)

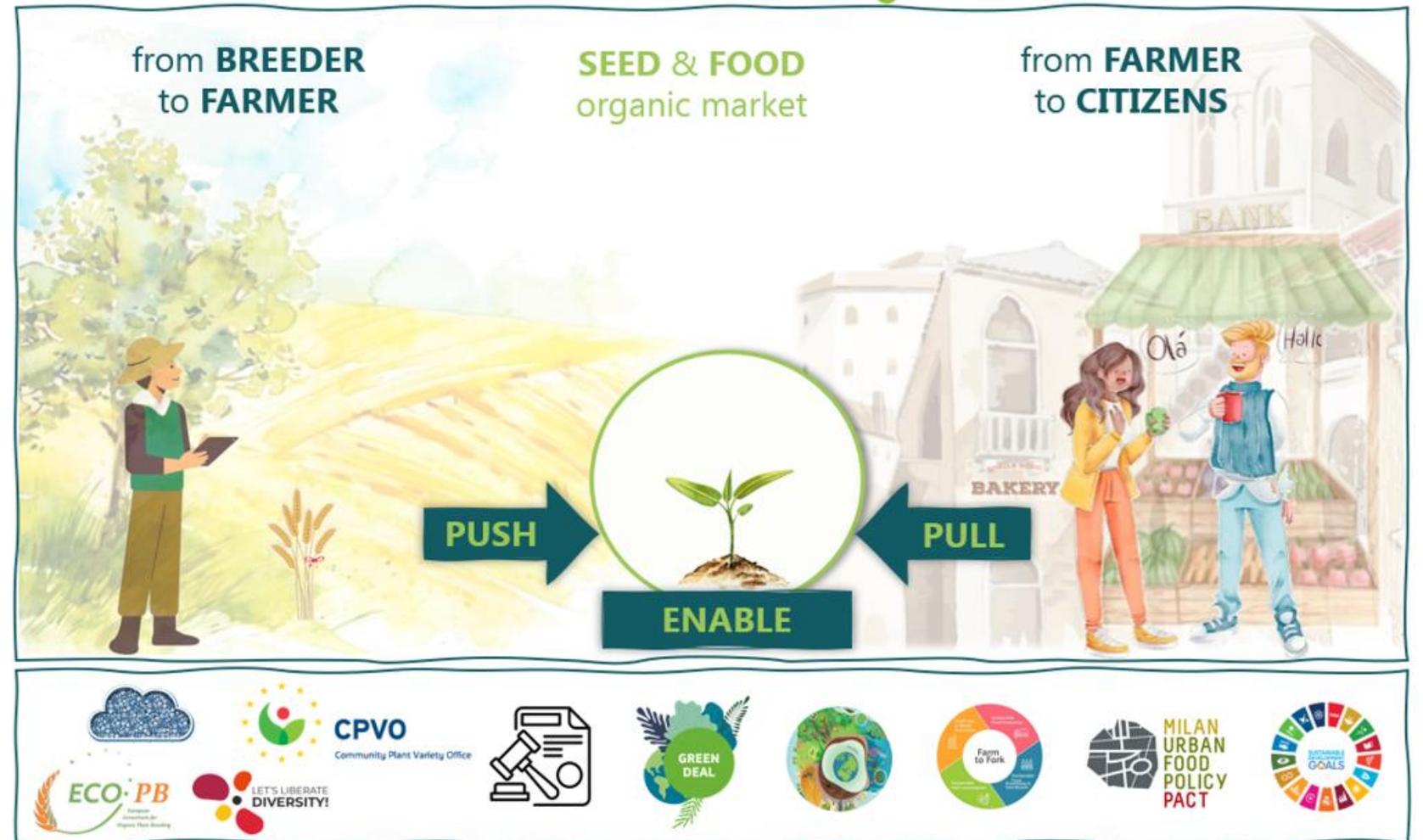


Pathway to impact

PUSH – PULL – ENABLE

Goal

high quality organic seed
of sufficient quantity
adjusted to organic
agriculture for
diverse diets and
sustainable food systems



PUSH – PULL – ENABLE approach

- the entire **market** is observed with the aim of generating long-term solutions for increasing the amount of organic seeds in the EU
- **PUSH** increases the availability of organic seeds of cultivars suitable for organic production
- **PULL** increases and stabilizes the market demand for organic seeds of cultivars suitable for organic production
- **ENABLE** accelerates and encourages the legislative and regulatory environment to adapt to supply and demand

Contact information



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Thank you for your attention!

