NEWS-LETTER CORE organic

October 2013

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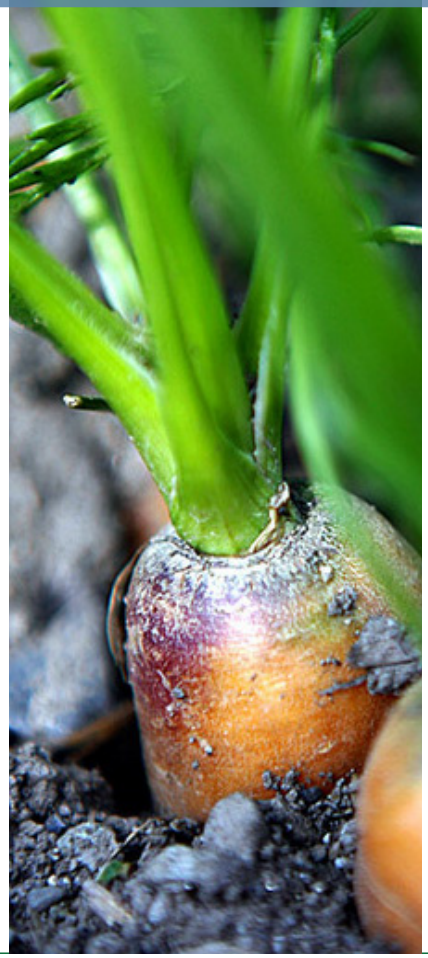
Latest news from CORE Organic



CORE Organic II came to an end on 31 August 2013. In this newsletter you can read about how we prioritised the research areas of the calls, and you can find more information about the 14 research projects initiated under CORE Organic II. In addition, two of the research projects present their work.

The CORE Organic consortium will continue our collaboration and continue to fund transnational research projects. The next call is planned to be launched in the first week of December, with a pre-announcement in the first part of November. The call text and contribution per country will be published with the pre-announcement. A brokerage event will be arranged on December 18 in Brussels providing the potential applicants with the opportunity to meet and discuss ideas for proposals.

The call is an ERA-NET Plus call which means that there is co-funding for research from the European Commission, which, together with the national funds, sum up to 10 million euro. The consortium has 21 countries and 24 partners, and compared to CORE Organic II the following new countries/region have joined: Poland, Romania and the Walloon region of Belgium. The Czech Republic, Ireland and Luxembourg will not take part in the call. To stay up-dated on the new call, subscribe to our newsletter or check out www.coreorganic.org, that will be relaunched in December 2013.

Niels Halberg, coordinator and Ulla Sonne Bertelsen, project manager

Niels Halberg & Ulla Sonne Bertelsen

Improving the phosphorus efficiency of organic farming systems

IMPROVE-P

Differences in early root growth vigor in spring wheat

Organic farming systems rely on the efficient use and recycling of resources. Currently, nutrients like phosphorus (P) are used only once to produce food and subsequently, lost due to poor recycling. Current regulations concerning the use of alternative P fertilizers are strict, restricting e.g. the use of municipal organic wastes and hampering e.g. the use of sewage sludge due to concerns about heavy metals and other pollutants. However, there is an urgent need to improve the recycling of P from urban areas back to cropland, as the worldwide P reserves are very limited. Furthermore, improvement of agronomic P efficiency due to the choice of P efficient cultivars and agronomic methods (e.g. P mobilization by cover cropping, application of microorganisms suited to enhance plant P uptake) is the second pillar of improved P efficiency.

By project coordinator PD Dr. Kurt Möller, Universität Hohenheim, Germany

Over the past decades, mainstream P management in organic farming has focused on the use of already available soil P, on an efficient recycling of farmyard organic wastes and the use of rock phosphates and other mined P fertilizers to balance P losses via sold products. Often, P balances calculated for organic farming indicate that more P is removed with the products than applied as fertilizer. Consequently, this leads to decreasing amounts of plant available soil P. Moreover, P deficiencies may also feed-back through the system limiting other processes which indirectly impact on yield like symbiotic nitrogen (N_2) fixation.

Read more about IMPROVE-P: http://www.co-reorganic2.org/IMPROVE-P, for more information contact: kurt.moeller@uni-hohenheim.de

Recycling of P necessary

Mineable high-quality P deposits are limited making it necessary to recycle P from waste streams as well as to increase the P-fertilizer efficiency in agriculture. Strategies to address the problem of negative P balances in organic farming systems include:

a) Enhanced use of permitted mineral P fertilizers (e.g. mined rock phosphates) or by-products of the steel industry.
b) Increased use of recycled P fertilizers as alternative P fertilizers by (i) improved recycling of organic wastes from consumer/urban areas back to the farm, and (ii) increased use of fertilizers derived from residues of the food processing industry.

Sewage sludge-P recovery currently represents the largest potential for P recycling, followed by P in food industry residues. In the past few years many different techniques to clean sewage were tested and implemented (e.g. incineration, slag production, crystallization). There is little data available on the characteristics of alternative P fertilizers in terms of chemical bonding of P and plant P bioavailability. There is a need to study the characteristics of alternative P fertilizers to determine their potential for use in organic farming systems, also in comparison to already allowed recycling P fertilizers, without compromising food quality, the environment and long-term soil fertility. The challenge in organic farming is to reduce the risk of pollution while utilizing as many P fertilizers as possible.

How to improve P-uptake

The agronomic P efficiency can be improved through manipulation of biotic factors which improve P uptake. For example, there is strong evidence that different crop species have a different capability to mobilize and take up P, as plant species differ considerably in the exudation of organic acids such as citrate, malate and oxalate, which solubilize P in soil and fertilizers. Furthermore, differences in root architecture, such as root length, branching type, root hair length etc. can also influence crop P uptake efficiency.
Further possible measures to enhance P availability are green manuring with cover crops and the application of specialized Plant Growth Promoting Rhizobacteria (PGPRs) which are able to mobilize immobile soil and fertilizer P. Inoculation of crop plants with certain strains of PGPRs may improve biomass production through direct effects on root growth (and indirect effects as mycorrhizal helper bacteria) and may result in multiple effects on plant growth such as an improved P uptake.

Strategies for increased recycling of P

The overall aim of the IMPROVE-P project is to develop and evaluate sustainable strategies for increased recycling of P and other nutrients, combined with the development of measures to enhance plant P availability due to agronomic

innovations (cover cropping, P efficient cultivars). Moreover, the challenge of soil P mobilization will be addressed by application of PGPRs. Furthermore, environmental burdens related to APF production and appropriate management of the risk of soil and plant pollution is a major challenge when introducing alternative P fertilizers, and the development of appropriate assessment tools to define high quality P fertilizers will therefore be a major target. ■

ProPIG

– Organic pig farmers and researchers working in eight European countries on animal health, welfare and nutrition to reduce environmental impact

The project “ProPIG” analyses the relationship between animal health, welfare and environmental impacts on 75 organic pig farms and the effect of farming systems on those. After development of on-farm assessment protocols a prospective cohort study is carried out across three housing system (outdoor, partly outdoor, indoor with concrete outside run) in eight European countries with the aim to improve the situation.

Organic production is perceived by consumers as being superior in animal welfare and sustainability and the demand for organic pork products is slowly increasing. Within the past ten years a variety of husbandry and management systems have been developed across the EU, ranging from farms with pigs outdoors all year round using local breeds to farms with housed pigs having concrete outside runs and using conventional breeds (CorePIG, Rousing et al, 2011). So far, mainly clinical parameters have been used to describe the health situation on organic pig farms, identifying some key problems, such as weaning diarrhoea and piglet mortality.
Organic pig production is - amongst others - characterised through a holistic approach based on the EU Regulation (EC) No 834/2007 and the IFOAM principles: ‘health, ecology, fairness and care’. This clearly states that health is more than absence of clinical symptoms and, the relation between animals and their environment is identified: ‘Health’ is defined as ‘the wholeness and integrity of

Project partners evaluate an outdoor farming system in Italy

By ProPIG coordinator Christine Leeb, BOKU, Austria

living systems. It is not simply the absence of illness, but the maintenance of physical, mental, social and ecological well-being’ (IFOAM; 2006). Concepts of animal welfare include physical and mental welfare as well as the concept of naturalness (Fraser 2003), which is often interpreted as the ability to perform natural behaviour. Verhoog et al (2003) describe three main approaches within organic agriculture’s concept of nature and naturalness: the no-chemicals approach, the agro-ecology approach and the integrity approach.
Applying those concepts to organic pig production can highlight potential conflicts: outdoor systems are perceived as the optimal housing system for pigs, as they allow natural ›

behaviour such as rooting. However, this behaviour can cause damage to the grass cover and furthermore the manure fate in outdoor areas needs to be considered. A few studies on outdoor pig production have shown a clear N and P surplus and a high degree of distribution heterogeneity in outdoor areas, increasing the risk of N and P losses (Watson et al. 2003). Robust and competitive organic pig production needs to encompass low environmental impacts and good animal health and welfare. So far few studies have quantified both aspects in different pig husbandry systems. In addition, the theory that improving animal health and welfare reduces environmental impacts through decreased medicine use, improved growth rate and feed conversion efficiency has still to be verified.

The aim of the CORE Organic II project ProPIG (2011-2014; AT, CH, CZ, DE, DK, FR, IT, UK) is to examine the relationship between health, welfare and environmental impact (Leeb, 2011). On-farm assessment protocols are carried out on 75 farms in three pig husbandry systems (outdoor, partly outdoor, indoor with concrete outside run). Environmental impact is assessed using both Life Cycle Assessment and calculations of nutrient balances at farm and outdoor area level. Animal health and welfare are evaluated from animal based parameters including clinical and selected behavioural parameters. Results are fed back in form of benchmarking and used by farmers to decide farm specific goals and strategies to achieve these goals. As an outcome, all farms created their individual health, welfare and environmental plan, which reviewed in our second project year (on-going at the moment) to allow continuous development.

This provides an opportunity not only to investigate, but also improve the influence of organic pig farming systems on animal welfare and environmental impact. This fulfils the fourth IFOAM principle of care: 'Organic Agriculture should be managed in a precautionary and responsible manner to protect the health and well-being of current and future generations and the environment' (IFOAM, 2006). ■

The ProPIG partners, Italy 2013

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Read about ProPIG: **http://www.coreorganic2.org/ProPIG**
For more information contact: **christine.leeb@boku.ac.at**

Prioritising research areas in CORE Organic

By Camilla Mathiesen, ICROFS

The CORE Organic II project has come to an end and the call text for CORE Organic Plus will soon be published.

The main challenge for successful prioritization and selection of research topics in CORE Organic is to identify research areas that are in accordance with national research priorities and at the same time gain an added value through transnational research. The challenge in all of the call texts for CORE Organic, CORE Organic II and now for CORE Organic Plus is to formulate a call text, that balances the national priorities, new innovative approaches and transnational added value.

Thomas Alföldi works as a research dissemination officer at FiBL Switzerland. In CORE Organic II he was part of the team that coordinated the process of identifying and formulating the research areas of highest interest among the CORE Organic II partners. In the following he explains the lessons learnt from the first two CORE Organic programs regarding the identification of research gaps and the process of formulating call texts that meet them.

Thomas Alföldi starts by pointing out, that the situation, level and development of organic research are very different in the 21 participating countries, and therefore the research gaps perceived by the partners are different. He elaborates:

-The challenge has been to bring very different approaches and expectations together without losing the interest and commitment of the funding bodies. For our team it has been important to maintain full transparency during the process, in regards to who suggested what. And also to explain if certain research needs could not be considered. My impression is, that all partners have been highly motivated, even though compromises had to be made. Although the countries have very different research budgets and situations, and everyone has understood their role. No large contributor has dominated beyond reason and the smaller contributors have not insisted on their national priorities if not possible. Everyone has been keen on finding a common call text suitable and relevant for all countries.

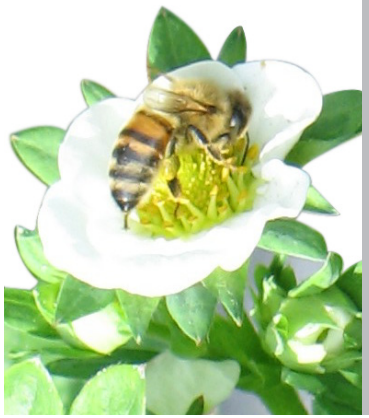
Thomas Alföldi tells about the lessons learnt from the first two CORE Organic programs

The basis for the good cooperation between the partners Thomas Alföldi sees also in the very participatory approach from the coordinators in ICROFS.

-The innovation aspect has been a challenge, Thomas Alföldi says. He continues:
- I could imagine that partners from countries with well-established research sectors and sophisticated priority setting procedures might have been a bit disappointed that we had to start on a lower common ground than they are used to on the national level. The consortium has always been very open to new ideas but it also had its limitations. In CORE Organic Plus, TP Organics with its close relationship to the stakeholders at European level, will be deeper involved in the process and that might help in this matter.
On writing the call text itself, Thomas Alföldi explains: - A critical point has been to decide how narrow or how broad we wanted to formulate the call text. If we focus too narrowly, we risked getting only a few applications, if the text is too broad, we might have too many proposals and risk losing clear focus. Between those two extreme, the consortium have had to find a balance.

Looking ahead, the lessons learned are useful in the work with CORE Organic Plus:
-We have to support dissemination even more, Thomas Alföldi says. Research is time consuming, and dissemination run the risk of being left behind, but to justify the money put in, a certain amount of dissemination output is needed and this will be supported in CORE Organic Plus. Regarding the upcoming call, not much can be revealed yet, but we now have a clear picture of which “white spots” are still left on the research landscape and we will cover those spots in the call.

More details can be found in the full deliverable : **List of topics prioritised according to national and common criteria to be considered for transnational calls.**



About CORE Organic II:

The first call was launched in September 2010 and had a budget of about 9.2 million Euros divided into three thematic research areas. Projects are running from autumn 2011 to autumn 2014.

Thematic research area: Cropping: Designing robust and productive cropping systems at field, farm and landscape level.

Projects funded:

- **BICOPOLL**: Targeted bio-control and pollination enhancement. Coordinator: University of Helsinki, Department of Agricultural Sciences, Finland. Countries participating: FI, DE, EE, IT, SI, TR, BE.
- **BIO-INCROP**: Innovative cropping techniques to increase soil health in organic fruit tree crops. Coordinator: Agricultural Research Council, Italy. Countries participating: Italy, Spain, Germany, Austria, Switzerland, Turkey.
- **InterVeg:** Enhancing multifunctional benefits of cover crops – vegetables intercropping. Coordinator: Agricultural Research Council - Research centre for the soil plant system (CRA-RPS), Italy. Countries Participating: Italy, Germany, Denmark, Slovenia.
- **Softpest multitrap:** Semio-chemical traps for management of weevil and plant bug in organic strawberry and raspberry. Coordinator: Bioforsk - Organic Food and Farming Division, Norway. Countries participating: United Kingdom, Sweden, Norway, Denmark, Switzerland, Latvia.
- **TILMAN-ORG:** Reduced tillage and green manures for sustainable organic cropping systems. Coordinator: FiBL Research Institute of Organic Agriculture, Switzerland. Countries participating: France, Germany, The Netherlands, Belgium, Luxembourg, United Kingdom, Estonia, Italy, Spain, Austria.
- **Vineman.Org:** Enhancing disease management, yield efficiency, and biodiversity in organic European vineyards. Coordinator: Università Cattolica del Sacro Cuore, Italy. Countries participating: IT, AT, DE, SI, ES.

Thematic research area: Monogastric:

Robust and competitive production systems for pigs, poultry and fish.

Projects funded:

- **HealthyHens:** Promoting good health and welfare in European organic laying hens. Coordinator: University of Kassel, Germany. Countries participating: DE, DK, IT, UK, NL, AT, SE, BE.
- **ICOPP:** Improved contribution of local feed to support 100% organic feed supply to pigs and poultry. Coordinator: University of Aarhus, Denmark. Countries participating: DK, NL, UK, SE, AT, DE, FI, CH, FR, LT
- **ProPIG:** Strategies to reduce environmental impact by improving health and welfare of organic pigs. Coordinator: University of Natural Ressources and Applied Life Sciences, Austria. Countries participating: AT, CH, UK, IT, FR, DK, DE, CZ.

Thematic research area: Quality:

Ensuring quality and safety of organic food along the whole chain

Projects funded:

- **SafeOrganic:** Restrictive use of antibiotics in organic animal farming. Coordinator: Technical University of Denmark, National Food Institute, Denmark. Countries participating: Italy, France, Sweden, Denmark, Czech Republic.
- **AuthenticFood:** Fast methods for authentication of organic plant based foods. Coordinator: University of Copenhagen, Faculty of Life Sciences, Denmark. Countries participating: LU, IT, DK, CZ, DE, FI, FR, NL, UK, LT.

The second call was launched in October 2011 and had a budget of about 4.9 million Euros divided into two thematic research areas. The projects are running from March/ April 2013 to February/March 2016.

Thematic research area: Plant-breeding

- Improvement of production efficiency and agricultural biodiversity within cropping systems by using eco-compatible breeding techniques

Project funded:

- **COBRA** - Coordinating Organic plant BReeding Activities for Diversity, coordinated by The Organic Research Centre, United Kingdom. Countries participating: UK, AT, BE, DK, EE, FI, FR, (HU), IT, LV, LU, NO, SI, CH, TR.

Thematic research area: Supporting the development of organic markets

Project funded:

- **HealthyGrowth** - Healthy growth: From niche to volume with integrity and trust coordinated by Institute of Agroecology, Aarhus University, Denmark. Countries participating: DK, AT, FI, FR, DE, LT, NO, SI, SE, TR.

The third call was launched in June 2012 as a real common pot call with six countries involved and a budget of 860,000 euro. The call was a one-step call. The project runs from June 2013 to May 2016.

Thematic research area: Sustainable and efficient management of phosphorus and use of secondary fertilizers within organic agriculture.

Project funded:

- **IMPROVE-P: I**mproved Phosphorus Resource efficiency in Organic agriculture Via recycling and Enhanced biological mobilization coordinated by Institute of Crop Science, Universität Hohenheim, Germany. Countries participating: DE, AT, CH, DK, NO, UK.

Websites of all 14 projects can be found on the website www.coreorganic2.org under Research projects

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