CORE organic

Trans-national research projects
- under the CORE Organic ERA-NET (2004-2007)

Brief project descriptions

May 2010

This collection of one-page project presentations gives an overview of research results and perspectives of the eight CORE Organic projects.

Contents

About CORE Organic

The ERA-NET CORE Organic launched eight trans-national pilot projects, funded at different levels by the participants' funding bodies.

Four to eight countries are involved in each project, for a total funding of above 1.8 million Euros.

The projects run for the period 2007-2010 and reached their mid-term at the end of 2008. For more information on the CORE Organic Pilot Projects: www.coreorganic.org/research.

Overall objective of CORE Organic

The overall objective of CORE Organic is to enhance the quality, relevance and utilisation of resources in European research in organic food and farming by gathering a critical mass and establishing a joint research programme.

The eight joint research projects were selected for trans-national funding by means of a virtual common pot approach.

ICROFS

AGTEC-Org –Methods to improve quality on organic wheat

Expected impact and main beneficiaries

The project will give new knowledge to optimize agronomical and technological practices in organic wheat and bread productions. The innovative chain based approach from bakery to wheat field will give new insight in how to improve bread quality. The main beneficiaries of the project will be farmers, bread industry, and eventually consumers.

Selected research results and perspectives

- The project has showed *diversity in wheat farming* systems *and wheat flour food chain*, and consumer's attitude, but homogeneity of crop management in organic wheat and common consumer requirements on technological quality and safety.
- *Grain yields were generally higher in treatments with tillage*, but the limitation of grain yield in the absence of tillage would apparently be due to weed infestation. Field surveys showed variations explained by soil and climate conditions but also by the farmer's technical expertise.
- *The use of legumes mixed or in the crop rotation generally improved the nitrogen nutrition of wheat*, and the association of wheat with legume had a *systematic and significantly positive impact on grain protein content*. However, the impact of legume on grain yield and quality depends on legume performance and management. Intercropping did not have a significant impact on the gluten content.
- Impact of agricultural practices on baking quality assessment: Analyses were performed on grain samples coming from the *experiments showing that the protein content and the gluten index appeared to be two good indicators of the baking quality of organic grain wheat.* The largest quality differences seemed to be linked to the cultivar and site characteristics. Nitrogen nutrition regime seemed to explain the variability in quality, but was strongly affected by soil and climate conditions.

Additional experiments and analyses will provide elements to better assess the impact of these agronomical practices on grain quality.

More information

- http://www.coreorganic.org/research/foldere_pdf/agtec.pdf
- Column No. 437 ["klumme" in *Økologisk Jordbrug*] to be published shortly on http://www.icrofs.dk/Sider/Publikationer/klummen.html

AGTEC-Org	AGronomical and TEChnological methods to improve ORGanic wheat quality
Country partners	Austria, Denmark, France, Italy, Switzerland
General objective	The general objective of AGTEC-Org is to identify agronomical and food processing technologies that enhance the baking quality and the nutritional value of organic wheat and reduce mycotoxin contamination.
Danish research organisation involved	Aarhus University, under the coordination of ISARA Lyon, France
Contact	Ingrid K. Thomsen, ingrid.thomsen@agrsci.dk

ANIPLAN – planning for better animal health and welfare

Expected impact and main beneficiaries

The project should allow a better understanding and promotion of animal health and welfare planning, and develop tools which could be used on a wider scale. The main beneficiaries of the project will be farmers, farmer organisations and advisory service organisations.

Selected research results and perspectives

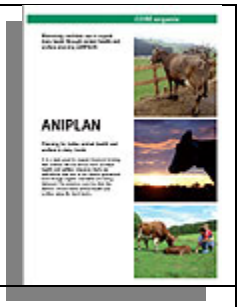
- *Learning from the health planning experience in the various countries:* The situation of health planning in the different partner countries was analysed. The analysis allowed identification of principles and some differences between the organic and conventional sets of principles, primarily in relation to the use of veterinary medicines. A key point was the difference between the on-farm presence of a "passive" animal health and welfare plan (i.e. a document) versus an "active" animal health and welfare planning (i.e. the process involving the farmer in making a plan for improvement in the herd).
- *Development of common principles in the ANIPLAN project:* The project aims at developing a model for animal health and welfare planning to be implemented in all different types of farming environments, e.g. large scale dairy farming as well as alpine, smallholder and diverse farming systems. Eight key principles were identified for the description of animal health and welfare planning in a continuous process of assessment, planning and evaluation, and one of these is the need to ensure farmer ownership.

  Animal welfare assessment as a part of animal health planning: Based on existing tools, the project developed a common ANIPLAN on-farm health and welfare assessment protocol, based on animal-based parameters. For example body condition score, lameness, and social behaviour. But also based on resource-based parameters like management and housing design criteria. A protocol for calf welfare assessment was also developed and is being tested.
- *Communication about animal health and welfare as part of a planning process:* Existing ways and traditions for farmer groups and communication related to animal health and welfare planning were studied. In all countries, a process will be carried through with evaluation of animal health and welfare followed by dialogue where the farmer commits him- or herself to action on selected areas (which the farmer selects, not the advisor) and a new evaluation of the condition at the farm. The project applies different approaches to the dialogue, and these will be further analysed and detailed.

More information

- http://www.coreorganic.org/research/foldere_pdf/aniplan_2009.pdf
- Columns no. 437 and no. 433 ["klummer" in *Økologisk Jordbrug* – in Danish]

ANIPLAN	Planning for better animal health and welfare
Country partners	Austria, Denmark, Germany, Netherlands, Norway, Switzerland, UK
General objective	The general objective of the project is to minimise medicine use in organic dairy herds through active and well planned animal health and welfare promotion and disease prevention.
Danish research organisation involved	University of Aarhus, Faculty of Agricultural Sciences
Contact	Mette Vaarst (project coordinator), Mette.vaarst@agrsci.dk



COREPIG –preventing diseases and parasites in organic pig herds

Expected impact and main beneficiaries

The project should enable the organic pig farmers to improve animal health and welfare on-farm by the use of the so-called HACCP tool developed in the project (HACCP is short for Hazard Analysis and Critical Control Points). Farmers converting to organic pig production – and their advisors – may benefit from the risk analysis carried out in the epidemiological survey. The main beneficiaries of the project will be the organic pig producers in Europe and their veterinary and production advisors.

Selected research results and perspectives

- *Knowledge synthesis published in September 2009:* There is a small amount of knowledge regarding organic pig production in Europe. The project *produced a knowledge synthesis* based on workshops and literature reviews. It addresses health and welfare, and risk factors specific to organic pig production, and contains general chapters regarding the structure of organic pig production in Europe and current health monitoring systems applied throughout Europe. Further specific chapters reviewing health and welfare problems and associated risk factors, for sows, suckling piglets, weaned piglets and fattening pigs, will be included.
- *Future gathering of health status of sows and piglets:* The project performs an epidemiological study in organic pig herds and develops and evaluates a HACCP-based surveillance and management system. Activities are ongoing on these two components. They will allow gathering information on the health status of sows and piglets in organic pig farming, currently scarce, and to develop of a HACCP based surveillance and management system.

More information

- http://www.coreorganic.org/research/foldere_pdf/corepig.pdf
- Columns no. 408 and no. 434 [“klummer” in *Økologisk Jordbrug* – in Danish]

COREPIG	A tool to prevent diseases and parasites in organic pig herds
Country partners	Austria, Denmark, France, Germany, Italy, Sweden, Switzerland, UK
General objective	The general aim of this project is to promote animal health and welfare in organic pig herds in Europe.
Danish research organisation involved	University of Aarhus, Faculty of Agricultural Sciences
Contact	Marianne Bonde (project coordinator), Marianne.bonde@agrsci.dk

iPOPY – More organic food for young people

Expected impact and main beneficiaries

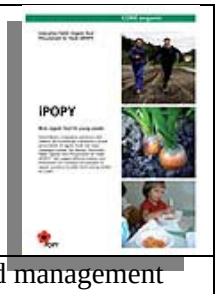
The project allows understanding of how increased consumption of organic food may be achieved by the implementation of strategies and instruments used for public procurement of organic food in serving outlets for young people. The main beneficiaries of the project are stakeholders and actors within the food sector, ranging from dedicated parents supporting organic school meal initiatives to researchers, government politicians and officials within nutrition and education.

Selected research results and perspectives

- *Policy analysis:* Four national reports were finalized on school meals and organic food in school meals systems. There is a huge variation among the school meal systems in the iPOPY countries, and the degree to which organic food is integrated. In Denmark and Norway, children bring a packed lunch and subscribe to milk and fruit served at school. This pattern is slowly changing, and publicly organised food provision is increasing.
- *Consumer perceptions, practices and learning:* Case studies are conducted in Norway and Finland. For example, the project conducted a quantitative study of four Norwegian lower secondary schools, where organic food is being introduced to the pupils. Teachers and school administrators supported organic food because of the environmental benefits and the pupils generally drew stronger links between organic food and health. It proves essential to involve the pupils in the organic school food process to get them interested in organic food and agriculture.
- *Nutrition and health:* Some Danish municipalities have developed locally adapted school meal systems, often including organic food. Although the organic share of the food supply has reached satisfactory levels in some cases, the total amount of food sold is low due to a limited number of users. Traditional lunchboxes seem to have shaped the eating style of school children.
- *Supply chain management and certification:* The project analyses supply chains and critical constraints for their efficiency. The impact of key criteria on the development of relationships between supply chain components has been studied. An extensive survey was conducted in Italy, showing that the main constraints for implementing organic products in public school procurement were economy and logistics, but the caterers also emphasize the distribution. Procedures for certification of food-serving outlets in DK, FI, IT and NO are also compared and analysed.

More information

- http://www.coreorganic.org/research/foldere_pdf/iPOPY.pdf
- Column no. 404 [“klumme” in *Økologisk Jordbrug* – in Danish]

iPOPY	More organic food for young people	
Country partners	Denmark, Finland, Italy, Norway	
General objective	The general aim of the project is to improve product-related quality management in farming and processing.	
Danish research organisation involved	Technical University of Denmark, Inst. of production and management (under the coordination of Bioforsk Food and Farming, Norway)	
Contact	Niels Heine Kristensen, Bent E. Mikkelsen, nhk@man.dtu.dk	

PathOrganic – on pathogen contamination on organic vegetables

Expected impact and main beneficiaries

The project allows to understand the transfer of human pathogens to vegetables and identify recommendations regarding manure treatment and application allowing to reduce the risk of contamination. This project creates new knowledge of the degree of pathogen contamination in vegetables and contamination pathogens. This is also relevant for non-organic vegetable production. The main beneficiaries of the project will be organic farmers, advisors, industry, policy makers, and consumers.

Selected research results and perspectives

- *Current practice and harmonization of methods:* Organic vegetable production commonly uses animal manure for fertilization, which may be a major pathway of pathogen transfer. The survey showed huge differences in the current practice and in available data regarding organic vegetable production in the various countries. A risk assessment model will be produced at a later stage of the project.
- *Surveys of food-borne pathogens:* The project has developed detection methods and sampling procedures for both manure and vegetables. Manures, slurries and composted manures that were commonly used for fertilization at the selected farms were analyzed for the prevalence of human pathogens most commonly associated with vegetable contamination as well as for a range of chemical properties.

  In manure and slurry samples, pathogenic *E. coli*, *Salmonella* sp., *S. aureus*, *Listeria* sp. or *Campylobacter* spp. were found. However, the significance of these findings for potential risks of pathogen contamination of vegetables still has to be assessed.

  Vegetable screenings were performed on plants of lettuce, corn salad, spinach and carrots from fields where manure was found to be infested. Vegetable samples are being analyzed for the same pathogens, that were found in the manure.

  Together with a detailed investigation of management practices at the farm level regarding crop management, fertilizing practice, harvest and storage, the data will allow determining critical control points. Experiments will then be set up to address specific aspects of pathogen infestation, transfer and manifestation in organic vegetable production by taking into account effects of the plant genotype, fertilizer treatment and biological buffering through native microbial communities.
- *Mechanistic description of food contamination with human pathogens:* Experimental plans for the studies to be conducted have been made, but will be implemented in the second part of the project.

More information

http://www.coreorganic.org/research/foldere_pdf/pathorganic.pdf

PathOrganic	Assessing and Reducing Risks of Pathogen Contamination in Organic Vegetables
Country partners	Austria, Denmark, Germany, Netherlands, Sweden, Switzerland
General objective	Addressing the quality and safety of organically produced vegetables throughout the production chain, and examining how factors such as environment, plant genotype or fertilizer application technique affect pathogen spread and persistence in organic vegetable products.
Danish research organisation involved	Under the coordination of Austrian Research Centers GmbH – ARC: Technical University of Denmark, National Food Institute (DTU-Food), Dorte Lau Baggesen, University of Copenhagen, Faculty of Life Sciences, Anders Dalsgaard
Contact	Dorte Lau Baggesen, dlb@food.dtu.dk

PHYTOMILK – what makes milk healthy?

Expected impact and main beneficiaries

The project will provide a better understanding of the nutritional and salutary ingredients in organic milk, and on how production systems affect them by for example the degree of grazing and type of winter feed. The main beneficiaries of the project will be consumers of organic milk and the stakeholders in the milk chain, organic farmers, advisors, and dairy industry.

Selected research results and perspectives

The project is investigating how different parameters linked to forage (e.g. species, pasture or silage, latitude and harvest time, storage time and silage preservation) affect the composition and quality of organic dairy milk (with components such as fatty acids, tocopherols, carotenoids, selenium, phyto-oestrogenes). It also studies the bioactive components in organic milk with suggested health beneficial effects. All experiments are ongoing and results will be obtained in the second part of the project.

Implications and future studies

The project has documented that the milk content of specific potential health-affecting compounds may be manipulated in a predicted direction by diet composition.

This implicates that milk can be designed to contain defined levels of specific compounds transferred from the diet. Examples of this are that phyto-estrogens are transferred to milk when cows are fed high amounts of leguminous plants like clover.

Future studies will have to investigate in detail if there is a biological and health-beneficial effect of phyto-estrogens and other bioactive components in bovine milk.

More information

http://www.coreorganic.org/research/foldere_pdf/phytomilk.pdf

PHYTOMILK	What makes organic milk healthy? Potential improvement of the salutary effects of organic milk by forage species and by supplementation	
Country partners	Denmark, Finland, Norway, Sweden	
General objective	The general objective of the project is to increase the knowledge of the nutritional and salutary quality of organic milk and of the relationship between production systems, environmental conditions and milk properties.	
Danish research organisation involved	Aarhus University (under the coordination of SLU, Sweden)	
Contact	Søren Krogh Jensen, Stig Purup: Stig.Purup@agrsci.dk	

QACCP – safety, health and sensory qualities of organic products

Expected impact and main beneficiaries

The project will improve product-related quality management in organic farming (towards testing food authenticity) and processing (towards food authenticity and sustainable processes). The main beneficiaries of the project will be SMEs involved in the project, vegetables processors, food industry, consumers, and national authorities.

Selected research results and perspectives

The project is ongoing and results are being analysed. Specific aims are as follows:

- Identify and define critical and essential product quality parameters useful to optimize organic food quality
- Compare products from different farming practices (conventional and within organic)
- Performance of QACCP (Quality Analysis Critical Control Point, similar to HACCP methodology)
- Test the impact of the food chain (focusing on processing techniques) on the product quality and safety
- Test the impact of organic food on health
- Carrot was chosen as the model vegetable since it is common for the involved SMEs and is processed for baby food; results will be relevant for other vegetables and organic food in general.

More information

http://www.coreorganic.org/research/foldere_pdf/qaccp.pdf

QACCP	How to assure safety, health and sensory qualities of organic products
Country partners	Austria, Switzerland, Germany, Denmark, Finland, France, Italy, Norway
General objective	The objective is to improve product-related quality management in farming and processing.
Danish research organisation involved	University of Aarhus (under the coordination of the University of Kassel, Germany)
Contact	Hanne Kristensen, Charlotte Lauridsen, hanne.kristensen@agrsci.dk

FCP –How to communicate ethical values

Expected impact and main beneficiaries

The project aims at improving the communication of additional ethical attributes of organic food. Promising communication arguments were identified which may serve organic farmers to differentiate in the organic market and to gain market shares.

Selected research results and perspectives

The multi-step approach showed that most important attributes from consumers' perspective are 'animal welfare', 'regional/local production' and 'fair prices for farmers'. 'Animal welfare' and 'regional/local production' are the two most preferred attributes with varying ranking in the study countries. The 'fair prices for farmers' attribute is much less relevant in Italy than in all other countries.

Consumers exhibit an increased willingness to pay for organic products with additional ethical attributes. However, in order to activate this additional willingness to pay, organic producers must offer a clear 'ethical' surplus, implying differences to standard organic production, which are recognisable and important to consumers.

In communication, consumers prefer short and simple statements, which refer to relevant aspects of production. Regarding the attribute 'regional/local production' consumers prefer information on the production place and on the producer. Main reasons for preferring regional/local products were 'freshness' and 'safety' as well as environmental concerns like 'food miles' and 'minimum transport and pollution'. Animal welfare standards exceeding existing organic standards are an important and valuable argument. Although consumer knowledge in this field is small, there are examples of quite successful communication of additional animal welfare conditions like e.g. pasturing of hens.

Regarding the 'fair price for farmers' attribute it turned out that precise information on additional prices for farmers works out best. Marketers must take care not to connect their arguments with the 'fair trade' aspect, which has been so successful in trade with developing countries, since consumers clearly do not want to relate the situation of domestic farmers with that of poor farmers in developing countries.

More information

http://www.icrofs.org/coreorganic/pdf/2009_FCP.pdf
http://fcp.coreportal.org/

FCP	How to communicate ethical values
Country partners	Austria, Germany, Italy, Switzerland, UK
General objective	To analyse and test innovative communication strategies and arguments which are related to the concept of "Corporate Social Responsibility" (CSR).
Coordinating research organisation	University of Kassel Faculty of Organic Agricultural Sciences, Germany
Contact	Ulrich Hamm and Katrin Zander E-mail: hamm@uni-kassel.de, k.zander@uni-kassel.de