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A Comparison of European and North American Organic agriculture research policies

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Abstract

Continued growth in the organic sector will depend on overcoming challenges to production, handling and marketing. These challenges can be met by research, innovation, advancement in technology, and broad dissemination of the results of research and development. The methodology will involve analysis of public and private funding of organic agriculture research in the US, Canada, European Union member states, and key non-EU countries such as Norway and Switzerland. Priority setting and decision-making processes will be compared.

After several years of growth, private funding for organic agriculture research stagnated in the US for several years starting around 2008. Public funding has increased, but still is proportionally small relative to the size of the organic sector. In Canada, private contributions appear to be minimal, with most funding for organic agriculture research from Federal and provincial sources. The public institutions have a strong partnership with the Organic Agriculture Centres of Canada.

By contrast, the European Union has steadily increased funding for programs to conduct organic agriculture research, as have European countries outside of the EU. Some of the EU member states and private sector funding may have declined but on the whole, in contrast to the US, overall funding has increased. The EU has organized a technology platform for organic.

On both sides of the Atlantic, funding is only part of the need. To be effective, research needs to be transferred as practical technologies that farmers can use. North America and Europe take different approaches to the dissemination and diffusion steps. Both sides can learn from the other's experience. The presentation closes with a discussion of opportunities for trans-Atlantic collaboration.

Introduction

Organic agriculture is practiced in a global context, with a growing market for organically produced food. While organic agriculture takes place on all continents and many developing countries have a long history with organic agriculture, the largest markets for organic food are on the continents of Europe and North America.

The single largest national market for organic food is the United States, accounting for 44% of the global organic market, with organic product sales of over US$35 billion in 2013 (OTA 2015), for a market share of over 4% of total food sales. However, production and land area has not kept pace with the growth in sales. There were over 7 million acres (3 million Ha) in organic production in the US and Canada in 2013, which accounts for about 1% of all arable land in the two countries (Willer and Lernoud 2014). The US is a net importer of organic foods (OTA 2015).

By comparison, the European Union has about 27 million acres (11 million Ha.) in organic production or 2.3% of agricultural land. About US$31 billion of organic products were sold in the EU in 2012 (Willer and Lernoud 2014). Europe also includes several countries that are not member states of the EU, but have significant organic sectors. These include Switzerland and Norway.

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The supply of organic food cannot meet the growing demand. Research and technological innovation are needed for organic food to meet the growing demand and maintain a competitive position with non-organic food.

Objectives and Methods

The objective is to identify research programs dedicated to organic agriculture in the two largest regions for the global production and consumption of organic food. Research programs in Europe and North America are compared using an institutional approach. The two regions' support structures and resources are summarized based on data from officially published sources such as annual reports. Figures for the revenues received by US based private non-profits were obtained by the filings of Form 990 with the Internal Revenue Service (Foundation Center 2015).

Europe

Private sector research in organic agriculture is well established in Europe, with several institutions with the infrastructure and personnel to carry out experiments and develop technology. These include the Research Institute of Organic Agriculture (FiBL) in Switzerland (FiBL 2015), the Organic Research Centre in the UK (ORC 2015), and the Louis Bolk Institute in the Netherlands. FiBL started one of the first long-term farming systems trials, comparing organic with biodynamic and conventional methods (Mäder et al. 2002). The Organic Research Centre has two sites for agroecological and organic farming experiments, one at Elm Farm near Newbury and the other at Wakelyns, which has a long-term agroforestry project. The Organic Research Centre receives significant support from the Duchy Originals Future Farming program. The Louis Bolk Institute is recognized for their pioneering work in organic plant breeding programs (Lammerts van Bueren et al. 1999).

In addition to private sector research, the EU, its member states and other European countries have several different initiatives for research, development, innovation and technology transfer in the organic sector. EU funding dedicated specifically to organic farming research began in 2000, and a total of €150 million was spent on such initiatives from 2000 to 2012 (Lutzeyer and Kova 2012). These include the Quality Low-Input Food (QLIF) project, Core Organic (I & II), Strategies for Organic and Low-Input Breeding and Management (SOLIBAM), and the Technology Platform-Organic (TP-Organic). In addition, Europe has a number of member state initiatives and private sector programs.

QLIF had 31 partners in 17 countries, including Switzerland, Israel and Turkey (QLIF 2009). The project emphasized food quality and meeting consumer expectations. QLIF explicitly investigated health claims made about organic and low-input food. It was also a precursor to future organic programs by identifying and addressing technological bottlenecks in organic & low-input systems.

In 2004, the EU commission authorized Coordination of European Transnational Research on Organic Food and Farming (CORE Organics 2015). In addition to being funded by the EU, there were also 13 public funding bodies in 11 member states. This created a joint pool of €3 million per year. The work was conducted in two phases. The first phase from 2004-2007 was intended to increase information exchange and create transnational partnerships. One key deliverable was the on-line service Organic ePrints, an international open access archive for papers and projects related to research in organic food and farming. The second phase from 2007-2010 funded competitive projects based on themes selected. However, conflicts over 'common pot' and unequal contributions impaired cooperation.

Another project organized a consortium of research and plant breeding institutions, with their top priority to make organic seed commercially available (SOLIBAM 2014). SOLIBAM used both traditional and modern methods to identify and select of traits for organic conditions. While the

project supported gene mapping to identify desirable traits, only classical breeding techniques were used. Farmers participated with plant breeders. The project also looked at management system x genetic interactions.

The EU also supported a parallel project on low-input livestock breeds that would be suitable for both traditional and organic farming systems (LowInputBreeds 2014). The species included dairy cows, dairy and meat sheep, pigs and laying hens. Researchers were engaged in the selection and breeding of livestock suitable for organic farming conditions. Specific traits desired included grazing ability, resistance to diseases, particularly mastitis, and parasite resistance. Again, farmer participation in the breeding was supported by the project.

Finally, the EU has created a technology platform for organic agriculture (TP Organics Secretariat 2015). A technology platform is a public-private partnership with a mission to set and develop short- and long-term research, innovation, and technology development.

North America

The five principle private sector organizations responsible for organic agriculture research in the US are the Rodale Institute (Rodale 2015), the Organic Farming Research Foundation (OFRF 2015), the Organic Materials Review Institute (OMRI 2015), The Organic Center (TOC 2015), and the Michael Fields Agricultural Institute (MFAI 2015). Rodale and MFAI are the only two private organizations with the infrastructure to conduct field experiments. The Rodale Research Center has a long-term research Farming Systems Trial comparing organic and conventional methods.

All saw significant drops in funding from 2008 (revenues of all 5 private research centers: 7.8 million US $) to 2010 (less than 7 million) (Foundation Center 2015). While 2011 saw a slight improvement, most organizations were level or declined in 2012. Funding has not recovered to pre-2008 levels. A few sources of funding, such as Ceres Trust and Clif Bar, have helped to reverse the decline in funding.

Even with the recent slow-down in organic food sales, the organic sector has continued to grow. Funding in organic agriculture research has not kept pace with the growth in the organic market and corresponding demand. There have been noticeable improvements in many states and a handful of states with strong institutionalized programs have continuity. However, institutional continuity is needed on a national basis to maintain programs and build support in the US. These farmer-researcher networks need to be established on an ongoing basis. Some regional efforts are underway (Riddle 2013).

Public sector support of organic farming research has lagged. The first Federal program dedicated to organic farming research, the Organic Research and Extension Initiative (OREI) was established in 2002, with funding of approximately US$5 million/year. Because of the budget impasse, sequester, government shutdown and failure to reach agreement on a Farm Bill in 2013, no OREI funds were granted that year and the sequestered funds were not carried forward. The 2014 Farm Bill authorized US$20 million per year over five years [US PL 113-79], which was a 25% increase over the previous Farm Bill authorization.

The Organic Agriculture Centre of Canada (OACC) and the Organic Federation of Canada (OFC) created the Organic Science Cluster (OSC). The OSC's goals are "to facilitate a national strategic approach to organic science in Canada, link scientists across the country and disseminate the knowledge generated to organic stakeholders." The Organic Science Cluster identified 10 sub-projects including 30 research activities to be conducted by over 50 researchers plus 30 collaborators in approximately 45 research institutions (Organic Agriculture Centre of Canada 2014). The OSC received CAN$8.8 million from the Canadian federal and provincial government sources, with contributions from industry and private sponsors over four years from 2009-2013.

Another OSC is under development by OACC and OFC. The organizer drafted a strategic plan session to identify research priorities for the second OSC (Organic Agriculture Centre of Canada 2012). OSC is authorized to run through 2018.

Conclusion

The organic markets in Europe and North America are comparable. Both regions have the potential for advanced organic agricultural research and development, with the technological capacity for high production on a large scale. Despite the recent global economic crisis, the organic sector continues to grow and so do the needs for continuous improvement through research and development. Despite the progress made over the past twenty years, researchers in both the US and Canada face limited capacity and an uncertain funding climate going forward. While the situation in Europe could also be improved, organic agriculture research is proportionally better supported by both the public and private sectors than in North America. Organic farming research capacity needs to be built, as well as the means for technology transfer if the growing demand for organic food is to be fulfilled.

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