



## Is organic farming 'innovative' enough for Europe?

*Innovation and agriculture have always gone 'hand in hand' because working with dynamic geographic, climatic, market and political conditions requires constant change<sup>1</sup>. Today, innovation is seen as the primary instrument for overcoming the future challenges for agriculture of food security, climate change and the conservation of natural resources. The European Innovation Partnership for Agricultural Productivity and Sustainability (EIP) was set up in response to these challenges<sup>2</sup>. **Susanne Padel** explores how organic agriculture fits into that framework.*

Innovation is a broad concept. OECD defines it as the implementation of a new or significantly improved product (good or service), a new marketing method or a new organisational method in business practice, workplace organisation or external relations<sup>1</sup>. Innovation refers not only to an invention, but also to the embedding of that idea in a relevant sector.

The whole process has three stages of:

- 1) invention**, when ideas and concepts are developed or prototypes built;
- 2) innovation**, focusing on how to put ideas into practice and
- 3) diffusion**, with more widespread application of the innovation at different social and economic levels<sup>3</sup>.

In looking at how this applies to organic farming two possible perspectives can be adopted:

**(a) Organic farming** itself can be seen as an innovation. I examined whether conversion to organic farming can be interpreted as a typical example of innovation by applying the adoption/diffusion model<sup>4</sup>. Based on a review of various studies I confirmed that to some extent farmers, who had converted organic farming, showed similar characteristics to innovators and early adopters in the model<sup>5</sup>.

**(b) Innovation** in the organic food and farming sector depends on the functioning of the system as a whole<sup>6</sup> and this systems perspective is becoming more widespread in designing innovation support, including for agriculture, within the EU<sup>2</sup>.

But how relevant is this perspective to the organic sector? Work in the EU funded SOLID project<sup>7</sup> (in particular, the work package on 'Innovation through stakeholder involvement and participatory research') and the technology platform TP organics<sup>8</sup> indicates that it is.

### The innovation system framework

The first problem to overcome is that in the context of agriculture innovation is nearly always understood as being only technical, with most experts not sufficiently aware of social/societal innovations<sup>9</sup> that could be particularly important for achieving societal and political goals.

This is not so surprising given the long period during which progress in agriculture was seen solely as increasing efficiency through using new technology. Morgan & Murdoch<sup>10</sup> describe this for the cropping sector in England in the post-war period as follows: 'Efficiency came very quickly to mean the application of the new agricultural technologies which were beginning to emerge onto the

market. Input companies were investing heavily in research and technology development'. In developing the chemical inputs in arable production, the farmers' 'know-how' was replaced by 'know-what', i.e. what input to use and when.

In contrast, the systems perspective describes innovation in a more process-oriented, interactive and evolutionary way, whereby networks of organizations, together with the institutions and policies that affect innovative behaviour and performance, bring new products and processes into economic and social use<sup>11</sup>. It looks at innovation as an emergent property not only of science or the market, but of interaction among stakeholders that allows opportunities to develop<sup>12</sup>. Innovation is seen as the application of knowledge (of all types) to achieve desired social and/or economic outcomes. This may be acquired through learning, research or experience, but it cannot be considered as an innovation until it is applied<sup>11</sup>.

### The relevance to the organic sector

The importance of the system perspective and of different innovation is being increasingly recognised in agriculture (e.g.<sup>1,9</sup>). In the EIP this is expressed as the need for forming partnerships, using bottom-up approaches and linking farmers, advisors, researchers, businesses, and other actors in so called Operational Groups.

In the Implementation Action Plan of TP Organics, we argued for a broad understanding which included social/organisational as well as technology innovations<sup>13</sup>.

We called organic farms 'creative living laboratories', because the restrictions in the standards forced farmers to think outside the box in finding new solutions to common problems.

We also introduced a category of 'know-how' innovations which emphasises the importance of the application or leverage of existing knowledge, for example through developing and prototyping management practices.

We argued that know-how is crucial to the farmer's ability to respond effectively to new challenges, such as saving and protection of natural resources, and for improving the multi-functionality and sustainability of agriculture.

Knowledge is of course important in any innovation systems, but for organic and low-input some innovations consist only of knowledge.

Examples of such 'know-how' innovation include finding ways to secure essential supply of vitamins and minerals in organic dairy production through natural sources (ECOVIT project), the use of compost in plant protection or to encourage predators by supporting their habitats (e.g. flowering field margins)<sup>13</sup>.



With such a strong focus on knowledge comes a shift to learning, i.e. active knowledge construction rather than more passive 'technology transfer'<sup>14</sup>. Morgan and Murdoch<sup>10</sup> argue that in industrialised conventional supply chains the farmers' knowledge tends to be rendered into codified and standardised forms (blueprints) while in the organic chain there is increased scope for local, tacit forms of agricultural knowledge.

The organic sector has long been characterised as one that replaces inputs with knowledge<sup>15</sup> and where learning partnerships, group extension, farmer-field schools, communities of practice, study circles and farmer networks have emerged. These are not always successful and the process can be very frustrating for the participants, but there are a growing number of good examples.

In the SOLID project, we included a whole work package on farmer-led innovation where we collaborate closely with farmers and SME partners (mainly organic and low-input dairy buying groups and processors).

Initially, we consulted for research priorities using on farm interviews about sustainability as well as workshops<sup>17</sup>. At present we are developing on-farm projects in several countries, with the aim of testing ideas for relevance and feasibility and also for acceptability with various stakeholders.

## Where next?

One problem for 'know-how' innovation is that it is often difficult for projects to generate something that is useful beyond the circle of actual participants. One reason might be the importance of tacit knowledge. This knowledge is un-codified and contextual and the user might often not even be aware that she/he possesses it<sup>10</sup>. If the user does not what they know, how can it be shared?

Also there is a need to consider different types of knowledge held by different participants e.g. the lay-expert<sup>14</sup>, and the ownership of knowledge and associated conflicts between protecting intellectual property and open access.

The ongoing challenge for organic farming is to remain innovative in how we work with this mixture of different and very diverse sources and types of knowledge and to continue developing joint learning approaches for researchers, farmers and advisors.

This challenge can be met and the novel approaches developed in organic agriculture will be truly innovative through being more widely applied and used.

The Organic Research Centre is following up with Defra and the Welsh Government on how these perspectives can be reflected in the implementation of EIP operational groups in England and Wales as part of the preparation of the 2014-2020 Rural Development Plans.

## References

1. EC SCAR. 2012. Agricultural Knowledge and Innovation Systems in Transition - A reflection paper. European Commission, Standing Committee on Agricultural Research - Collaborative Working Group on Agricultural Knowledge and Innovation System (CWG AKIS), Brussels.
2. EIP. 2012. European Innovation Partnership (EIP) Agricultural Productivity and Sustainability. Brussels. European Commission.
3. Schumpeter, J, E Salin and S Preiswerk. 1980. Kapitalismus, Sozialismus und Demokratie Francke, München

4. Rogers, EM and FF Shoemaker. 1971. Communication of innovations: a cross-cultural approach. Free Press, New York.
5. Padel, S. 2001. Conversion to organic farming: A typical example of the diffusion of an innovation? *Sociologia Ruralis* 41: 49-61.
6. Häring, AM, S Blodau, C Braun, C Meyerhoff and C Winkler. 2012. Forschung zur ökologische Land- und Lebensmittelwirtschaft: Ansatzpunkte für eine Interessenvertretung. Schriften zu den Wirtschafts- und Sozialwissenschaften der Land- und Lebensmittelwirtschaft. Hochschule fuer nachhaltige Entwicklung (FH), Eberswalde.
7. Sustainable organic and low-input dairy systems (EU-P7:266367) <http://www.solidairy.eu>.
8. Technology Platform TP Organics, <http://tporganics.eu>
9. Bokelmann, W, A Doernberg, W Schwerdtner, A Kuntosch, M Busse, B König, et al. 2012. Sektorstudie zur Untersuchung des Innovationssystems der deutschen Landwirtschaft. Humboldt-Universität zu Berlin, Berlin
10. Morgan, K and J Murdoch. 2000. Organic vs. conventional agriculture: knowledge, power and innovation in the food chain. *Geoforum* 31: 159-173. doi:[http://dx.doi.org/10.1016/S0016-7185\(99\)00029-9](http://dx.doi.org/10.1016/S0016-7185(99)00029-9).
11. Hall, A, L Mytelka and B Oyeyinka. 2005. From Innovation systems: Implications for agricultural policy and practice - CIGAR Source-book Chapter 3.
12. Röling, N. 2009. Pathways for impact: scientists' different perspectives on agricultural innovation. *International Journal of Agricultural Sustainability* 7: 83-94.
13. Padel, S, U Niggli, B Pearce, M Schlüter, O Schmid, E Cuomo, et al. 2010. Implementation Action Plan for organic food and farming research. TP Organics. IFOAM- EU Group, Brussels p. 96.
14. Koutsouris, A. 2012. Facilitating Agricultural Innovation Systems: a critical realist approach. *Studies in Agricultural Economics* 114: 64-70.
15. Lockeretz, W. 1991. Information requirements of reduced chemical production methods. *American Journal of Alternative Agriculture* 6: 97-103.
16. Leach, K, CL Gerrard and S Padel, editor. 2013. Rapid sustainability assessment of organic and low-input farming across Europe and identification of research need. Organic Research Centre, Hamstead Marshall, Newbury.

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