

CORE Organic Cofund Research Seminar

Introduction to CORE Organic and research projects

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CORE Organic I - 2007
(11 partner countries)



CORE Organic Cofund - 2016
(19 partner countries/regions
1 network member)

Coordination of European Transnational Research in Organic Food and Farming Systems - 15 Year Anniversary in 2019.

1-CO I (11) - 1 call, 8 projects, 8.3M Euro

2-CO II (21) - 3 calls, 14 projects, 14.9M Euro

3-CO Plus (21) - 1 call, 11 projects, 11M Euro

4-CO Cofund (19) - 1 call, aunched call, 12 projects, 14M Euro

CORE Organic Cofund consortium

The ERA-NET CORE Organic Cofund is a consortium of **27 public funding bodies from 19 European countries/regions**. The CO Cofund is the continuation from the CORE Organic I, II and Plus.





CORE Organic Programme Objectives

The aim of CORE Organic is to **improve knowledge basis and innovation capacity** necessary for supporting **further development of organic food and farming** as a way to **respond to significant societal challenges in Europe's agriculture and food systems.**

THE EXPECTED IMPACTS:

- More **sustainable organic food systems** including farming practices, processing and innovative value chains;
- **Support to Common Agricultural Policy (CAP)** and organic farming regulations and subsequently **supporting health, trade and job creation.**
- Improvement of the competitiveness of the European agriculture, and present new and innovative solutions to **environmentally friendly agriculture.**



CORE Organic Cofund Call 2016: Objectives and Research Topics

The overall objective for **Cofund Call 2016** was that the proposed research projects support sustainable growth of the organic sector in Europe and beyond. The four research topics were:

1. Ecological support in specialized and intensive plant production systems
2. Eco-efficient production and use of animal feed at the local level
3. Appropriate and robust livestock systems: cattle, pigs, poultry
4. Organic food processing concepts and technologies for ensuring food quality, sustainability and consumer confidence



CORE Organic Cofund Monitoring team



Adrian Asanica, UEFISCDI, RO:
BIOVINE, SUREVEG, GREENRESILIENT (Topic 1)



Lieve de Cock, ILVO, BE:
DOMINO, MIX-ENABLE, ProYoungStock (Topics 1, 3)



Sari Iivonen, LUKE, FI:
ProRefine, SusOrgPlus, ProOrg (Topics 2, 4)



Ivana Trkulja, ICROFS, DK:
GrazyDaisy, POWER, FreeBirds (Topic 3)



Ecological support in specialized and intensive plant production systems



Specialized and intensive plant production systems

Scope

- **Intensive vegetable, fruit, olive and viticulture production**
 - design and manage vegetable fields, orchards and vineyards in order to reduce dependency on external inputs for pest and disease control, as well as for fertilization
 - improve synergy with ecosystems services. Find best use of the diversity within and between crops, and of the natural biodiversity at field, farm and landscape levels
 - design innovative and productive systems combining knowledge in cross disciplinary work
- **Soil-bound greenhouse systems**
 - understanding, assessment and development of new strategies, concepts and management of more climate-neutral and sustainable, yet economically sound and resilient soil-bound greenhouse systems, for various climatic conditions, and suited to different farming systems
 - combine the high intensity of greenhouses systems with the management of soil health and fertility
 - increase the agro-ecological and economical sustainability of greenhouse systems using a multi-actor approach with an active involvement of various relevant stakeholders



Specialized and intensive plant production systems

Expected Impact

- Results to reach end-users and be used transnationally; suitable and smart outputs and deliverables for dissemination are expected.
- Improved competitiveness of organic vegetable, fruit, olive, grape and greenhouse production;
- Models for more resilient and sustainable organic vegetable, fruit, olive and grape production systems in the open field and under cover;
- Concepts for more sustainable and climate-neutral organic soil-bound greenhouse production systems suitable for different climates, conditions and agro-ecosystems;
- Closed nutrient cycles and improved efficiency in the use of water and inputs.



DOMINO:



Dynamic sod mulching and use of recycled amendment to increase biodiversity, resilience and sustainability of intensive organic apple orchards and vineyards – coordinator Davide Neri (IT)

The Project DOMINO will:

- develop new strategies to manage the space between fruit trees by increasing the biodiversity of the orchards (use of *living mulches*) and testing the production of *secondary cash crops* that can reduce the competition from weeds and provide additional economical return for farmers;
- optimization *fertilisation strategies* using regionally available recycling fertilisers and leguminous intercrops to improve nutrient balances and ecosystem services;
- evaluate *partly closed cover systems* to support non-chemical pests and diseases control;
- assess potential *long-term positive consequences* on the *environment, soil fertility*, and calculate *economic impact* of the mixed production systems





BioVine:

Exploit biodiversity in viticultural systems to reduce pest damage and pesticide use, and increase ecosystems services provision – coordinator Vittorio Rossi (IT)



Project BioVine will

- Identify and select candidate plants
- Test plants in controlled conditions or small scale environments for their ability to control arthropod pests, promote beneficials, *control soil-borne pests* (oomycetes, fungi, nematodes) and *foliar pathogens*, carry arbuscular *mycorrhizal fungi*.
- Design new viticultural systems able to exploit plant biodiversity in organic vineyard
- Test the new viticultural systems in several locations in Europe (IT, FR, RO, SI, ES & CH)
- Assess how the innovative viticultural systems affect provisioning, regulatory and cultural ecosystem services





GreenResilient:

Organic and biodynamic vegetable production in low-energy GREENhouses – sustainable, RESILIENT and innovative food production systems – coordinator Fabio Tittarelli (IT)



Project GreenResilient will:

- Compare on five experimental sites, from Northern to Southern Europe, the intensive organic production systems with completely redesigned, less intensive cropping systems, using a 2-year *crop rotation*.
- Evaluate the effects of *agro-ecological service* crops in greenhouse crop rotation
- Introduce in the *crop rotation* - new (or underutilized) winter leafy vegetables - which grow under unheated (or frost-free) conditions
- Evaluate the effects of the redesigned cropping systems - below and above ground micro and macro fauna, as well as flora
- Evaluate the *sustainability* of the compared production systems using Life Cycle Assessment tools.
- All innovative techniques will be disseminated through different communication tools *to farmers and other stakeholders*.





SUREVEG:

Strip-cropping and recycling of waste for biodiverse and resoURce-Efficient intensive VEGetable production – coordinator Hanne Lakkenborg Kristensen (DK)



Project SUREVEG will:

- Develop and implement new diversified, *intensive organic cropping systems* using *strip-cropping* and fertility strategies combined from plant-based soil-improvers and fertilizers to *improve resilience*, system sustainability, local nutrient recycling and soil carbon storage
- Design and test strip-cropping systems in vegetable producing countries at *different geographical locations in Europe*
- Develop and test *smart technologies* for management of strip-cropping systems





Objectives of the call versus expect results of projects

- **Covered objectives**
 - innovative cropping and production systems
 - build-up of robust multi-functional and resilient agro-ecosystems
 - new systems able to reduce the dependency of external inputs
 - intensive cropping systems; greenhouse systems
 - functional biodiversity; ecological services
 - multi and inter disciplinarity
 - good EU countries coverage and different climatic conditions

- **Recommendations for achieving all objectives**
 - easy further scale-up of the reliable innovations by evident economic value
 - maintain a close relation to the farmers for a smoothly adoption of the new systems
 - Multi-actor approach with an active involvement of various stakeholders including citizens and consumers too
 - Solutions have to comply with new EU Organic Regulations.



**Appropriate and robust livestock systems:
cattle, pigs, poultry**



Appropriate and robust livestock systems

Cattle

Scope

- Innovative grazing systems for different agro-ecological and economic conditions
- Improving young stock rearing without negative effects on productivity on LT

Expected impact:

- Dairy systems with improved productivity, increased protein production while optimizing roughage intake, reduced environmental impact, decreased antibiotics and anthelmintic use and enhanced animal health
- Increase knowledge about natural calf-rearing systems

Pig husbandry

Scope

- Development of housing systems and management of outdoor areas
- Reduce piglet mortality, nutrient losses, emission of ammonia and nitrous oxide while improve economic competitiveness

Expected impact:

- Housing systems and management practices that improve productivity, health and welfare, and reduce climatic and environmental impact



Poultry systems (incl. turkeys and ducks)

Scope

- Performance of existing and improved breeds for poultry, turkeys and ducks
- Free-range areas

Expected impact:

- Performance, health and welfare in different production systems
- Possibilities and limitations of existing and improved breeds, both for specialised and dual purpose production
- New poultry husbandry systems which maintain high level of health and welfare, high environmental standards and robust economic performance

Mixed livestock systems for improved farming and food system resilience

Scope

- Two or more farm animal species and most likely integrated with crop production or agroforestry
- Design of new systems or improvement of existing systems

Expected Impact

- Increase and document knowledge of mix livestock systems: mutual benefits
- Improve guidelines for managing complex systems and for health management

GrazyDaisy: Innovative and sustainable grazing-based dairy systems integrating cows and young stock – coordinator Mette Vaarst (DK)

Project GrazyDaisy will:

- focus on **innovative strategies for grazing-based dairy systems** with cow-calf rearing and herds with mixed age groups,
- test methods to **strengthen the dam-calf bond** to ensure maternal care of the calf at pasture, to facilitate the de-bonding process at weaning while minimizing negative consequences for the cow and the calf,
- analyze consequences these strategies on **animal health and welfare**, as well as on the use of antibiotics and anthelminthic,
- **assess the environmental and economic sustainability** of rearing calves with their dam
- explore **farmers' perception and visions** on innovative grazing and medicine-reducing strategies.



ProYoungStock: Promoting young stock and cow health and welfare by natural feeding systems – coord. Annet Spengler Neff & Anna Bieber (CH)

Project ProYoungStock will

- collect, develop and assess **natural feeding strategies** to increase dairy livestock welfare in different agro-ecological and regulatory EU context
- Innovative young stock rearing **systems that allow calf-cow contact** and evaluate the **impact** of the systems **on cow and calf welfare and performance**
- effect of **cow-calf contact or feed supplements** on contents of **immunoglobulins** in **colostrum** and in **milk**
- effect of **increased milk amounts fed to calves**, potential of **plant bioactive compounds** in pasture based production systems to improve **protein use efficiency**, animal **health** and **immune response** as well as product **quality**
- assess **LT effects** of different environmental and feeding conditions during rearing **on health, longevity and fertility later in life**



POWER: Proven welfare and resilience in organic pig production – coordinator Anne Grete Kongsted (DK)

Project POWER will:

- investigate effects of **farrowing pen design, sow genetics and management strategies on new-born piglet mortality and health** before and after weaning,
- investigate effect of different **designs of outdoor runs** on growing-finishing pig behaviour, health, pen hygiene and ammonia emission,
- identify and **field-test best practice examples of combined housing and pasture systems** considering productivity, feed efficiency, animal health, and nutrient management,
- develop framework for **assessing system resilience and provide guidelines in organic pig production**,
- evaluate overall **effect of identified innovative housing designs and management strategies** on cost effectiveness, system resilience and ecological footprints.




POWER

FreeBirds: Optimising the use of the free range as the key to improve organic chicken production – coordinator Stefan Gunnarsson (SE)

Project Freebirds will:

- **develop smart tools** (structuring free ranges, shelter) **and management strategies** for improvement of the free-range system in organic production,
- generate insight in the relation between chickens' free-range use and **health (parasite infection) and welfare of the chickens**, as well as, to the consequences for the nutrient load of the soil.
- **environmental consequences of manure nutrients in the soil** of the range area will be studied,
- **evaluate different strains for meat or egg production** regarding behavior, health, performance and welfare.





Mix-Enable: MIXEd livestock farming for improved sustaiNABiLity and robustnEss of organic animal production – coordinator Guillaume Martin (FR)

Project Mix-Enable will

- characterize **organic mixed livestock farms in Europa** especially their **level of integration** between farm components
 - assess their sustainability and robustness to adverse events and generate knowledge about the systems (**technical, economic, health and welfare, social and environmental impact**)
 - Insights in **advantages and drawbacks**
- **compare** performance of the systems **with specialized farms**
- integrate knowledge into **models that simulate performance along climatic and economic variability**
- **co-design more sustainable and robust OMLF together with farmers** or pathways from specialized towards OMLF in different contexts





Objectives of the call versus expect results of projects

- **Covered objectives**

- in general a good coverage of all aspects (except turkeys and ducks)
- attention to the use contentious inputs, economical performance, social and ecological impact of new developed or improved systems
- stakeholders involvement in design of new systems
- good coverage of different European conditions (North-South)

- **Recommendations for achieving all objectives**

- specific aspects and complementarity of ProYoungStock and GrazyDaisy
- reflect on the general objectives of the project during the whole project
- farmers are crucial in transition to and adoption of new systems but also others agri-food industry, consumer, policymakers, retail, ... facilitate
- each partner is crucial in achieving general objectives
- data collection on project level but with enough attention to context/country specificity
- outcomes should fit EU organic regulations and organic principles



Eco-efficient production and use of animal feed at local level



ProRefine: Refined forage legumes as local sources of protein feed for monogastrics and high quality fibre feed for ruminants in organic production

Project ProRefine will

- **Develop concepts of sustainable production systems based on local feed production**
- **Predict protein yields of lucerne and red clover**
- **Assess feed value of fractionated forage legumes in feeding trials with pigs and sheep**
- **Study farmers' attitudes towards self-sufficiency and co-operation**

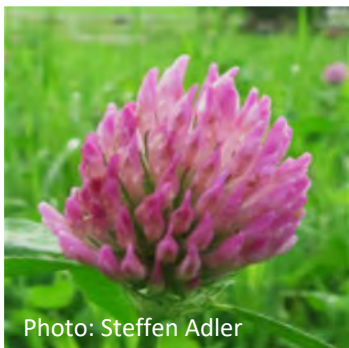


ProRefine develops new methods for producing high quality feed locally

Lucerne



Red clover



Leaf stripping



Press screwing



Fibre-rich
Pulp and stems



Ruminants

Protein-rich
Juice and leaves



Monogastrics



Objectives of the call versus expect results of projects

- **Covered objectives**
 - **Project should develop innovative cropping systems and methods for the production and small scale processing of local feed.**
 - **Special attention should be paid to the availability of concentrate feed of plant origin and of a quality suitable for monogastric animal production, including protein feed with essential amino acid composition.**
 - **Efforts are needed to increase the local production of feed crops and the availability of proteins in order to support the development of more sustainable livestock system and decrease dependency on imported protein feed.**
- **Recommendations for achieving all objectives**

Besides the technology development attention should be paid on economical and social sustainability and the factors affecting farmers' the willingness and capability to adopt new feeding strategies in practise.



Organic food processing concepts and technologies for ensuring food quality, sustainability and consumer confidence



Organic food processing concepts and technologies

Scope

1. Development, assessment and evaluation of **gentle organic food processing methods (i.e. Code of Practice** ensuring high food quality and low environmental impact),
2. Recommendations for the **phasing out of contentious substances or techniques/technologies** without compromising the competitiveness of organic sector,
3. **New technologies, techniques, assessment and evaluation tools and indicators** should be generally recognized in the organic sector,
4. Consider the **current EU legislation on organic food processing** and the recommendations in the EGTOP final report on food.



More on organic food processing...

Expected Impact

1. **Results to reach end-users and be used transnationally;** suitable and smart outputs and deliverables for dissemination are expected,
2. **Development and promotion of a Code of Practice** or other set of criteria for selecting appropriate food processing methods for organic food at regional/national/European level,
3. **Testing/application of new gentle food processing methods** suitable to preserve high quality of primary products in processed food and to decrease environmental impact,
4. **Testing/application of alternatives to contentious substances** as well as new natural origin additives (i.e. antioxidants, preservatives etc.) in food processing enterprises,
5. As far as **still needed application of best practices for packaging of organic food along processing chains as well as in stores and supermarkets** taking into account resource use and packaging material as well as food quality, shelf life and food waste.

Project ProOrg - Developing a Code of Practice for organic food processing organizations – coordinator Flavio Paoletti (IT)

Project ProOrg will:

- develop a **practical and flexible Code of Practice** for processors of organic food and labelling organizations,
- adopt a **participatory approach** involving experts from different scientific disciplines, processors, traders, labelling organizations.
- to develop a **multi-dimensional assessment framework** (criteria, indicators, parameters, assessment methods) **for organic food processing**.
- to **test the practicability of the CoP** in concrete situations and contexts (case studies),
- to conduct **qualitative and quantitative consumer surveys** regarding their preferences and acceptance of processing technologies of organic food,
- conduct a survey to gather information and **data on the organic food market trends** and the role of different processing technologies and processed food.



Project SusOrgPlus - Intelligent food processing chains & natural additives and colourants – coordinator Barbara Strum (DE)

Project SusOrgPlus will:

- focus on improvement of **sustainability of organic food processing and the nutritional value** of processed organic produce,
- develop of a **low cost-effective processing systems** including dynamic multi factor process control,
- develop of a **demonstration unit on CO₂ neutral drying system**, utilising waste heat recovery and a novel heat pump application
- development, test and evaluate novel natural food **additives/colourants**,
- conduct an **environmental impact analysis**, including LCA and LCCA,
- work on **stakeholder engagement**, student involvement and dissemination.





Objectives of the call versus expected results of projects

Covered objectives:

1. Development, assessment and evaluation of **gentle organic food processing methods (i.e. Code of Practice** ensuring high food quality and low environmental impact),
2. Recommendations for the **phasing out of contentious substances or techniques/technologies** without compromising the competitiveness of organic sector,
3. **New technologies, techniques, assessment and evaluation tools and indicators** should be generally recognized in the organic sector,
4. Consider the **current EU legislation on organic food processing** and the recommendations in the EGTOP final report on food.

Recommendations for achieving all objectives:

- International agenda and food systems approach (EC FOOD2030, UNEP, collaboration with ERA-NET SUSFOOD2...),
- New EU Organic Regulation from 1 January 2021,
- New actors on the organic market,
- From Horizon 2020 to Horizon Europe.



Thank you! Grazie!

For more information on CO:
<https://www.coreorganic.org>
<http://projects.au.dk/coreorganiccofund>

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