



# CORE organic II



## Co-ordinating Organic plant BReeding Activities

– for diversity

COBRA



Aim of the project:  
Supporting and developing European organic  
plant breeding and seed production.

## Introduction

COBRA will coordinate, link and expand on-going organic breeding activities in cereals and grain legumes across Europe. Besides regular breeding activities, one focus is on high-diversity (Hi-D) approaches to cope with future challenges such as climate change.

**What:** It draws together research and experts from previously fragmented areas.

**Why:** To provide improved seed and varieties for organic farmers.

**Where:** The project includes 41 partners across 18 European countries. (<http://bit.ly/cobrapartners>)

## Background

Organic plant production is challenged by several factors. In addition to weeds and seed borne pathogens, climate change is threatening to affect crop production through increasing weather variability. Plant breeding is a crucial factor in creating organic production systems that can better cope with such stresses. Producers need crop varieties with good resistance against pests and diseases (especially seed borne diseases); the ability to react to environmental stresses, especially climatic variability, and high competitiveness against weeds.

## Expected results

The COBRA network constitutes a unique opportunity to link up existing organic breeding initiatives via coordinated research and development across the whole sector. COBRA aims to achieve

## Benefits of the project

The expected benefits of COBRA are for the organic supply chain and society as a whole.

**For Farmers:** new wheat, barley and grain legume varieties;

**For Seed producers:** quicker or cheaper tools for seed health diagnostics;

**For Breeders:** increased availability of high quality breeding material;

**For Processors:** traders and consumers choice of organic produce;

**For Policy makers:** clear information on current legal, institutional and socio-economic drivers;

**Society as a whole:** profit from the higher diversity within varieties as this will reduce required inputs in the future.





a breakthrough with regard to organic plant breeding in Europe by removing or lowering several technical and structural barriers in the sector. This includes (1) a large-scale multi-partner coordinated approach in Europe to tackle seed borne diseases in grain legumes and major cereals, using cutting edge technologies; (2) a systematic approach to improve plant breeding efficiency in an organic context including legal issues pertaining to Hi-D breeding; and (3) the identification of grain legume accessions with high resilience to climatic fluctuations. Novel methods and approaches include

- ▶ the development of non-destructive near-infrared spectroscopy-based single seed diagnostics to make seed screening faster and cheaper;
- ▶ the use of evolutionary breeding to increase tolerance for climate variability and
- ▶ the use of composite cross populations to select for early vigour and root growth.



## Expected long-term impacts

COBRA will provide researchers and industry partners with greater access to plant diversity, plant breeding innovations and know-how that is designed to be available in the long term. It will contribute to the generation and conservation of modern genetic resources for a changing world.

### Target groups

For clarity I would rephrase this first sentence as: COBRA aims to target groups across the EU, irrespective of whether or not that country has a representing project partner. They include farmers, seed producers, crop breeders, processors, traders & consumers, policy makers and society as a whole.

Although COBRA focuses on organic plant breeding in the EU its findings will have relevance to the wider agricultural sector both within the EU and internationally.

## Main activities

COBRA focuses on wheat, barley, pea and faba bean across a range of activities. These include controlling seed borne diseases and improving seed quality. A focus on how different approaches to breeding can deliver resilience while coping with multiple stressors and thereby increasing the efficiency of breeding approaches and methods. Importantly, the project will aim to lower socio-economic and legal hurdles to organic seed production and organic plant breeding. There are a range of dissemination activities that will run throughout the whole project.

## Coordinator

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## Partners

- Aalborg University, DK
- Aarhus University, DK
- Aegean Agricultural Research Institute, TU
- Agricultural Institute Hungarian Academy of Sciences, HU
- Agrologica, DK
- Associazione Italiana per l'Agricoltura Biologica, IT
- Bioforsk Organic Food and Farming, NO
- Bayerische Landesanstalt für Landwirtschaft, DE
- Centre de Recherche Public-Gabriel Lippmann, LU
- Centro di Ricerca p. l. Produzioni Foraggere e Lattiero-Casearie, IT
- Forschungsinstitut für Biologischen Landbau, CH
- Graminor, NO
- Humboldt-Universität zu Berlin, DE
- INAGRO, BE
- Institute for Sustainable Development, SI
- Jõgeva Plant Breeding Institute, EE
- Kassel University, DE
- Knudsen Plant Breeding, DK
- Lantmännen SW Seed, SE
- Louis Bolk Instituut, NL
- MTT Agrifood Research Finland, FI
- National Institute for Agricultural Research, FR
- Nordic Genetic Resource Center, SE
- Nordic Seed, DK
- Oikos - Organic Norway, NO
- Organic Research Centre, UK
- Organic Seed Producers, UK
- Saatzucht DonauGesmbH & CoKG, AT
- Sejet Plantbreeding, DK
- SRUC, UK
- State Priekuli Plant Breeding Institute, LV
- State Stende Cereal Breeding Institute, LV
- Swedish University of Agricultural Sciences, SE
- Technical Institute of Organic Farming, FR
- Technical University of Denmark, DK
- Technische Universität München, DE
- University College Ghent, BE
- University of Copenhagen, DK
- University of Maribor, SI
- University of Natural Resources and Applied Life Sciences, AT
- University of Udine, IT
- VLF, DK

## Related projects

International projects: SOLIBAM, ABSTRESS, ICOPP, TILMAN-ORG, OSCAR, REFORMA, Legume Futures

National/regional breeding initiatives: BIOBREED (DK), PopZucht Diva (DE), SUSTAIN NordForsk (Nordic), PNSB (IT), ESPLORA (IT), Wheat Breeding LINK (UK)

Stakeholders' networks: IFOAM EU, ECVC, Let's liberate diversity, COPA COGECA, TP Organics, TiPi, The Organic Seed alliance, ECOBP.

## Project dissemination

COBRA has a public web page ([www.cobra.div.eu](http://www.cobra.div.eu)) where relevant materials from the project will be published.

In addition we will create and circulate a newsletter which highlights upcoming relevant events and reports on new developments both from within COBRA and from other (organic) breeding projects.

We will coordinate knowledge transfer activities through stakeholder workshops on organic plant breeding, a dedicated training programme and a joint meeting with the EUCARPIA organic plant breeding section in collaboration with SOLIBAM and ECOBP.

An important part of our communication will be via field days organized by partners in each country facilitating exchange of information and networking on organic plant breeding issues.

## How to reach the endusers

Field days will be used in all the countries involved in the project to reach local target groups: farmers, breeders, seed producers etc. Formal and informal training opportunities will be offered by the COBRA project. The training experience offered by the partners will be an opportunity to reach students, researchers and breeders. The large partnership of COBRA itself represents an opportunity to reach target groups and end-user in many different EU countries with innovative ideas and techniques.

## Further information

This project is funded via the ERA-net CORE Organic II by national funds to each partner. CORE Organic II is a collaboration between 21 countries on initiating transnational research projects in the area of organic food and farming. CORE Organic II has initiated 14 research projects. Read more at the CORE Organic II website: [www.coreorganic2.org/COBRA](http://www.coreorganic2.org/COBRA) and in Organic Eprints: <http://orgprints.org/view/projects/cobra.html>