

BES – Agricultural Ecology Group Newsletter

May 2013

BESAeG Newsletter No.2

Happy birthday to the BES!

This year the British Ecological Society celebrates its 100th birthday and has been running a number of ecology-focused events throughout the year, including INTECOL – the main, international ecology conference running for a week during August. As part of the centenary celebrations, a range of activities are being held in various locations during the year. More information can be found under 'Events'.

This second newsletter opens by taking a look at political issues influencing agricultural practices across the European Union, leading into three articles describing research projects that investigate sustainable food production systems.

During March, Members of the European Parliament met to vote on proposed reforms of the European Union's common agricultural policy (CAP), which included a range of 'greening' measures meant to deliver financial assistance to farmers who implement a range of agri-environment schemes on their farms. To provide perspective on how this may impact the implementation of environmental schemes, and a summary of the voting outcome, is Alan Matthews: Professor of European Agricultural Policy in the Department of Economics, School of Social Sciences and Philosophy at Trinity College Dublin, Ireland; and President of the European Association of Agricultural Economists in the period 2011-2014.

Implications of CAP greening for the European environment

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Proposals by the European Commission for revisions to the regulations governing Europe's agricultural policy (the Common Agricultural Policy) include a plan to allocate 30% of direct payments as a green payment to farmers who follow three specific environmental actions.

Negotiations between the Council of Agricultural Ministers and the European Parliament (represented by the rapporteurs

for CAP reform appointed by the Parliament's Committee on Agriculture and Rural Development) on this proposal have now entered the crucial trilogue stage. The intention of the Irish Presidency is to reach a political bargain on a first reading agreement by the end of June.

Both Council and Parliament have put forward a series of amendments which would greatly weaken the level of ambition of the Commission's proposal which was itself initially heavily criticised by environmental groups. However, one area where a significant gap exists between the two institutions concerns the possible role for 'equivalent measures'. This covers measures undertaken (such as enrolment in an agri-environment scheme (AES) or a national environmental certification scheme) which would be considered as equivalent to fulfilling one or several of the greening measures. Whereas both the Council and the Parliament's Agriculture Committee (COMAGRI) proposed that member states could substitute a range of equivalent measures for the Commission's three greening measures, this flexibility was rejected by the Parliament when approving its negotiating mandate for the trilogue. Instead, the Parliament backed the Commission in limiting greening to the three measures the latter had proposed.

Given that the COMAGRI rapporteurs who initially favoured equivalence are the negotiators with the Council Presidency, it seems rather likely that equivalence will appear in the final legislation. This, in turn, will raise the question of 'double funding' if enrolment in an AES also gives eligibility for the green payment.

These and other issues in the greening debate are discussed in more detail in the blog post <http://capreform.eu/what-farmers-should-do-to-qualify-for-the-new-cap-green-payment/>

Mixed vegetable polycultures*

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Plants growing in communities (polycultures) of certain mixtures have been shown to yield more biomass than do monocultures of their constituent species. We used this principle to investigate productivity of food



plants in low- (3 species) and high- (12 species) diversity vegetable polycultures in participatory household-level trials. Results show no overall difference in total yield, but significant differences in individual species' yields which suggests that compensatory mechanisms and competitive ability are important considerations. Yields differed across the country, and increased with increasing input time. Interestingly, these systems yield on average the equivalent of 35 tonnes per hectare, with some over 100 tonnes per hectare. These diverse small scale systems demonstrate interesting possibilities for improving food yields, as well as the potential to meet other targets around low-carbon transition, enhancing biodiversity, and improving health and well-being. This may be a solution-driven win-win in the land-sharing/land-sparing debate that simultaneously engages the public with scientific research and inspires a conservation ethos.

*A full version of this article can be found here: http://www.cumbria.ac.uk/Public/SNRO/Documents/Research/NK_Veldon2012MixedVegResultst.pdf

Trade-offs in sustainable agriculture

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The challenges for agriculture today are often wrapped up in a demand for "sustainable agriculture"; a term difficult to define let alone measure and apply in practice. It may therefore be used to gloss over difficult choices rather than help tackle them.

This project focuses on key socio-economic and environmental trade-offs that EU dairy farmers' face in practice, looking for resolutions that can contribute significantly to sustainable



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agriculture. To do so, I aim to develop a whole-farm model that will be initially run using data from SRUC's Crichton research farm, and from a similar farm experiment held by INRA in Rennes, France. I then aim to use commercial farm data to test whether the same relationships exist between aspects of sustainability in commercial farms. I ultimately hope to identify priorities for development of future dairy farming systems that address potentially competing demands for food production and other public goods during a period of socio-economic and environmental change.

QUESSA: Quantification of ecological services for sustainable agriculture

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Nature can provide a multitude of hidden benefits to humans such as control of crop pests by their natural enemies, crop pollination and prevention of soil erosion that keeps rivers clean. The QUESSA project aims to quantify the key semi-natural habitats (SNH) providing these essential ecosystem services (ES) across economically important cropping systems, farming intensities and four European agro-climatic zones. This will be achieved by first identifying and linking the vegetation traits that support potential ES for the main SNH found on farmed land. Actual ES provision will then be measured in 16 case studies in 8 countries.

The ES investigated will include control of crop pests by natural enemies, crop pollination, soil erosion, soil fertility and weed control. The relative socio-economic importance of the selected ecosystem services will also be determined. Data will be used to develop mathematical models that be used to explore how the amounts, type and location of SNH influence ES from farm to landscape level. Models will also be used to explore synergies and trade-offs among ES by SNH from habitat to landscape scale and identify unused opportunities to better exploit ES. Investigations of private and public economic benefits and non-monetary value of selected ES will be conducted. The research will aim to match the requirements of local and national stakeholders and provide valuable outputs that they can use to improve ES provision from SNH; these will include a novel web-based tool, practical guidelines and policy documents.

The QUESSA project is a new project funded by the European Union through the Framework 7 programme.

Book review by Chantel Davies (STC, UK)

Organic Agriculture for Sustainable Livelihoods. Edited by Niels Halberg, Adrian Muller; Published 9th August 2012 by Routledge.

Organic Food and Agriculture

now available from Routledge

Edited by
Niels Halberg and Adrian Muller

Organic Agriculture for Sustainable Livelihoods



Adding an important voice to the sustainable intensification discussion from the perspective of organic agriculture, this book provides a realistic and evidence-based perspective that explores the principles and advantages of organic farming methods, beginning by defining the meaning of 'organic' – what it is, and what it is not. Topics addressed include climate change, carbon capture and storage, organic market chains and policy development.

As the global population is expected to increase to 9 billion by 2050, nearly 2bn hectares of land is unfarmable due to mismanagement, and a further 12m hectares are expected to be taken out of production in the near future, the picture for future food security objectives seems quite bleak. Approximately 90% of farms globally are smaller than 2 hectares in size, with many farmers experiencing regular periods of food shortages. The authors provide a balanced view of how agro-ecological farming principles benefit some of the world's poorest and most vulnerable communities, creating an inspiring view of empowerment to rural life across the globe with important benefits for the environment.

If you wish to contribute to future book reviews, please contact Chantel Davies for further details.

Links

Improving agricultural extension: a reference manual provides a detailed overview of extension services in practice and policy. Chapter 20 addresses the issue of sustainable agricultural development.

Events

General information about BES centenary events can be found here:

<http://www.britishecologicalsociety.org/about-us/centenary/>

June 26-27 2013: The European Network of Scientists for Social and Environmental Responsibility are holding a conference entitled Agroecology for Sustainable Food Systems in Europe: A Transformative Agenda in Brussels, Belgium at the Free University of Brussels.

August 18-23 2013: The BES and the UK Biodiversity Research Advisory Group (UK BRAG) are collaborating to run a workshop at INTECOL. The session will consider current work in the UK, Europe and internationally to meet the 2020 'Aichi' Targets. These targets were agreed by the 10th Conference of the Parties (COP) to the Convention on Biological Diversity (CBD) in Nagoya, Japan, in 2010.

December 18-19 2013: Re-thinking Agricultural Systems in the UK. This session is a collaborative event between Agricultural Ecology, Computational Ecology and Forest Ecology SIG's and the Association of Applied Biologists. Principal organiser: Barbara Smith, Game & Wildlife Conservation Trust.

April 1-3 2014: The BES AeG are organising a meeting at Harper Adams University (UK) to focus on areas of policy and agroecology. For further information please contact either Francisca Sconce or Nicola Randall.

To join the BES Agricultural Ecology Group, email Barbara Smith: agricultural@britishecologicalsociety.org

If you have articles or news of interest relating to the agricultural ecology group for inclusion in future newsletters, please email Chantel Davies

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