

## Developing an organic research agenda with stakeholder involvement promotes increased relevance in research

MARIA WIVSTAD<sup>1</sup>, PELLE FREDRIKSSON<sup>1</sup>, EVA SALOMON<sup>1</sup>, CECILIA SUNDBERG<sup>1</sup>, KARIN ULLVÉN<sup>1</sup>

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### Abstract

*A Swedish organic research agenda was developed by the knowledge centre EPOK, Centre for Organic Food and Farming, at the Swedish University of Agricultural Sciences in an open and transparent process involving a broad range of stakeholders in the food chain. The methods for developing the agenda include workshops with different actors and within different themes. Through a web-based questionnaire further knowledge needs and research priorities were gathered and compiled into five focal areas: 1) High productivity with maintained sustainability, 2) Innovative production systems with many functions, 3) Closed-loop cycles and renewable resources, 4) Sustainable enterprises and market development, 5) Healthy food with added value, and three cross-cutting themes: 1) Robust systems, 2) Added value for the environment and society, 3) Competitiveness and thriving rural communities. It was concluded that the participatory approach used when forming the agenda has prepared for increased stakeholder involvement in coming research projects. A successful approach has also been the early involvement of research funding bodies, which has resulted in research calls giving priority to the knowledge gaps addressed in the agenda.*

### Introduction – a new Swedish research agenda

EPOK has developed a research agenda in an open process together with interested parties in the food chain (EPOK 2013). The main aim of the research agenda was to provide a well-supported document which would enable decision makers and research funding bodies prioritise future research calls. According to an evaluation of organic research in Sweden (Formas 2006) a continued public support to research in this area is recommended, which could be justified by the public goods that organic farming provides; e.g. increased biodiversity, decreased use of chemical plant protection products and benefits for animal welfare (e.g. Jordbruksverket 2012). According to an extensive scientific literature there are supporting evidence for organic agriculture being beneficial for society and the environment in a number of ways (e.g. Gomiero *et al.* 2011), although there are drawbacks and a need for improved performance concerning for example yield levels (de Ponti *et al.* 2012, Seufert *et al.* 2012).

Organic farming is known to be a knowledge intensive production system and there is a strong need for research to develop new knowledge and innovations to achieve increased productivity and sustainability. Furthermore, many of the research goals defined in national and international research strategies for organic agriculture also address questions of relevance for sustainable development of agriculture in general. Investing in research on organic systems can thus be seen as investing in an innovation system to achieve an overall increased sustainability of our food systems (TP Organics 2009, ICROFS 2012).

### Methods for developing the agenda

Workshops discussing stakeholders' knowledge requirements and defining prioritised research topics, both short- and long-term, were arranged with participants from public authorities, industry, and producer and advisory organisations. EPOK also attended farmers' and advisors' meetings and seminars where the participants got the opportunity to contribute with their most important problem areas concerning organic crop and livestock production.

A dialogue with researchers and agricultural research funding bodies was an important part of the process forming the agenda. The dialogue with funding bodies; the research council Formas, the Swedish Farmers' Foundation for Agricultural Research, SLU Ekoforsk at the Swedish University of Agricultural Sciences and the Swedish Board of Agriculture, was central as the agenda was developed by EPOK, which works with communication activities and research cooperation, but is not involved in the funding of research. The Swedish organic research agenda was highly demanded by the funders. as a broad view of actual knowledge gaps and research priorities concerning organic food and farming was missing.

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<sup>1</sup> Centre of Organic Food and Farming (EPOK), Swedish University of Agricultural Sciences, Sweden, [www.slu.se/epok](http://www.slu.se/epok), eMail: [maria.wivstad@slu.se](mailto:maria.wivstad@slu.se)

EPOK also sent out a questionnaire about research priorities to complement the other activities, which resulted in responses from 15 research departments at the Swedish University of Agricultural Sciences, 11 sector organisations, seven advisory organisations and two public authorities. A draft of the agenda was referred back to stakeholders for consideration and their standpoints were taken into account in the final agenda.

### **Results – an agenda with three cross-cutting themes and five focal areas**

The agenda identified the most important future challenges and knowledge needs of the organic food chain on the road towards increased sustainability (EPOK 2013); efficiency and environmental and social benefits. Three cross-cutting themes were identified to describe the overall challenges that face organic agriculture and the organic food chain if production and consumption are to be developed and achieve an increased long-term sustainability:

*'Robust systems'* in biological, economic and social terms. Diversity and adaptability in time and space are keywords for robust systems. To achieve resilience in the widest terms, it is very important to create possibilities for interdisciplinary research.

*'Added value for the environment and society'* is the basis of the fundamental vision of organic agriculture and organic food systems. Credibility for positive contributions to different added values, e.g. environmental, animal welfare and food quality values, is essential and research is needed to both evaluate and improve the performance of the organic food system.

*'Competitiveness and thriving rural communities'* is a continuous challenge for organic food systems. This theme stresses the need to further develop policy instruments such as agri-environmental payments. Both knowledge and communication of added values need to be improved throughout the food chain to get acceptance for premium prices.

Based on the three overarching themes five prioritised focal areas were pointed out in the research agenda including examples of specific research questions:

*'High productivity with maintained sustainability'* Improving productivity without losing other values embraces a wide range of research questions. More stable crop production levels requires development of new crop protection methods, both direct methods against weeds, pests and diseases, and preventive measures. Feeding strategies based on regional produced feed in combination with grazing is another example of a research priority in the agenda.

*'Innovative production systems with many functions'* There is a need for developing new multifunctional system designs that support ecosystem functions such as carbon sequestration and biodiversity, while producing sufficient yields. Examples of research questions are new designs of intercropping with the purpose of increased resource use efficiency and livestock systems based on local feed that reduce climatic impact.

*'Closed-loop cycles and renewable resources'* Within this area there are many conflicting goals and it is urgent to investigate new possibilities and obstacles for achieving an expanded nutrient cycling, especially between urban and rural areas. Resource-efficient solutions for how local/regional energy production can be integrated with organic agriculture also need investigations, in particular solutions for production of biogas and the return of digestate to arable land.

*'Sustainable enterprises and market development'* A higher focus on economics research was demanded at several stakeholder workshops. Farmers need basis for planning concerning both production and market risks. Analysis of how the premium price could benefit businesses along the entire food chain is another prioritised issue. Furthermore knowledge is needed about consumer priorities of different added values.

*'Healthy food with added value'* There is a great knowledge gap on health effects of organic food. The underlying mechanisms affecting the characteristics of different food and the relation to production methods need more understanding. New ways of market communication need to be developed in our complex food market to help consumers make informed choices.

Many stakeholders put strong emphasis on higher priority of participatory approaches in research projects. This approach promotes innovation and adaptation of research results to a diversity of farming systems. The approach also increases possibilities for successful implementation and boosts cross-disciplinary understanding and cooperation.

In some of the focal areas in the research agenda that aim at solving applied questions in the organic production systems running today, stakeholder interactions were especially proposed, for influence of e.g. experimental designs and for strengthening innovations for new management solutions adjusted to local contexts.

## Discussion

An open and transparent process promotes the credibility of the agenda for policy makers, research funders as well as for agricultural stakeholders. The need for more cooperation between research and stakeholders in the food chain in order to increase societal benefits of research is increasingly being discussed (e.g. TP Organics 2010). The including approach, engaging stakeholders in the food chain as well as the research parties, gives potential to bridging gaps between science and practice. It enables a broad view of the need for new knowledge in the organic food chain, from primary production and marketing questions to the performance of organic agriculture in respect of beneficial contribution to environment and society. The approach also increases the awareness of knowledge gaps and needs of different stakeholders, leading to a better understanding of the challenges in the broad area of knowledge building, knowledge transfer and the development of sustainable food systems.

The work with developing the agenda could be seen as part of a large research process. Starting participatory actions when formulating research priorities in the agenda, establishes opportunities for increased stakeholder involvement in research projects that follows.

A number of workshops with researchers were arranged in the beginning of 2013 in different parts of Sweden to present the finalised agenda. The discussions had the aim of increasing researchers' awareness of knowledge needs in the Swedish organic food chain and also about the main problems that need to be solved for more well-functioning organic food and farming systems. The workshops attracted researchers from a wide range of disciplines, offering ideas of new research topics. The events did also function as a meeting place for cooperation with new partners, both within and between disciplines.

The development of the agenda was initiated in cooperation with the main agricultural research funders in Sweden, both public and private, which was important for a successful implementation concerning funding of organic research. In accordance with the overall aim of the agenda, it has been used as a basis for research calls during 2013 and early 2014, which refer to the whole agenda or select some topics from the agenda depending of the scope of the call.

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