



President: Professor Peter Shewry BA, BSc, PhD, DSc



**A two day conference
at St Catherine's College, Oxford, UK
on 18-19 December 2013**

**PROGRAMME &
BOOKING FORM**

**Rethinking Agricultural
Systems in the UK**

Association of Applied Biologists
Warwick Enterprise Park
Wellesbourne, Warwick CV35 9EF, UK

Registered Charity No. 275655

Telephone: +44(0)2476 574998

Facsimile: +44(0)1789 470234

E-mail: carol@aab.org.uk

<http://www.aab.org.uk>

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Rethinking Agricultural Systems in the UK

A two day conference at
St Catherine's College, Oxford
for the
**BES Agricultural Ecology, Forest Ecology
& Computational Ecology Groups**
on 18-19 December 2013

There is a need for innovative development in the field of agroecology if we are to meet the demands of the growing human population in a sustainable way. However, there is a natural tendency for thinking to fall into 'silos' and this can hinder novel thinking.

This meeting will explore agricultural systems in the context of providing ecosystem services: it will ask what we would do in an ideal world and how we can envisage positive changes to the current system given socioeconomic constraints. An important feature of the meeting will be to encourage discussion of techniques across disciplines and discourage the use of labels so that we are unhindered by possibly negative preconceptions. The meeting will explore theory and practice from a wide range of farming systems.

It will be the first in a series of three strategic events. This first meeting aims to generate ideas for practical approaches, however radical, for the generation of more resilient agro-ecological systems. These proposals will be tabled in preparation for a second meeting (2014), where these concepts will be discussed with a view to assessing their feasibility with practitioners (e.g. farmers and NGOs). A third meeting is planned, to take place in regional government centres with policy-makers to facilitate implementation.

PROVISIONAL PROGRAMME (BASIS points will be applied for)

18 December 2013

08:30 CONFERENCE REGISTRATION & COFFEE

09:30 INTRODUCTION

BARBARA SMITH (Game and Wildlife Conservation Trust, Fordingbridge)

09:40 *Plenary Session*

09:40 *Plenary speaker*

Rethinking the future in the light of history: a socio-ecological context for agricultural systems / a historical context for land use

JONATHAN FOLEY (Director, Institute on the Environment, University of Minnesota, USA)

10:15 *Plenary speaker*

Current thinking on Agricultural Systems in the UK: Background, Policy & Practice

TIM BENTON (Faculty of Biological Sciences, University of Leeds)

10:50 COFFEE

Session 1: Fundamental Ecological Principles in Agricultural Systems

Session organiser: PIETRO IANNETTA (The James Hutton Institute, Dundee)

11:20 **Keynote speaker**

An Evo-Ecological Approach to Agricultural Policy

PHIL GRIME (Dept Animal and Plant Science, University of Sheffield)

11:55 **Darwin, Diversity and Future Land Use**

M S WOLFE (The Organic Research Centre, Wakelyns Agroforestry, Fressingfield, Suffolk), J SMITH, S PADEL, B PEARCE & N LAMPKIN (The Organic Research Centre, Elm Farm, Hamstead Marshall, Berks)

12:10 **Diversity for Resilience: multi-scale application of agro-ecology**

HANNAH JONES, ABDULAZIZ ALHOMEDHI, JACOB BISHOP, BASTIAAN BRAK, ROBERT BROWN, RACHEL ROBERTS, ALEXA VARAH & SIMON POTTS (School of Agriculture, Policy & Development, University of Reading, Berks)

12:25 **Practical Exploitation of Mycorrhizal Fungi in Agricultural Systems**

ISABEL BRITO, MÁRIO CARVALHO, LUÍS ALHO (University of Évora, ICAAM, Évora, Portugal) & MICHAEL J GOSS (University of Guelph, Ontario, Canada)

12:40 LUNCH

Session 2: Systems Thinking in Agroecology

Session organisers: ANDY GOLDRING (Permaculture Association) & CHRISTINE WATSON (SRUC, Aberdeen)

13:40 **Keynote speaker**

Transformational farming and the role of monitor farms

STEVEN NEWMAN (Biodiversity International Ltd, Buckingham)

14:15 **An ecosystem services approach to productive land management in a farm scale catchment**

CHRIS STOATE, JOHN SZCAUR *et al.* (GWCT Allerton Project, Loddington, Leics)

14:30 **Approaches to cover cropping and the impact on soils and farming system**

RON STOBART & NATHAN MORRIS (NIAB, Cambridge)

14:45 **Developing a Model of Sustainably-Competitive Agriculture**

GORDON PURVIS & LIAM DOWNEY (School of Agriculture & Food Science, University College Dublin)

15:00 **How could we design farmed landscapes for birds?**

GAVIN M SIRIWARDENA (British Trust for Ornithology, Thetford, Norfolk)

15:15 TEA

Session 3: Resource Efficiency in Agro-ecosystems

Session organiser: JO SMITH (Organic Research Centre, Elm Farm, Hamstead Marshall, Berks)

15:45 **Keynote speaker**

Improving resource use efficiency in UK agricultural systems

C A WATSON, D ROBERTS & A WATERHOUSE (SRUC, Aberdeen)

16:20 **Rethinking agricultural systems using the permaculture-design approach**
PETRO P M IANNETTA, GRAHAM BEGG (Ecological Services, James Hutton Institute, Dundee),
BARBARA SMITH (GWCT, Fordingbridge, Hants), CHRIS WARBURTON BROWN,
ANDY GOLDRING (BCM Permaculture Association, London), TOM HUGHES (Organic Research
Centre, Hamstead Marshall, Newbury), EUAN K JAMES, MARK YOUNG, ALI KARLEY (Ecological
Services, James Hutton Institute, Dundee), JANET SPRENT (Division of Plant Sciences, Dundee
University, The James Hutton Institute, Dundee), CATHY HAWES, A NICK E BIRTH (Ecological
Services, James Hutton Institute, Dundee), ROBERT REES (Scotlands Rural College, Edinburgh),
MARTIN WOLFE (The Organic Research Centre, Wakelyns Agroforestry, Fressingfield, Suffolk) &
GEOFF SQUIRE (Ecological Services, James Hutton Institute, Dundee)

16:35 **The devil is in the detail: finding meaningful indicators of nutrient management on organic and low-input farms**
SUSANNE PADEL, CATHERINE GERRARD, KATHARINE LEACH (The Organic Research Centre,
Elm Farm, Hamstead Marshall, Berks), CAIRISTIONA TOPP (Future Farming Systems, SRUC,
Edinburgh) & CHRISTINE WATSON (SRUC, Aberdeen)

16:50 **Hedges: an ecological approach to biofuel production**
SALLY WESTAWAY (The Organic Research Centre, Hamstead Marshall Berks), ROB WOLTON
(Hedgeline, Hatherleigh, Devon), JO SMITH (The Organic Research Centre, Hamstead Marshall
Berks) & MARTIN WOLFE (The Organic Research Centre, Wakelyns Agroforestry, Fressingfield,
Suffolk)

17:05 **Choices in intensity of management in beef production farms: impacts upon food production, carbon emissions and biodiversity potential**
TONY WATERHOUSE & PATRICIA RICCI (SRUC, Future Farming Systems, Edinburgh)

17:20 DISCUSSION

18:00 **BESS Workshop: Supporting ecosystem services on commercial farms: gathering expert judgments. Sponsored by NERC under the BESS (Biodiversity and Ecosystem Services Sustainability) programme.**
Workshop Organiser: LYNN DICKS

18:00 **POSTER SESSION**

Influence of red clover/grass management on soil nitrogen mineralisation potential and winter wheat crop performance

H MOYO, W P DAVIES, N D CANNON, J S CONWAY & G P F LANE (Royal Agricultural University,
Cirencester, Glos)

The role of Environmental Stewardship in the development of farmers' 'environmental learning careers'

SUSANNE JARROT, CAROL MORRIS (University of Nottingham, Geography Dept, Noringham) &
CHRIS STOATE (The Game & Wildlife Conservation Trust, The Allerton Project, Loddington, Leics)

Pollinators: a buffer against climate-driven yield loss?

JACOB BISHOP, HANNAH E JONES, MARTIN LUKAC & SIMON G POTTS (University of
Reading, Berks)

Assessment of Beef Systems with a Multi-Criteria Tool

EUNHEE CHOI, TONY WATERHOUSE, PATRICIA RICCI, KAIRSTY TOPP (Future Farming
Systems, SRUC, Edinburgh) & SUNG-YEE YOON (Dongguk University, Seoul, ROK)

Tillage and undersowing effects on organic wheat yield components and grain yield

A V VIJAYA BHASKAR, W P DAVIES, N D CANNON & J S CONWAY (School of Agriculture, Royal Agricultural University, Cirencester, Glos)

Optimising hedgerow biodiversity and farmland production

CAROLINE M V FINLAY, JACK J LENNON & W IAN MONTGOMERY (School of Biological Sciences, Queen's University Belfast, Northern Ireland)

Conversion of pastoral land to Short Rotation Coppice Willow (SRCW): Benefits for Irish overwintering and breeding birds

NICHOLAS HESFORD KONSTANTINOS VLACHOPOULOS (also of the University of the Aegean, Lesvos, Greece), SARAH McCAFFREY, DAMIAN MAGILL, AARON McKENNA & ALISON CAMERON (Queen's University Belfast, Belfast, Northern Ireland)

Wheat aphids and their natural enemies' responses to landscape composition

VICTORIA WICKENS, MIKE GARRATT, ALISON BAILEY & SIMON G POTTS (University of Reading, Berks)

Habitat heterogeneity on farmland: unlocking the potential

JONATHAN STORKEY, DAVID BROOKS, ALISON HAUGHTON, KEVIN COLEMAN, ALICE MILNE & ANDY WHITMORE (Rothamsted Research, Harpenden, Herts)

Investigation of suitable legume species for undersowing in organic spring wheat

A V VIJAYA BHASKAR, W P DAVIES N D CANNON & J S CONWAY (Royal Agricultural University, Cirencester, Glos)

Regional and farm system drivers of avian biodiversity within agriculture ecosystems

BARRY J McMAHON, HELEN SHERIDAN, ANNETTE ANDERSON, TIM CARNUS & GORDON PURVIS (UCD School of Agriculture & Food Science, University College Dublin, Ireland)

Small-scale farmers and climate change – Opportunities and barriers to community engagement

S BURBI, R N BAINES and J S CONWAY (School of Agriculture, Royal Agricultural University, Cirencester, Gloucestershire)

Understanding and managing pollinator flow across agroecosystems

JENNIFER WICKENS, STUART ROBERTS, ALISON BAILEY & SIMON G POTTS (University of Reading, Berks)

20:00 **FOUR COURSE CONFERENCE DINNER INCL. WINE AND PORT IN THE DINING HALL
AFTER DINNER SPEAKER - IAIN TOLHURST**

19 December 2013

08:15 **CONFERENCE REGISTRATION**

08:45 *Plenary speaker*

Homo Sapiens as a keystone species in the agro-ecosystem

BILL SUTHERLAND (Prof. of Conservation Biology, University of Cambridge)

09:20 *Plenary speaker*

Agricultural Systems Rethought

PABLO TITTONELL (University of Wageningen, the Netherlands)

Session 4: *Beyond the land sparing/land sharing debate*

Session organiser: LISA NORTON (Centre for Ecology and Hydrology, Bailrigg, Lancs)

09:55 *Keynote speaker*

Land sparing versus land sharing: moving forward

JOERN FISCHER (University of Leuphana, Lüneburg, Germany)

10:30 COFFEE

11:00 *Invited speaker*

Are land sparing or land sharing real alternatives for European agricultural landscapes?

FELIX HERZOG (Agroscope, Zurich, Switzerland)

11.30 **To what extent should environmental conservation be integrated with agricultural production?**

NIGEL BOATMAN & NAOMI JONES (The Food and Environmental Research Agency, Sand Hutton, York)

11:50 Reinvigorating the ridges: a case study in North Uist

O KNOX (SRUC, Edinburgh), T-J MARSDEN, S WARNICK (School of GeoSciences, Edinburgh University), M SCHERBATSKOY (The Blackland Project, Grimsay, North Uist) & B HARVIE (School of GeoSciences, Edinburgh University)

12.10 **Moving beyond scientific debate towards sustainable production systems**

LISA NORTON (Centre for Ecology and Hydrology, Lancaster Environment Centre, Bailrigg, Lancs)

12:30 LUNCH & POSTERS

13:30 ***Workshops: There will be three targeted, structured workshops with pre-determined outputs.***

Workshop 1: Transformational technology to advance agriculture

If we are to truly enact a transformation in UK agriculture then we also need to think about the sorts of technology that would help or be needed. UK agriculture is awash with technology but where would the injection of new or different technology have a transformative effect? New storage, analysis and delivery technology for farm level data? Real time crop forecasting tools to help farms predict yields and losses? Sensor networks to enable larger scale and more precise and efficient farm management? Satellites dedicated to delivering actionable agricultural information? In this workshop Matthew Smith will facilitate a discussion about these issues, showing initially results from his lab in developing software and hardware to enable transformative advances in ecological and environmental science. The leading question is “What technological solutions would lead to transformative advances in UK agriculture?”

Workshop Organiser: MATTHEW SMITH (Microsoft Research, Cambridge)

Workshop 2: Re-thinking agricultural landscapes: What would you do?

Workshop Organisers: JOHN HOLLAND (GWCT, Fordingbridge, Hants) & TBC

Workshop 3: Organisers currently under discussion: Re-thinking farming systems: which novel systems will deliver?

Workshop Organisers: MIKE GARRET (University of Reading)

15:30 TEA AND DEPART