15 years of research in organic food systems in Denmark – effects on the sector and society

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Implications

An analysis of the effect of 15 years of research in organic food systems in Denmark showed that it has had a high impact on the development of the sector. There are three main reasons: First of all, the content of research programs and the funded projects have been closely aligned with the needs of the industry as expressed by farmers, advisors and organizations. Second, many of the projects have had close contact to advisors and farmers securing continuous dissemination resulting in rapid application of results. Third, due to the close contact between researchers and users the research design has been adapted to ensure that treatments to be tested are as relevant and practical as possible, without compromising the scientific standards. Besides the practical applications the number of scientific products has been above average. Our results underpin and exemplify the general recommendations in recent international discussions on the need to improve the relationships between research, extension and agricultural production from a linear to a more complex knowledge interaction.

Background and objectives

The Danish government has funded research in organic agriculture and food systematically since the establishment in 1996 of the Danish Research Centre for Organic Farming (DARCOF, now ICROFS: www.icrofs.org). A recent analysis of the effects of the first 3 organic research programs (DARCOF I-III, 1996-2000) (Halberg et al. 2012) was carried out with the objective to determine not only the impact of the research on the sector from farmers and advisors to industry and retail but also on society from government and regulation to ngo's.

It is generally thought to be quite difficult to evaluate a research program's effect on a sector of society, especially distinguishing the contribution from research from those of other development forces. There are obviously many important factors behind the positive development of the organic sector in Denmark, including public support for market and product development, the regulatory framework from public and private sectors and the establishment of strong institutions in organic farming. A large group of very clever entrepreneurs and pioneers in the organic farming, processing and retailing sectors have also shouldered a good deal of the burden. The results of research obviously need to be channelled through these agents to be used for innovations. Farmers need new knowledge about nutrient balancing, weed control and animal husbandry to ensure an effective and economically viable production which is also robust and resistant to pests and diseases and adheres to the organic principles and regulations but they are indifferent to whether new methods are or the result of research or not, and many learn new methods from colleagues or consultants. The generally good connection in Denmark between research and development, the advisory service and farmers means that the people delivering the new knowledge to farmers tend to be the consultants, often as a result of discussions with scientists, who in turn are affected and inspired in their design of solutions to problems via this process. Results of research and development do not always have farming as the primary target. Other users of the research results are businesses, organisations and the political system where knowledge of the effects of organic farming on, for example, animal welfare, climate and biodiversity form part of decision-making and political processes.

Key results and discussion

The analysis documents and highlights three important reasons for a high impact on the development of the sector: First of all, the thematic focus of research programs and the funded projects have been closely aligned with the needs of the industry as expressed by farmers, advisors and organisations through various stakeholder committees and action plans. Second, many of the projects have had close contact to advisors and farmers securing continuous dissemination resulting in rapid application of results. Third, due to the close contact between researchers and users the research design has been adapted to ensure that treatments to be tested are as relevant and practical as possible, without compromising the scientific standards. Thus, the dialogues between the scientists and the users within projects improve the understanding of how research and the results can be adapted to the specific practical situations. This is a two-way process, and not just a question of improving dissemination of scientific results. There is a more complex interaction between research, development and the application of knowledge in agriculture than the traditional linear communication of scientific results via consultants to producers (EU SCAR, 2012). The report gives detailed documentation of the above qualities and with specific examples of how the research and development has helped improving e.g. milk, poultry, pork and crop production with specific knowledge and methods.

There are clear indications that the project structure and organisation in DARCOF has supported this complexity in knowledge generation and exchange which is a prerequisite for high impact on research in terms of overcoming the farmers' main barriers. This underpins the general recommendations in recent international discussions on the need to improve the relationships between research, extension and agricultural production. In the "International Assessment of Agricultural Knowledge, Science and Technology for Development", (http://www.unep.org/dewa/Assessments/Ecosystems/IAASTD/tabid/105853/Default.aspx/) the conclusions stress that it is necessary with a clean break with the linear relationship of research – extension – uptake. There is a need for the farmers' situation to have a stronger voice when prioritizing and designing research projects and to integrate their local knowledge and experience. This is also reflected in the recent report by the EU supported working group AKIS (Agricultural Knowledge and Innovation Systems), which highlighted the gap between the provision of research results and the application of innovative approaches to farming practice(http://ec.europa.eu/research/bioeconomy/pdf/ki3211999enc_002.pdf).

An evaluation of the research results based on the general point scoring method used to evaluate other research programs was also carried out. Measured on the number of research publications, the output of the earlier programs was deemed to be satisfactory. The experience was nevertheless that this method does not give a satisfactory picture of the effect of the research in terms of the practical application of project results. This is because the point scoring method principally analyses research results (output) and only to a lesser degree research application (outcome).

How work was carried out?

The analysis was carried out as a triangulation of three viewpoints: the research projects themselves and their themes and results, interviews with end-users about how they perceive the role of research in relation to the development of the sector, and an identification of the results that have been conveyed from research to users and the channels used. Please see the more thorough description in the analysis.

References

EU SCAR (2012), Agricultural knowledge and innovation systems in Transition – a reflection paper. Brussels.

Halberg N, Kledal PR, Rasmussen IA, Mathiesen C, Sørensen LS Jespersen LM and Madsen KH (eds.) 2012. Organic research and development 1996 – 2010 – effects on industry and society. International Cedntre for Research in Organic Food Systems (ICROFS), Tjele, Denmark. (http://orgprints.org/22534/)