Agro-ecology

Ten examples of successful innovation in agriculture

IFOAM EU GROUP

arc 2020
agricultural & rural convention

TPorganics
Technology Platform

Agro-ecology

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Brussels 2012

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This brochure had been printed on Cyclus print paper with vegetal inks.
Printed copies: 750 (500 English, 250 French)

Acknowledgements:
IFOAM EU Group, TP Organics and ARC2020 would like to thank all those that contributed to the Agro-Ecological Innovation Project, in particular the respondents of the questionnaire, the participants of the workshop and our sponsors Fondation de France and the European Commission, DG Environment.

All pictures were kindly provided by the relevant projects and organisations.

Introduction

The European Union has underlined the importance of innovation in its growth strategy, and is investing extensively in research and innovation in many different sectors. This strategy will not only promote growth and jobs; it will also address many other contemporary problems, such as the economic crisis, flagging rural development, climate change and environmental degradation. One important area which still remains neglected in the EU's push for innovation is agro-ecology.

Agro-ecology proposes changes to the dominant agricultural model in order to avoid the intensive use of external inputs and to address the urgent challenge of dwindling resources. It also rethinks approaches to the preservation of nature and biodiversity. If conventional agriculture makes any concessions to nature conservation, it usually does so by physically segregating it from food production along the lines of "farms for food and parks for nature". In contrast to this, agro-ecology foresees an extra new role for farmers as stewards of the landscape and of biodiversity, which are public goods.

There is an urgent need for a greater diversity of farming methods that support functional biodiversity and put it to good use. These would also encourage other environmental services, such as the efficient recycling of nutrients, and improve soil structures while increasing the amount of organic matter they contain. Moreover, it is also important to diversify the methods and business models used throughout the food chain, up to the end retailer. Consumers should be encouraged to purchase food locally and in the appropriate seasons.

When shaping new policies, it is important for the EU to consider all kinds of innovation, some of which are often overlooked. Innovation describes a much wider range of interventions than simply the use of new technologies. Among these, the following areas of innovation are particularly significant.

- **Know-how innovation** – the development of new management approaches and the introduction of knowledge related to methods and practices, both new and traditional
- **Organisational innovation** – introducing changes to the actual patterns of management and cooperation right across the agro-food value chains
- **Social innovation** – changing the behaviour of groups in society, for example empowering primary producers vis-à-vis input suppliers and retailers, and altering the relationships between companies and the general public

Practitioners often experience difficulties in assimilating adapted methods and new scientific findings, and there is a lack of suitable channels for knowledge exchange. A major problem is the remoteness of scientific research from farming practice, with few farmers ever being involved in the testing and dissemination of the research results.

In this brochure we present ten examples in which European farmers, consumers and researchers are collaborating for the sake of innovation. Some are devising agricultural systems that make full use of ecological services; some are finding new forms of knowledge exchange; and some are inspiring citizens to a better food culture. They all involve approaches that deserve the full support of EU policies.

Green Plant Protection

Using ICT and mobile learning in organic agriculture

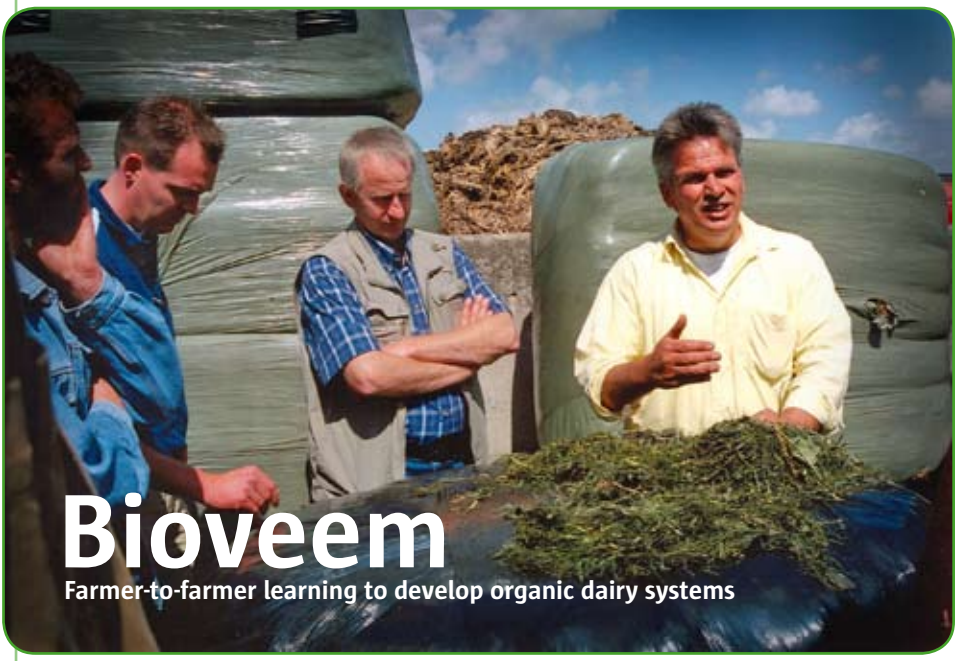
Green Plant Protection is an educational project funded through the EU's Leonardo da Vinci programme. Its objective is to use mobile communication technology to disseminate information to farmers about organic methods of plant protection.

Mobile devices have become important instruments for lifelong learning. The main advantage lies in their near ubiquitous use. Cell phones, smart phones and tablet computers have made it possible to develop new forms of knowledge transfer, that are convenient and engaging – for young people too. Mobile devices do not tie their user to a fixed location, so the learning process has become much freer. Farmers can now acquire knowledge as they carry out their everyday activities, learning at their own pace and applying new know-how immediately; it is more about finding the necessary information, rather than knowing it.

The Green Plant Protection tool encourages informal learning and promotes cooperation between universities, farmers and companies. It was originally created for farmers and advisors, but it is equally interesting for agricultural students and the broader public. Optimised for either mobile or standard use, the tool accesses an online platform to furnish its users with all the important information they need for plant protection in organic agriculture. It includes a wealth of information about the pests, diseases and weeds that affect arable farming, vegetable growing and orchards and vineyards. It provides illustrated descriptions of symptoms and morphology, and it proposes appropriate control strategies. The online materials are available in Slovak, Hungarian, Italian and English, although they mainly focus on Slovakian conditions.

The mobile version of the page has been kept simple in order to facilitate speedy access and downloads of information in the field, in areas where the internet connection is often weak. The content of the mobile platform is also restricted to the most relevant information, which makes it easier to perform searches with a minimum of clicks.

where:	Europe
when:	2009 to 2011
who:	Slovak University of Agriculture, Nitra (coordination); Mögért - Assocation for Hungarian Organic Farming; Biocert (Italy)
website:	www.greenplantprotection.eu
contact:	Peter Tóth, petery@nextra.sk



Bioveem

Farmer-to-farmer learning to develop organic dairy systems

Background

This project aimed to strengthen and broaden the organic milk sector and to identify effective systems. It involved constructive interaction between pioneering farmers and scientists. Through workshops and on-farm research, individuals on both sides learned new management approaches and shared ideas about 'systems that work'. Before the project started, the researchers and advisors underwent training to help them appreciate the differences in the ways scientists, advisors and farmers think and work. For the project to succeed, they had to adapt their own attitudes and their methods for delivering advice. More importantly, they had to perceive the existing strengths of the farms and farmers, rather than just looking for things to improve.

Activities

To begin with, 17 organic dairy farmers were interviewed to ascertain their particular strategic goals for the development of their farms, and to find out why they had chosen to farm organically. On the basis of these discussions, the farmers were divided into thematic groups. Each farm was treated as an individual case, rather than as just a 'generic' organic farm. The project then facilitated a number of exchanges, through which it was possible to compile a body of new knowledge.

The farmers met the researchers and advisors twice a year to discuss methods and fine-tune their work for the project, and they interacted with one another in their different thematic groups. They all agreed to open their books and share their financial data with the whole group. The scientists carried out research on the farms to address any specific questions which arose there. The farmers received training to help them record their reflections and observations. The progress made by each farm was assessed in a series of farm visits; practical questions were discussed and a forum was established for the farmers to exchange their ideas.

Results

The farmers themselves guided the discussions, drawing on their experiences and ideas. This participatory process, in which the organic farmer was seen as the professional expert, produced solutions that addressed the farmers' own specific needs.

Knowledge transfer not only took place between the 17 organic farmers directly involved, but also to other farmers who were invited to join local discussion groups and farm visits. Even non-organic farmers found things that interested them, such as the use of alternative fodder crops, soil management and weed control, or the reduction in antibiotics use. Conventional farmers and future organic farmers also contributed to the written reports of the project. The attitudinal change among academics was no less significant. Supporting farmers to help themselves; communicating ideas and innovations to non-academics; taking research out of the controlled environment of the university and into the 'uncontrolled' situation of real farm settings: these were all new and important experiences for the researchers and advisors involved.

where:	The Netherlands
when:	2001 to 2006
who:	17 farmers, DLV, Louis Bolk Institute, Wageningen University
website:	www.bioveem.nl (in Dutch)
contact:	Ton Baars, ton.baars@fibl.org

Farming and nature conservation together

Background

Agricultural production and nature conservation can be difficult bedfellows in the Netherlands, where the close proximity of different forms of land-use frequently result in conflicts. However, nature conservation and sustainable agriculture are both seen as politically desirable, and attempts are now being made to reconcile the two ambitions. The biggest obstacles derive from the use of mineral fertilisers and agro-chemicals. Nature and agriculture could benefit from effective collaboration, if they could overcome their mutual distrust and learn to understand and respect each other's interests.

A number of examples already exist in which sustainable agriculture is supporting nature conservation. The Louis Bolk Institute is helping farmers and conservation organisations to develop practical ways of protecting nature alongside economically viable, sustainable agriculture. Two such project in the Netherlands are described here.

Natural Farming (2010 to 2012)

Organic farmers are working closely with conservation organisations in the Dutch province of Noord-Brabant, where three nature reserves are now managed by professional farmers under the coordination of nature conservation organisations. The farmers use natural products, such as reed and grass cuttings from nature reserves for animal bedding and compost, or to feed their livestock. The project thus strengthens regional nutrient cycles and contributes to nature restoration schemes and the growth of organic agriculture.

Researchers from the Louis Bolk Institute have assisted the project participants with on-farm research and the organisation of demonstration events to share ideas and promote best practices. The approach has proved successful, with enthusiastic responses from farmers and conservationists alike, and marked improvements in the landscapes and biodiversity.

The Flourishing Farm (2011 to 2014)

This project involves over 500 farmers in a collective effort to increase functional biodiversity on and around their farms. The main aim is to enhance the diversity and abundance of natural enemies of crop pests, a strategy which in turn reduces the need for chemical pesticides. The farmer-collective receives assistance from the Louis Bolk Institute, as well as local conservation organisations, an association of organic dairy farmers and two other farmers associations.

In 2011 the farmers established around 600 km of wild flower field margins, and the number of participants taking this approach continues to rise. The farmers use special flower seed mixtures designed to attract insects such as lacewings, hoverflies and parasitic wasps – all of which are important aphid predators. Already, three-quarters of the conventional participants have reduced their use of pesticides. The resulting growth in the insect populations benefits not only the farmers, but also the aquatic fauna in surrounding waters and the often threatened insectivorous farmland fauna.

where:	The Netherlands
who:	Louis Bolk Institute
website:	www.louisbolk.org/index.php?page=agriculture-and-nature-conservation (in English) www.bloeiendbedrijf.nl/ (in Dutch)
contact:	Merijn Bos, m.bos@louisbolk.nl

Chequer trees

Slow food, local tradition

The Wiesenwienerwald region north of Vienna takes its name from the forests and meadows that form its distinctive landscape. Dotted around the farmland are a rich assortment of fruit trees, such as apples and pears, but also the chequer tree. Once widely known for its edible fruit, it declined in popularity as harvesting the berries is labour-intensive. In the Wiesenwienerwald, however, the tradition survived and interest in the product is growing once again.

Slow Food Foundation for Biodiversity

The resurgent interest in chequer trees in the Wiesenwienerwald brought it to the attention of the Slow Food Foundation for Biodiversity. Originally set up to catalogue endangered breeds and species for its "Ark of Taste", this Italy-based international organisation has since become more directly involved in the world of production. It promotes farmers and products around the world through a diverse network of "presidia", whose purpose is to sustain quality production at risk of extinction, protect unique regions and ecosystems, recover traditional processing methods, and safeguard native breeds and plant varieties. As such, the presidia targets a range of economic, environmental, social and cultural benefits. The Chequer Tree Presidium was created in 2007 to protect the Wiesenwienerwald landscape and promote its old chequer trees. In the same year, a group of 40 local producers launched the Chequer Tree Promotion Association (Verein zur Erhaltung, Pflege und Vermarktung der Elsbeere). The Association supports farmers in various ways, such as raising young trees in a nursery, providing training courses and running an exchange forum on its website.

The global–local gourmet trend

The most significant product made with the chequer berries is a unique, high quality schnapps, which commands high prices. One of the Association's main aims is to extend the range of products made from the fruit. It has introduced dried fruit, muesli bars, jams and preserves, as well as savoury products like chequer-flavoured pâté and cheese. It combines efforts to protect tradition with the use of modern sustainable production techniques, and it supports scientific research to assess the properties and supposed medicinal benefits of the fruit. Promotion efforts are also closely linked to tourism. Visitors from near and far are attracted to the idyllic landscapes of the Wiesenwienerwald, and while they are there they want to experience local things: they eat in the region's gourmet restaurants, they drink the schnapps; perhaps they even buy a bottle or two to take home with them, along with some chocolate, jam or dried fruit. This all adds to the traditional feel of the tourist region, which in turn attracts more visitors. The Association encourages this virtuous circle with its website, which describes regional attractions and provides a list of good hotels and restaurants.

where:	Wiesenwienerwald, Austria
when:	since 2007
who:	Slow Food Foundation for Biodiversity, Verein zur Erhaltung, Pflege und Vermarktung der Elsbeere (Chequer tree promotion association)
website:	www.elsbeerreich.at (in German) www.slowfoodfoundation.com (in English)
contact:	Norbert Mayer, edelbrand@elsbeere.at

SOLIBAM

Strategies for organic and low-input integrated breeding and management

Background

Diversified crop varieties are believed to offer greater resilience to stress and better adaptability to environmental variations. To exploit this for the benefit of organic and low-input agriculture in Europe and sub-Saharan Africa, the SOLIBAM project, which is funded by the EU's 7th Framework Programme for Research and Development, is developing and integrating new breeding approaches and management practices. The project builds on experiences gained from an earlier project, Farm Seed Opportunities (www.farmseed.net), and it involves a large number of academic institutions, farmer associations and commercial seed companies. One problem the project faces is that existing seed laws discourage diversity within individual crop species. SOLIBAM is working to address this issue in Europe and Africa, by advocating new regulations to protect varieties, while affirming the rights of plant breeders and farmers.

Activities

Identification of behavioural traits in organic and low-input systems – The project gathers and evaluates survey data to gain a better understanding of geographical and the cultural influences that underlie organic and low-input systems, as well as the expectations and factors that motivate farmers in their decision making.

Identification and monitoring of genetic diversity – Breeding for organic or low-input farming requires a better understanding of genetic characteristics and the complex interactions of these.

Exploiting diversity in breeding – Field trials are used to find appropriate crops for specific conditions and to optimise their yields. This enhances adaptability in the face of unstable weather patterns, and addresses the problem that most commercial varieties are optimised for high-input conditions.

Exploiting diversity in crop management – The project is developing and testing innovative arable and vegetable cropping systems based on a high level of agro-biodiversity.

Comparison of conventional and organic breeding – The aim of this comparison is to improve the competitiveness of organic varieties in the most appropriate way.

Participatory plant breeding and management – By involving farmers themselves in the selection and testing of new varieties and management methods, it is easier to identify suitable varieties for organic, marginal and small-scale systems in European and African contexts.

Effects of breeding and management on crop quality – The project will assess the properties and consumer benefits (taste, nutrition, etc.) of the crop varieties developed through the other components, taking into consideration the global and local needs and expectations.

Sustainability assessment of innovations – It is essential to show that the benefits accruing from the project as a whole are both sustainable and practicable. This is being done using eight farms as case studies, and farmers' views of the SOLIBAM strategies are also being assessed.

Dissemination, training and technology transfer – The results of the project will be shared with farmers, breeders, consumers, NGOs, scientists and policy makers, both in the partner countries and globally, for example through the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA).

where: Europe, Mali, Ethiopia
when: 2010 to 2014
who: Multi-stakeholder (see website for a full list of partners)
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& Riccardo Bocci, r.bocci@aiab.it

The Concept Orchard

Background

OrchardWorld Ltd. opened its unique organic orchard in August 2007, in cooperation with Sainsbury's and HE Hall & Son Ltd. Peter Hall is the fourth generation in a family that has been farming since 1896. The concept orchard is located at his farm in Marden, in Kent.

High efficiency, low inputs

The concept orchard aims to produce a considerably larger volume of apples than is possible with orthodox organic methods. It uses a Dutch system known as 'table top', which was originally devised to make conventional production more efficient by obtaining high apple yields with lower inputs of scarce resources, such as water, fossil fuels and fertile land.

This has now also been shown to be a good approach to organic production, although productivity levels depend strongly on the apple variety used. The target of 25 tonnes per hectare in the second year (2009) was achieved for Braeburn, Gala and Pinova, with other varieties performing less well. By comparison, most existing organic orchards in the UK achieve a maximum of about 10 tonnes by the eighth year of production.

Some inputs such as pest control systems are applied in a fixed volume per hectare. Therefore, if each hectare can produce 50 tonnes of apples rather than 10 tonnes, the quantity of inputs used proportionally per tonne of produce is reduced to one fifth. This includes the use of fossil fuels for mechanised processes. Similarly, a targeted drip irrigation

system applies water directly to the rooting area, avoiding the waste associated with overhead sprinklers, rain guns or flood irrigation.

Moisture probes permanently sited in the rows monitor the need for water and trigger a precise dosage. This reduces consumption to a fraction of the normal rate. To ensure there is an adequate water supply, a derelict pond was restored as a reservoir. This soon became a magnet for wildlife.

Pest control

Like other perennial crops, apples are subject to myriad pests and diseases, most of which are hugely detrimental to yield and marketable quality. The problems they bring make apples one of the hardest of all crops to produce under a fully organic system. But here too, solutions are at hand in the concept orchard.

Red clover is planted between the rows, providing a habitat for predatory insects and pollinating bumblebees. The clover is also cut and spread under the trees as a 'green manure' mulch. More than 80 hectares of arable land on the farm is also drilled with red and white clover. Meanwhile, a computer-steered system continuously procures weather data, which helps to predict the likelihood of apple scab and therefore improves efforts to control it with precise and timely applications of sulphur.

The pheromone mating disruption system, Exosect, is used in the orchard to control the major caterpillar pest, the codling moth. Finally, a means of soap application developed by the farm itself is being used successfully to control aphids and apple sucker.

where:	United Kingdom
when:	since 2008
who:	Sainsbury's, HE Hall & Son Ltd., OrchardWorld Ltd.
website:	www.orchardworld.co.uk/concept/
contact:	Peter Hall, peter.hall@targetfarm.co.uk

Bec Hellouin organic farm

The farm

The organic farm of Bec Hellouin lies in a charming valley in Normandy. The farm's owners, Perrine and Charles Herve-Gruyer, were inspired by the US organics pioneer Eliot Coleman, and they adhere to principles of permaculture design. Above all, this means they farm in ways that respect and copy nature, and they believe in polyculture and small-scale solutions. They do all their work by hand and thus avoid using any fossil fuels. This is not as difficult as it might sound because the permaculture principles also include leaving the soil untouched – which means there's no ploughing. And some of the crops they grow are perennials, so there is less sowing to do.

The innovative approach has a solid scientific base. The farm has established an important research and training centre for farmers, academics and students from France and elsewhere and now cooperates with important local and national partners. As a farming business, Bec Hellouin responds to local needs. Through farmers' associations, it delivers produce to consumers, and it also supplies organic shops and restaurants, which generally demand a wider variety of produce. This fits well with the farm's principles of diversity and experimentation.

The innovations

With the right amount of care and know-how, it is possible to create value even on a small area of land. In 2012, in cooperation with AgroParistech, the Paris Institute of Technology for Life, Food and Environmental Sciences, the Bec Hellouin organic farm began an ambitious

experiment. It set out to demonstrate that growing vegetables according to their principles of permaculture could provide an adequate income for one person from only 1,000 sq m of land. The experiment must run for a few years before its sustainability is proven. However, after the first six months and a generally poor growing season, the results have already matched all their expectations.

The Bec Hellouin farm adapts and improves ideas from a wide range of sources. For example, it is currently developing the use of biochar combined with effective microorganisms. Mixed in with the soil, charcoal is an effective carbon sink. Its porous structure also provides a habitat for microorganisms that encourage nutrient exchange. Effective microorganisms are cultivated at the farm in a “bokashi”, a traditional composting method borrowed from Japan. The combination of biochar and bokashi has so far proved very successful, with seedlings growing up to three times as strongly as before.

For farming in limited space, the innovators of Bec Hellouin have developed concepts such as the potato tower and climbing squashes. By planting potatoes in layers in a meshed tower filled with compost and irrigated through a spiral in the centre, and by training squashes to grow vertically like climbing beans, in both cases a high yield can be achieved on just two square metres.

where:	Normandy, France
when:	Since 2003
who:	Ferme biologique du Bec Hellouin
website:	www.fermedubec.com (in French)
contact:	Perrine and Charles Herve-Gruyer, contact@fermedubec.com

Potage-Toit

Urban Farming

Potage-Toit was launched in Brussels in 2011 by the urban farming initiative Le Début des Haricots. The project aims to make productive use of otherwise empty spaces, such as roofs and patios, by using them for the intensive cultivation of organic vegetables. In this respect, “intensive” production means the intensive use of knowledge and labour, rather than copious amounts of chemicals and resources.

Production

The crops are grown in pots and tanks, which makes the rooftop gardens relatively lightweight and easy to install. They are also cheap to maintain. The system uses resources which are directly available, including recycled rainwater, solar power and composted organic waste. This is not only more sustainable, it is also more efficient. As such it possible to produce high yields in limited spaces.

The Potage-Toit project has already set up a 350 sq m pilot garden on the fifth-floor terraces of the Royal Library in Brussels. Produce from this urban farm is sold locally on a commercial basis, for example to the library canteen, nursing homes, restaurants and markets. With just a short supply chain, as such it is possible to offer high-quality products at a fair price, since no intermediaries come between the producer and consumer.

Empowerment

Besides the production of food, the project also serves the second goal of raising awareness about environmentally friendly farming and the possibilities of urban farming. The garden at the Royal Library is open to the general public on one or two days each week, depending on the season. Visitors can get involved in the farming activities, while they also learn about healthy eating and how to use their own urban spaces for growing food. Furthermore, Potage-Toit is helping to create jobs, in particular for the unskilled.

Urban farming contributes to sustainability in two ways. Firstly, it increases the amount of fresh, seasonable food available to urban residents, and secondly it helps to reduce energy consumption by shortening the supply chain. The urban agriculture movement is part of a wider movement of 'transition towns'. This is a network of local initiatives that are trying to reduce their dependence on fossil fuels, because they know that economic shocks are inevitable once the demand for fuel surpasses its production.

where:	Brussels, Belgium
when:	since autumn 2011
who:	Le Début des Haricots, the people of Brussels
website:	potage-toit.blogspot.be (in French and Dutch)
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Food for Life Partnership

The challenge

People's eating habits are formed in early childhood, and in the UK already a quarter of children below the age of ten are overweight or obese. One fifth of school children entitled to healthy school meals don't eat them and cuts in funding are threatening school meals as a healthy and sustainable option. On top of this the majority of young people leave school in the UK without the basic life skills of cooking and growing, and they lack knowledge and understanding about how their food is produced.

The partnership

The Food for Life Partnership involves schools, caterers, health professionals, farmers, communities and parents in an extensive network across England. The Partnership is driven by four registered charities: the Soil Association, the Focus on Food Campaign, the Health Education Trust and Garden Organic. It receives funding from the UK's Big Lottery Fund and works to improve children's health and education, reduce inequalities, and support local enterprise and sustainability. It is making school meals better, teaching life skills and raising awareness among young people in order to transform food culture in schools.

In joining the Partnership, schools undertake to integrate food education into the curriculum, provide more practical cooking lessons, organise school trips to farms, and grow produce on the school grounds. They also work with their catering staff to improve the

standard of school meals, ensuring they are healthy, seasonal and freshly prepared, and that they use local and (some) organic ingredients. These improvements are encouraged, monitored and rewarded by the Food for Life Partnership through Bronze, Silver and Gold awards for schools that fulfil the appropriate criteria, and with catering marks for the caterers.

Pupils are at the centre of the project. They are encouraged to comment on the school meals, help plan menus, learn to cook and grow their own food, and blog about their experiences. The schools, communities and pupils can also run extra curricular activities, including cookery and growing clubs and the hosting of school farmers markets.

Achievements

More than 4,300 schools have so far signed up to achieving a Bronze award or higher, with nearly 200 close to attaining Gold status. Over 150,000 children, parents and school staff have been cooking, growing and visiting farms thanks to the Food for Life Partnership, and nearly half a million school pupils now eat Food for Life accredited meals every day.

where:	England, United Kingdom
when:	since January 2005
who:	Soil Association, Health Education Trust, Garden Organic, The Focus on Food Campaign
website:	www.foodforlife.org.uk
contact:	Joe Harvey, joeharvey@healtheducationtrust.com; fflp@foodforlife.org.uk

Les Bons Repas

Sustainable catering in Normandy

In 2004, Les Défis Ruraux was asked to provide secondary schools in a department of Upper Normandy, with sustainable, locally sourced food. From 28,000 meals in the first year, the project has now grown to around one million meals annually, at 110 schools and colleges.

Products: fresh and local

Les Défis Ruraux works with the schools, helping them to offer at least one meal every two weeks using only sustainable ingredients – always with fresh, seasonal food from the Upper Normandy region that has not been processed prior to delivery. The organisation advises the kitchen managers on 'designing' the meals. Already, 46 producers are involved in the scheme, with including butchers, cheese makers and bakers as well as farmers.

The organisers do not aim to provide 100% organic food. Instead, to encourage a gradual move towards greater sustainability they set minimum standards (e.g. local production, low inputs of nitrogen, no GMOs, hormones or preventive antibiotics in the food chain). For the farmers, the incentive is a guaranteed share in the supply chain. They must first undergo a sustainability assessment. Based on the results of this, the farm is accepted – or not – for a two-year contract, in which they also promise to make improvements in areas where the assessment revealed their weaknesses.

The overall catchment area for suppliers is divided into 12 zones, which ensures the schools can use produce with a minimum of food miles. The schools are also encouraged to buy from the same provider if possible, as this allows that producer to deliver larger, more economically viable quantities.

Rethinking the future of catering

Reintroducing short supply chains to school canteens requires a lot of adjustments by all involved. Food purchasers must apply a different logic, kitchen staff must get used to preparing fresh vegetables. Even children and parents may need to be convinced about the importance of the new meals. To meet these challenges, les Défis Ruraux cooperates with an association for environmental education called Cardere. With their joint workshops for children they have encouraged healthy attitudes in schools and a positive dynamic for sustainable meals.

Les Défis Ruraux has now developed a set of training and consultancy services for company canteens that also want to introduce more sustainable and local products. Moreover, it has started to add value for the participating farmers by creating a local label: “Guaranteed by Les Défis Ruraux”. This stands for quality of production and a commitment to progress and sustainability in Upper Normandy.

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when:	since 2004
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Conclusion and Recommendations

This brochure was produced by the Agro-Ecological Innovation project, whose goal is to collect and present practicable examples of innovation in the agro-ecological field. Our aim is to demonstrate that, if integrated as mainstream farming practices, agro-ecological innovations hold huge potential to help us overcome future food security and environmental challenges. We also want to raise awareness of innovative approaches such as those presented here, not only among the policy makers, but also among the potential beneficiaries – the scientists, farmers and small businesses.
Successful innovation and knowledge transfer require sound policy frameworks and support. In mid 2012 we sent a questionnaire to 90 researchers and farmers active in the agro-ecological sector across Europe. We wanted to identify the obstacles that currently prevent agro-ecological innovations from delivering on their potential. At the same time, our purpose was to gather ideas and formulate a set of recommendations to policy makers to help foster innovation in this field. In July a workshop attended by around 35 participants discussed the results of this survey. Based on the results of this participatory process, we present here a summary of our recommendations.

- Farmers should receive fair recompense for their contributions to research and research policy. Their participation serves the long term benefit of the wider community and it deserves to be recognised. This would motivate them to continue and also provide an incentive for others to join in.
- Innovation projects require sustained financial commitments to ensure they produce conclusive results. And following the close of a successful project, further financial support and follow-up promotion is often necessary to help disseminate the new ideas and change farming practices.
- It is vital to include the general public – the consumers – in innovation partnerships alongside the farmers and scientists. Participation builds trust and commitment; information supports a better food culture and healthier lifestyles; demand triggers continued supply: ultimately, a better informed citizenry is the best guarantee of sustained efforts in the field of agro-ecological innovation.
- Special efforts should be made to promote social innovation and know-how innovation, because these are just as important for sustainability as the application of new technologies. They also help to build stronger communities and healthier populations.
- Funding should be provided for projects that promote the exchange of ideas and knowledge as well as those which develop specific innovations. It is essential to disseminate good practices as widely as possible, as it is much cheaper to replicate approaches than to duplicate research efforts.
- The European public must be guaranteed information about, and access to all publicly funded innovations.
- The reward system for academic research should take into account not only the number of peer-reviewed publications the academics produce but also the level of their engagement with practitioners.
- Research projects which depend on broad stakeholder participation should include an extended preparation phase because, compared to the purely academic research, such projects need time to establish a solid basis of communication and trust. This aspect of the work must be recognised and budgeted for accordingly.
- Researchers should ensure they use appropriate and understandable language for their communications and the publication of their results.

Agro-ecology provides a comprehensive, sustainable approach to agricultural production. The sustainability of agriculture is vital for the survival of an intact environment and biodiversity in Europe, for the health and wellbeing of the European population, and for the integrity of Europe's rural communities. We hope that this brochure can inspire and guide policy makers, scientists and practitioners alike toward a more sustainable future.

http://www.agro-ecoinnovation.eu

With the support of:

The IFOAM EU Group acknowledges the financial support of the European Commission, DG Environment throughout the year 2012. The sole responsibility lies within the IFOAM EU Group. The Commission is not responsible for any use that may be made of the information provided by the IFOAM EU Group.