

Ministry of Food, Agriculture and Fisheries

The Danish Food Industry Agency

Green Development and Demonstration Programme



NOTICE

Call for applications for

**Organic Research, Development and Demonstration
programme (Organic RDD) 2011-2013:**

**Growth, robustness and credibility in
organic farming and food systems**

Closing date: 13. September 2010 at noon

Organic Research, Development, and Demonstration programme (Organic RDD)

Introduction

The Green Growth agreement between the government and the Danish Folk Party includes a specific goal of promoting market-based organic food production and supporting a market-based doubling of the area with organic agriculture in Denmark in 2020. Research and development are, according to Green Growth, central instruments in meeting this target. The political parties behind Green Growth, V, K and DF agree to allocate 40 million DKK annually from the ordinary National Budget during a three-year-period to the Green Development and Demonstration Programme (GDDP) for a total organic RDD effort of 120 mill. DKK. This includes Danish participation in the ERA-net CORE Organic.

The Green Development and Demonstration Programme Board (GDDP Board) calls for applications to Organic Research, Development and Demonstration programme, 2011-2013 (“Organic RDD”), which should contribute to fulfilling the objectives in the Green Growth agreement and with a total budget of 92 million DKK.

The closing date for applications is Monday, 13. September 2010, at noon.

The Ministry of Food, Agriculture and Fisheries has previously funded three national research programmes, DARCOF I and DARCOF II, and the on-going research programme, DARCOF III.

Organic RDD should not be considered as a direct continuation of the previous research programmes funded by the Ministry, but as an organic programme covering the whole research, development and demonstration chain.

Organic RDD is part of GDDP, which has been established with the aim of creating a coherent research, development and demonstration effort. From this follows that research, development and demonstration projects on organic agriculture and food production are integrated in one programme, taking its starting point in the specific challenges for the organic sector. Projects should be designed in order to most effectively solve the challenges in the chain from research to adoption of new knowledge and innovative technology based on a global assessment. It is emphasized that the projects should interact and show synergy with the broader focussed and strengthened research, development and demonstration effort that follows from Green Growth and GDDP.

The call has been prepared in cooperation with the International Centre for Research in Organic Food Systems, ICROFS. Under the GDDP Act ICROFS’ international Board shall make recommendations to the GDDP Board on focus areas in connection with specific organic programmes.

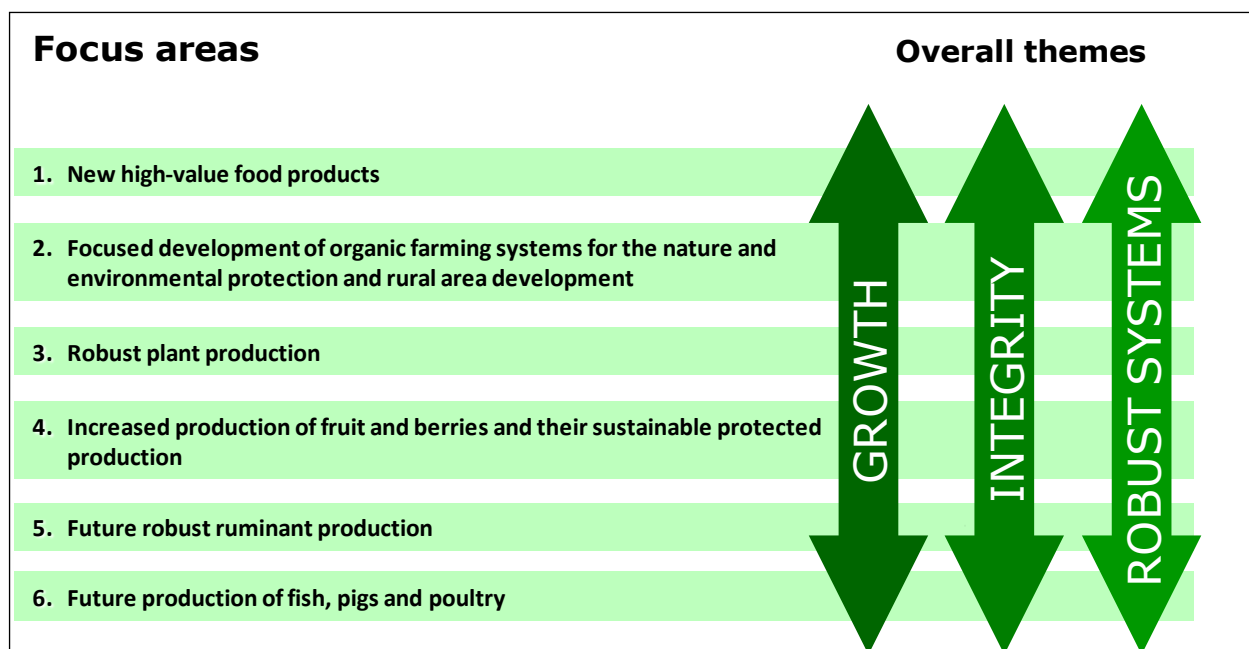
The Organic RDD is partly based on a knowledge synthesis regarding challenges and opportunities for the Danish organic sector and the program will be carried out in synergy with the European collaboration in the ERA net CORE Organic and continuing the international outlook established in DARCOF III as a natural consequence of the international perspective and mandate of ICROFS.

Furthermore, it is the intention with this programme that research, innovation and demonstration targeting the organic subsector will benefit the entire food sector (both the conventional part and

the organic part) and that results from general research and development, where relevant, will be incorporated in the organic research. As an example, general research on climate neutral agriculture can be used in organic projects and results from organic projects on animal welfare can be used in conventional farming, and breakthroughs on food processing methods can be used in the broader food industry.

The below listed focus areas covers the whole research, development and demonstration chain.

Organic RDD consists of three Cross-cutting themes, growth, credibility and robust systems which are described in the following. The three cross-cutting themes are linked to six broad focus areas as shown in the figure below:



General priorities

Under GDDP, subsidies can be granted to development and demonstration projects and to research projects that provide a basis for implementing development and demonstration projects. Projects that include both a research part and specific elements of development and/or demonstration are welcome, preferably representing different parts in the value chain and/or the end user. In addition to the below listed criteria, the projects will be assessed from a series of evaluation criteria, see “Guidelines on funding under Green Development and Demonstration Programme (GDDP).”

It is expected that all projects reflect the three cross-cutting themes: *growth*, *credibility* and *robust systems*

The project descriptions should clearly respond to the following questions in relation to one or more of the programme’s focus areas:

- What barriers/development opportunities for the organic sector will the project overcome/support and how will the solution contribute to market-based growth
- Which main results for the sector can be expected and who are the main target groups?
- How will you ensure that the project results are translated into practice and, where applicable, are commercialized?
- To what extent does the project integrate a value chain perspective?

Furthermore, all projects are expected to have a well-defined plan for dissemination and effects/use of the results as required in the application form.

The projects can address selected topics within one or more of the six focus areas; and projects which integrate aspects from several of the focus areas are welcomed.

Who can apply?

Applications can be submitted by public research institutions and by large, medium and small enterprises (including stakeholders and similar associations, independent institutions, private research institutions, owners, tenants, users of farms, commercial fishing vessels and aquaculture facilities).

Approved Technological Service Institutes (GTS) are classified as businesses.

Funding cannot be granted to foreign research institutions and companies but they can be part of project cooperation as external advisors.

Collaborative projects with cross-disciplinary interaction between various research institutions and enterprises are given high priority.

Repayment of subsidy on commercial exploitation of results

Under the Act on green development and demonstration program (GDDP) grant are repayed by achieving a net profit in connection with the commercialization of the results. Net profits means the sales revenues minus direct and indirect production costs and turnover-related costs.

For further information, we refer to "Guidelines on repayment of funding," available at www.ferv.fvm.dk/gudp.

Main themes

Growth

The main objective for Organic RDD is to contribute to continued growth in the organic sector. This is to be achieved through research, development and demonstration. Growth should primarily be market-based and should build on the success in recent years of introducing a much larger and diverse range of organic products, including a higher proportion of high-value products. This requires growth in both the Danish primary production, the number of products reaching the shelves and product added value through breeding.

The research, development and demonstration effort should thus contribute basic knowledge about the elements that maintain and increase turnover and demand without compromising basic organic principles. Organic RDD should also contribute knowledge and development on food processing, again respecting the organic values in terms of climate and the environment, processing methods and the consumers' general preference for new high-value food products.

Growth also means growth in primary production through an increase in the area under organic farming and a higher productivity on existing areas. The goal is to ensure a sufficient supply of primary produce while increasing the organic area, so that the objectives of the Green Growth policy of a doubling of the organic area by 2020 can be achieved. The Organic RDD investment should

therefore help form the basis for a visionary development of the organic farming sector including the creation of new forms of ownership, collaboration, farm structures and local jobs. Organic RDD will mean that organic farms will be better able to conform to the organic principles and in practical terms can contribute to natural and environmental objectives, including the targets in the Water Framework Directive and the Green Growth plan.

Increased use of technology can in many ways support organic practices. At the same time it is necessary to link development with a technology assessment based on organic principles as described in the EU regulations¹ and the IFOAM principles². New technologies are relevant in many areas – in processing, plant breeding, greenhouse productions and within primary production where robots and intelligent solutions for example can help farms become more efficient. Intelligent solutions used for intensive monitoring of animals and plants, of nutrient flows, etc., can constitute decision-support in complex interrelationships and ensure the prevention of diseases, loss of nutrients, etc., and optimize the use of resources through timely decisions. Finally, automation can be used in plant and animal care without compromising quality, the environment, working conditions or animal welfare.

It should finally be mentioned that the development of transparent and knowledge-based systems that add value to the entire value chain will help support growth.

Credibility

Growth in the organic sector cannot be achieved and sustained without a sharp focus on developing the organic sector according to the basic values and principles shared by e.g. consumers, farmers and fish farmers. The principles in new EU regulations state among other things:

The maintenance and enhancement of soil life and natural soil fertility, soil stability and soil biodiversity preventing and combating soil compaction and soil erosion, and the nourishing of plants primarily through the soil ecosystem;

The maintenance of the biodiversity of natural aquatic ecosystems, the continuing health of the aquatic environment and the quality of surrounding aquatic and terrestrial ecosystems in aquaculture production;

The minimisation of the use of non-renewable resources and off-farm input.

The maintenance of animal health by encouraging the natural immunological defence of the animal, as well as the selection of appropriate breeds and husbandry practices.

The processing of food with care, preferably with the use of biological, mechanical and physical methods.

These values that include environment, biodiversity and animal welfare mean that organic food production becomes an important contributor to Green Growth.

Focusing on the compliance of organic food production with these principles will ensure that organics becomes one of the future choices for an environmentally sound primary production, supporting the objectives behind the Water Framework Directive and Natura 2000 and a reduction in pesticide use.

¹ Council regulation (EU) No. 834/2007 of 28. June 2007 on organic production and labeling of organic products and repealing Regulation (EEC) No. 2092/91.

² The Principles of Organic Agriculture, IFOAM: http://www.ifoam.org/about_ifoam/principles/index.html

A focus on organic farming as a process and a method to achieve a more sustainable agriculture rather than as a static (niche) production contributes to innovation and new methods and products that create added value for the organic sector. This is also the case in the area of climate and energy where the contribution of organic farming to climate change mitigation and adaptation must be examined and developed, both in a short-term and in a more long-term perspective. Carbon sequestration, bio-energy and optimization of nutrient flows are all part of a complex system with options and challenges that can only be overcome by a research-based investment.

Research should therefore support the integrity of the organic concept by ensuring that there is a continuous capacity to improve practices within the scope of the organic principles, social objectives and consumer expectations, that there is open dialogue and credible marketing, that the benefits of organic production are documented, and that, finally, the contribution in relation to social needs is developed and integrated.

The international perspective contributes to credibility by way of globally recognised principles for organic farming such as the EU regulations and the IFOAM principles. In addition to this, there are several areas of research with an international perspective such as climate and consumer-related research as well as other research issues that are best undertaken by international research constellations due to their magnitude and complexity.

Robust systems

Sustainable growth must necessarily be based on robust systems both in a biological and economic sense. In the biological sense this is where diversity, interaction with the biological and agro-ecological processes and increased self-sufficiency and thus greater independence from external inputs, such as fertilizer and energy, create self-sustaining systems that are productive and resilient to external shocks.

As described in the knowledge synthesis, “Development, Growth, and Credibility in the Danish Organic Sector” (ICROFS, 2008), the development of robust systems relies on focus and attention in a variety of areas: product development, technology development, diversity, use of adapted species and breeds, and skilful farm management must all be developed in a holistic perspective in order to generate a high productivity in the agricultural system as a whole. It is important to have an open mind about the concepts of production so that organic farming to a greater extent develops its own robust and diversified/multifunctional farming systems and not simply relies on changes to single elements in systems inherited from conventional farming.

The biological robustness supports a necessary economic robustness that is founded on high-yielding agro-ecosystems, good organisation and a continuing development effort that incorporates and optimises the synergies within the system as well as the synergies with society.

Economic robustness can be enhanced by multifunctionality, cooperation between farms and continued innovation, but this is to a certain extent a hypothesis and should be tested by empirical studies and the development of new systems.

Research, development and demonstration of robust systems should contribute basic knowledge about how agro-ecological production methods and management forms can promote ecological support functions such as soil fertility and water-holding capacity, pollination and other hedgerow functions while minimising the risk of long-term problems (e.g. perennial weeds, pests and diseases). Generally, knowledge is needed about how functions and dynamics between organisms above and below the soil surface can be used in innovative ways and at all levels. This should be supported by

informatics and other modern technology, which may help the farmer in the daily routines. This strengthens the basis for a high and diverse productivity in the system.

There is a need for the continued development of methods to further improve animal health and welfare, prevent weeds and pests, ensure non-use of external inputs and build up knowledge in new production areas. The research should include relevant social issues such as energy and climate aspects, nature conservation and biodiversity and include these elements in the development of production methods and farming systems. Finally, economic cohesion must be ensured both in the primary farming system and in the whole food chain.

Focus areas

1. New high-value food products

The purpose of the effort within new high-value food products is to ensure a market-based growth for organic food products through new knowledge. According to the knowledge synthesis this can be achieved through diversity and innovation in products, processing and sales. Organic RDD should therefore contribute to the development of new diversified products of a high eating quality and with a large variety in taste, based on careful processing by innovative methods. Organic RDD should also combine knowledge on processing technology, environmental technology, nutrition, consumer preferences and behaviour with the organic principles for food production throughout the value chain. Technology assessment, proof of organic origin, an understanding of market interactions and processes in both a national and international perspective, and methods to incorporate consumer engagement in organic production are needed as a foundation for a stable and growing market.

Growth: Organic RDD should contribute to a market-based growth supported by product innovation and the development of new processing methods that preserve or increase flavours and health-promoting ingredients. This should ensure a wider range of targeted products both from larger processing industries, from the food service sector and from micro and farm productions. Knowledge about consumer perception and wishes for organic produce is crucial to be able to develop and maintain high market shares in the long run. Therefore, it is important to develop organic market concepts throughout the market chain in dialogue with consumer expectations and wishes. In this connection an important aspect is RDD in local sustainable productions in third world countries where producers are integrated in production chains aimed at the Danish market.

Credibility: In Organic RDD, taste and smell should to a larger extent be integrated with climate and environmental considerations and animal welfare throughout the value chain, and should develop new concepts for production and processing that can be documented and communicated - preferably engaging consumers in a dialogue. This may include documentation of fair trade and sustainable production of ingredients imported from developing countries.

There is a need to develop careful processing methods according to the organic principles where the use of additives is minimised. Organic RDD can further include a clarification of current processing methods, consumer and industry values and attitudes, and future processing requirements for the organic sector.

Robust systems: Organic RDD should contribute to increased diversity of animal and plant high-value foods and thereby contribute to growth and increased robustness in the organic food sector. Development and demonstration needs to examine pros and cons of linking the processing to the primary production through both vertical and horizontal integration.

Organic RDD should focus specifically on one or more of the following topics:

- 1.1 New production concepts for healthy high-quality food, with consideration of quality throughout the chain from terroir (understood as the impact of specific local growing environment), variety/race and nutrient supply/feeding to harvest/slaughter/post-harvest, storage, processing and packaging. The aim to generate multiple high-quality products with regard to appearance, composition, taste, texture and ability to form different meal components. Research and development here can incorporate new types of livestock systems that combine the use of natural and green manure land, biodiversity and environmental/climate considerations with animal welfare and product quality in combination with accurate and credible consumer communications.
- 1.2 Gentle biological and mechanical processing methods, including innovative processes to preserve taste, health/nutritional quality and functionality, which respect the properties of the raw material properties without using artificial additives or problematic physical processes. Assessment of new technologies based on needs in the organic sector, consumer attitudes and the principles of the EU regulation and IFOAM principles.
- 1.3 Improved collaboration on product development and marketing between large and small enterprises and with retailers, with the aim of facilitating consumers' access to, knowledge about, and purchase of organic products. The international dimensions of organic product chains, including ways to promote transparency and fairness when importing organic goods and ingredients from developing countries.

2. Focused development of organic farming systems for the nature and environmental protection and rural area development

The purpose of this focus area is to ensure the development of organic farming systems by promoting conversion and the further opportunities for organic farming to contribute to societal objectives. Organic RDD must create positive future images for the next generation of farmers and develop and document the contributions of organic practices to the protection of nature and the environment. In addition, research, development and demonstration should provide knowledge and methods that reduce the energy consumption and green house gas emission of organic food production, including production of energy based on biomass, and increase possibilities of soil carbon sequestration.

Growth: Opportunities for further conversions by linking protection of the environment with specific production systems with a marketing potential, including conversion of several farms within a geographical area and new organic management systems. Added value can happen through integration between primary production and processing as well as development of aspects linked with agrotourism and other marketable experiences. Renewable energy production can be regarded as an opportunity for diversification of the farm income, and bio-energy production can provide synergy with other farm enterprises and thus meet multiple societal goals and produce more societal goods.

Credibility: Organic RDD should help create synergy between an expansion of the organically farmed area and social objectives, for example in relation to nature and environment. Better documentation of organic contributions shall ensure consumer confidence and ensure the best use of organic production as a policy tool. It is also crucial for the organic integrity and credibility in the long run that organic farming continuously reduce its dependence on fossil energy and improves for

other climate impact parameters. Organic RDD is expected to focus on the challenges and solutions that are specific for organic food production but also contribute to solutions of relevance to other sectors.

Robust systems: Research, development and demonstration contributes to more diversified farms, systems and land use, and there is a natural link to the RDD projects under area *Robust plant production*. Additionally, economic and institutional aspects regarding farm robustness and collaboration forms can also be included.

Organic RDD should focus specifically on one or more of the following topics:

- 2.1 Development of organic agriculture as a tool protection of the aquatic environment and biodiversity and the promotion of ecological service functions at the landscape level through special aggregation/distribution of organic farms. Including the development of cultivation and grazing methods for improved protection of environmental and natural values at farm level and contributions to the collective nature and environmental conservation programmes in e.g. water catchments and Natura 2000 areas, possibly in combination with bio-energy.
- 2.2 Organic production systems that combine energy self-sufficiency with improving the soil fertility (carbon sequestration and good crop growth). Further research, development and demonstration is needed in systems that can contribute to the production of bio-energy, including perennial crops, and that involve an optimization of the land use in order for the total production on the farm to increase through a combination of food, feed, and energy production. This includes analyzing economic viability and the capacity of farms to take part in larger energy supply systems.
- 2.3 Reduced climate impact and energy consumption in organic product chains, including the importance of transport and possibilities of the recycling of residues for bio-energy. Local and regional food and energy systems based on integration in a value chain perspective and adaptation of factors such as local production and processing, quality foods, nature conservation, recycling of nutrients from society and high value natural grasslands, renewable energy, and transportation..
- 2.4 Methods for multi-criteria assessment and documentation of climate effects, biodiversity, environmental effects and other positive and negative externalities of organic primary production and food chains, including rural development. Research, development and demonstration may involve an evaluation of the use of rural development support schemes by the organic sector. Moreover, RDD can include the relations between Danish and foreign organic production (synergy or conflict).
- 2.5 Development and documentation of new types of farms and cooperation between farms – the so-called matrix farms – where specialized farming activities are integrated in a joint organization across different-ownership, in order to increase the potential for added value and stability by means of versatility and processing of quality products and with consideration for environment and nature conservation. Models for new organic farms, which, based on the new agricultural legislation, can act as attractive future solutions, including the establishment of new farmers, possibilities for generational change, and the ensuring of a sufficient capital base for the farm operation, by new types of ownership and financing. Analysis of factors contributing to the individual farmer's risk analysis prior to conversion from conventional to organic farming, including both sociological and economic issues.

3. Robust plant production

The purpose of this focus area is to gain knowledge and experience in how organic support functions and diversity in crop rotations and land use can be used to promote robust organic plant productions including vegetable production, with improved nutrient balancing and soil fertility. An organic plant breeding programme is also desired so that in the future organic farming will have better access to varieties adapted to organic growing conditions and quality requirements, including robustness of farming systems and diversity of quality products.

Growth: Organic RDD shall contribute to an increased production and greater reliability through optimisation of the agro-ecosystem using crop rotations, a diversity of annual and perennial crops, catch crops, green manure, etc., and also improving farm management based on a deeper understanding of the biological, physical, and biochemical processes supported by new technology. A greater focus on quality traits in the plant material, crop diversity and improved production stability and yields will support a market-driven growth.

Credibility: Organic RDD shall improve the opportunities for organic production so that it can live up to the principles of a production form that builds on "natural systems and cycles and sustain and enhance the welfare and mutual balance between soil, water, plants and animals". An important milestone is the elimination of the dependency on imported manure and straw from conventional farms. Development of varieties adapted to better root growth and utilization of nutrients under organic growing conditions will contribute to social objectives such as reduced nutrient losses to the aquatic environment, just as a diversity of varieties intended for specific quality products will both support consumer interests and conception that organic farming is based on and offers diversity.

Robust systems: The focus is on prevention and on the natural defence mechanisms of the crops against diseases, pests and weeds, on synergy effects in diverse crop rotations and land uses, the incorporation of new crops and improved growing practices and management systems. Good nutrient management and soil fertility improvements are fundamental for a robust biological system. Diversity in the range of varieties and genetic material improves the potential for local adaptation to the benefit of growing system robustness, disease resistance and diversity of quality products. Elements on economic robustness as a consequence of a stable production that does not rely on imported resources and that can sell more products such as food, bio-energy, etc., can also be included.

Organic RDD should focus specifically on one or more of the following topics:

- 3.1 Robust organic plant production and high quality through the promotion and use of ecological support functions and functional biodiversity by way of diversity in crops and varieties, crop rotations and land use. Additionally, the inclusion of new methods and techniques for soil treatment, plant care and treatment of catch crops, and also sensors, automation, robotics and other new technology for managing annual and perennial weeds and pests. In addition, innovative types of cooperation between specialized holdings taking into account the economy and labor productivity, and climate and environmental impact.
- 3.2 Supplying crops with nutrients through sustainable recycling between organic farms and selected processing industries, institutions, households and bio-energy production, including the development of decision support systems for the management of crop nutrient supply (N, P,

K, and other nutrients) under different growing conditions. The results should support the organic sector's goal of being self reliant in nutrients before 2021.

- 3.3 Production systems for vegetable production with optimum use of crop rotation, water and nutrients, including innovative crop combinations and the development of biological, physical and other non-chemical methods for preventing and controlling weeds, diseases and pests and increased nutrient supply from the root zone. Moreover, the inclusion of aspects such as taste, storage stability, suitability for processing and health quality as well as market demand.
- 3.4 Breeding of organic varieties, such as marker-based breeding or use of polygenic populations. Emphasis on field resistance, i.e. varieties with race-nonspecific resistance (with a broad genetic base) to diseases and pests, the ability of plants to grow under the cultivation conditions of low nutrient supply; cultivation robustness, competitiveness against weeds and end product quality.
- 3.5 Methods and procedures in seed production to ensure a more vital vegetable and cereal seeds with a high germination capacity and new and better methods to prevent and control seed borne diseases.

4. Increased production of fruit and berries and their sustainable protected production

The purpose of this focus area is to invest both in very long-term knowledge such as the development of new resistant varieties, the gathering of knowledge of the long-term effects of different growing systems and on the background of these and more short-term initiatives to solve concrete problems and increase the stability of production. The objective is also to develop a greenhouse production and other kinds of protected productions, in line with the organic principles, that can lengthen the growing season and increase the variation of the supply with the least use of energy and a high quality of produce.

Growth: A higher stability of production is crucial to have an increased production of fruit and berries. The market-based growth will furthermore benefit from specific marketing efforts for fruit and berries, including species and varieties that have health-promoting compounds and/or special qualities or flavours and characteristics relating to processing. For the organic protected production it is a question of extending the season or variation in the products offered.

Credibility: It is a positive contribution to the overall credibility of organic production that all basic raw materials that grow naturally in Denmark can also be grown organically. Research, development and demonstration within protected production can include elements relating to dilemmas facing organic greenhouse vegetable productions in terms of compliance with the organic principles, including energy consumption, cultivation practice (directly in the soil or in contained beds) and nutrient strategies.

Robust systems: The development of the fruit and berry production should be based on its place in/as a robust system, both for the production itself and – where relevant - in interaction with other productions and the protected production. Organic RDD can study robustness in the system itself or as part of mixed farm types and should address relevant aspects concerning crop rotation, robust varieties, the significance of soil fertility, nutrient balances as well as economy and labour requirement.

Organic RDD should focus specifically on one or more of the following topics:

- 4.1 Improved tools and risk management strategies for controlling problematic pests in fruit and berries in relation to market requirements and expectations. This includes prevention strategies such as selection of varieties, enhancing of beneficial insects, manure allocation, pruning and other cultivation measures that can minimize the attack of pests and fungal diseases, and also the development of biological, physical, and other alternative ways to control pests. Furthermore, aspects of the long-term consequences of organic horticulture systems on pests and beneficial insects' population development could be included.
- 4.2 Development of fruit production in interaction with other productions, in order to optimize the biological system and spread the financial risk, taking into account inter alia product quality and marketing, economics, biodiversity and energy and nutrient use.
- 4.3 Development of improved cultivation methods for single crops, also including the effect of the cultivation method on taste and product quality (possibly including processing properties) and harvest and storage methods adapted to specific concepts and sale methods.
- 4.4 Methods for developing and improving green house production practices and other forms of protected production, involving e.g. climate control, nutrient management and use, prevention and biological control of pests and diseases, optimum irrigation in relation to growth, taste and low use of water and the use of ICT to support management in these areas. Furthermore, food quality, labor use, working conditions and economics and market access may be included.

5. Future robust ruminant production

The purpose of this research, development and demonstration effort is to develop the management practices within cattle, dairy and other ruminant productions with focus on animal welfare and health, the environment and climate impacts of livestock systems, the interaction between livestock husbandry and crop production in general, and, finally, the optimisation of management, also of large herds, and technical efficiency.

Growth: Many organic dairy farms have large herds, which puts large demands on farm management, including disease prevention and the management of outdoor areas and feed distribution, which can be a limiting factor for growth in this part of the sector. Further knowledge is needed on the organic production of small ruminants, sheep and goats, to enhance growth in this production area. The possibility of targeting the development of high-value animal produce is included in a value chain perspective.

Credibility: Animal welfare is a main parameter both in relation to the principles and values of the organic sector and as a reason for consumers buying organic meat products. This also includes aspects such as the fattening and welfare of calves and non-use of conventional straw.

Robust systems: Ruminants in the organic system give a number of advantages in the interaction between plant production and animal production. This interaction can be further improved through better use of crop rotations and cooperation between farms.

Organic RDD should focus specifically on one or more of the following topics:

- 5.1 Optimized grazing systems for small and large ruminants that accommodate natural behavior. This should include the management of nutrients and the use of new forage crops and herbs which at the same time ensure animal health and product quality, preferably involving market potential. Furthermore, efforts for improving protection against infection and lowering infection levels, including optimized use of vaccines and serum products may be included.
- 5.2 Calf health and wellbeing from birth, during the initiation of grazing period and to calving/slaughtering.

6. Future production of pigs, poultry and fish

The purpose of this focus area is to boost the development of farming systems for fish and other monogastrics in an ecologically robust system and to use this system to achieve optimal production, animal welfare and marketing of high-quality products.

Growth: Production of fish and other monogastric animals differ significantly from conventional production, which is an important reason for these branches of production to represent a very small share of the total production compared to e.g. organic milk production. Organic RDD should contribute to these differences of production types (e.g. requirements for outdoor areas) to a higher extent become a marketing potential (quality and animal welfare) rather than an economic barrier.

Credibility: Animal welfare is a main parameter both in relation to the principles and values of the organic sector and as a reason for consumers buying organic meat products. Aspects such as castration, resistance to zoonosis, fish health and welfare parameters should also be taken into consideration.

Robust systems: It is important to endeavour to fit the monogastric animals into a coherent, robust system, which means improving animal welfare, reducing nutrient losses and a better integration of plant production with livestock production.

Organic RDD should focus specifically on one or more of the following topics:

- 6.1 Further development of organic pig production integrated with the development of diversified products based on production method, different genotypes and weight at slaughtering. Including methods that reduce environmental impacts by, among others, to a higher extent integrating land use and by using rooting behaviour as a resource and with the involvement of ICT and automation. Moreover, methods which eliminate the need for castration of pigs and/or encourage their natural resistance against infection.
- 6.2 New production methods for poultry production, combining efficiency and animal welfare. Including the supply of essential amino acids by 100% organic feeding, opportunities and challenges in integrating egg production with other productions such as fruit production and examining problems and opportunities regarding the use of outdoor areas (e.g. dioxin and avian flu) and improvement of the animals' resistance.
- 6.3 Improved systems for organic aquaculture, including operating and production strategies to ensure productivity, a high health level and product quality along the value chain. A focus

could be optimized by use of organic crops to partly replacing fishmeal and fish oil in feed for organic trout and other fish with special focus on solving the related problems concerning essential amino acids, omega-3 fatty acids, phosphorus availability and anti-nutritional factors. This includes a focus on optimized intake in relation to digestibility, growth and feed use aiming at minimized nutrient loss and environmental impact. Additionally, focusing on the content of omega-3 fatty acids in fish ready for sale in relation to marketing of organic fish as a healthy product.

Application procedure

Applications are invited from interested project groups with a closing date of 13 September 2010, at 12:00.

Applications are sent electronically to the GDDP office's E-mail address: gudp-kontor@ferv.dk in pdf format (a version that is **not** scanned, and a signed version that may be scanned). The E-mail subject title field should be: "Organic RDD."

Applications may be rejected without substantive consideration if the closing time or the demands as shown in this notice are not respected, or if the application form is not completed correctly

Applications must be formulated in English

In order to fill out the application form, you need to read the following:

- The Notice
- Guidelines for application for funding under Green Development and Demonstration Programme (GDDP)
- Instructions for filling out the application form.

Application form and the above mentioned application material can be found at: www.ferv.fvm.dk/gudp

For more specific information about e.g. funding rates, co- and own financing, application requirements, the further process after the applications have been submitted to the Danish Food Industry Agency (FERV), including evaluation criteria in the assessment of the applications, we kindly refer to "Guidelines on funding under Green Development and Demonstration Programme (GDDP)."

The further process

- The board of ICROFS plays a central role in assessing the applications and may establish a programme committee to evaluate the applications under the observation of the general rules of conflict of interest and confidence.
- An international expert panel, endorsed by the Danish Council for Strategic Research (DSF) will assess all proposals, including a specific assessment of research quality of applications which contain a research component.
- Applications with a research component which the expert panel has assessed to be of too low scientific quality cannot receive funding for this component.
- Members of ICROFS' programme committee evaluate all applications and based on this and the evaluations by the expert panel, the Programme committee recommends to the ICROFS' Board

a prioritized list of projects which could be granted funding within the framework of the programme.

- The ICROFS' Board submits to the GDDP Board a substantiated recommendation with a list of the project proposals suggested to be selected for funding.
- The GDDP Board decides – on the basis of the recommendation from ICROFS' International Board – on the composition of the Organic RDD programme.
- Applicants will then receive commitments for grants or a motivated denial. The applicants who obtain commitments from the Organic RDD programme can expect an answer by December 2010.

Applicants should take notice that individual projects may be suggested to form larger collaborative projects and/or that the projects may be organized as coherent networks in order to enhance collaboration and knowledge sharing between related topic areas.