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**Agricultural Ecology Research:
Its role in delivering sustainable
farm systems**

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INTRODUCTION

The Organising Committee welcome you to this meeting of the Association of Applied Biologists on the subject of ‘*Agricultural Ecology Research: its role in delivering sustainable farm systems*’. This gathering takes place as we face major global challenges to improve food security whilst recovering and maintaining those aspects of production systems which are known as ecological services. These services underpin the environmental and economic fitness of our food production system, and are supported by those primary producers - arable plants. Arable plants include crop and wild species, and their essential roles must be both understood and exploited in a more sustainable fashion, as success in this regard will underpin our capability to eliminate the food insecurities already alluded to. It is therefore anticipated that cropland management and food culture will be altered considerably. Consequently, great pressure will be brought to bear on farmland, on those who farm, on the businesses which are integrated directly with farming *via* supply-chains and on society more widely.

This two-day meeting was conceived from discussions between the Agricultural Ecology Special Interest Group of the British Ecological Society and the Agroecology research group of the newly formed James Hutton Institute. This meeting presents model approaches and findings of the most recent research into ecological processes that support sustainable crop systems. The papers presented are based upon several multi-disciplinary projects from delegates who have gathered here from throughout Europe. Collectively, the research has a single aim, which is to help design farmed ecosystems that optimise a range of outputs, functions or services such as food security, farm livelihood and ecological integrity. Many of the reports originate from the unique and ambitious 5-year Scottish Government-funded research programme entitled ‘*Sustainable Crop Systems*’ (2006–2011).

This conference aims to generate explicit links between research, farm-management, policy and education and we welcome all who serve the agri-environment sector. Students are particularly welcomed at this key time when ecology skill shortages have been widely recognised by national and international research-funding agencies. The meeting focuses discussion in two areas. Firstly, arable plants, that is the essential role of crops and wild plants in delivering sustainable crop systems, and secondly the role of legumes and nitrogen use efficiency in closing the ‘protein gap’. The meeting is concluded with a visit to the newly-developed Centre for Sustainable Cropping (CSC), based at the James Hutton Institute’s Balruddery Farm near Dundee, which aims to design and demonstrate a sustainable cropping system for which inputs and ecosystem processes have been optimised.

The Organising Committee aims to deliver a multi-authored Special Issue of the *Annals of Applied Biology* based on key papers presented at, or as a consequence of, this meeting.

Yours sincerely

Pietro Iannetta, Barbara Smith and Geoff Squire
- on behalf of the Organising Committee

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