



# Abstracts



**12th Congress of the  
European Society for Agronomy**



**Helsinki, Finland, 20-24 August 2012**

Maataloustieteiden laitoksen julkaisuja 14

ISBN is 978-952-10-4323-9 (online)

ISSN 1798-744X (online)

ISSN-L 1798-7407

Editors:

Fred Stoddard (Editor-in-Chief), Pirjo Mäkelä, Name Surname...

Layout:

Tinde Päivärinta/PSWFolders Oy

OTHER DATA?

## OSCAR – a new European project on cover crops

Baresel, Peter<sup>1</sup>; Döring, Thomas<sup>2</sup>; Finckh, Maria<sup>3</sup>

<sup>1</sup>*Technical University of Munich, GERMANY;*

<sup>2</sup>*The Organic Research Centre, UNITED KINGDOM;*

<sup>3</sup>*University of Kassel, GERMANY*

There is widespread concern over the damage caused by modern agriculture to soil structure and the ecosystem services provided. One approach to overcome this problem is conservation agriculture (CA) which aims to maintain soil structure by minimising soil disturbance, maximising soil cover and using crop rotation. However, despite recent legislation supporting minimum tillage and direct seeding, together with the efforts of pioneer farmers, CA is still practised on less than 4% of the agricultural land in Europe. This underlines the need for major improvements in the approach together with consolidation of, and access to, information about alternative cropping methods and their biological and economic value and performance.

A new European FP7-funded research project has started in April 2012 to address these issues. The project, called OSCAR is conducted by 20 partners and is led by University of Kassel, Germany. OSCAR aims to Optimise Subsidiary Crop Application in Rotations. It extends existing knowledge and improves and develops novel cropping systems based on cover crops, catch crops, living mulches and other subsidiary crops (SC). OSCAR aims to enhance the implementation and increase the duration of soil coverage by plants, introduce diversity to the crop rotation and reduce the need for and the intensity of soil tillage. Optimization will counteract the sometimes reduced yields associated with minimum or non-tillage systems whilst providing durable ecological benefits. Particular attention is given to conservation tillage systems. To maximise the potential of ecological benefits, both conventional and conservation agricultural systems are considered in OSCAR, encouraging a high level of innovation as well as offering a more immediate transfer into practical agriculture.

An overarching issue is the need to consider a broad range of environments and to make high quality tailored information widely accessible in Europe. The project also encompasses the identification and selection of new

SC and the development of adapted farm machinery for the various CC and LM species. These issues are addressed with two instruments in OSCAR, based on experimentation and knowledge management and transfer.

A series of coordinated field trials, i.e. a Multi-Environment Experiment, (MEE) is conducted in OSCAR as an experimental platform to generate the necessary knowledge for progressive improvements in the use of SCs in conventional, low-input, organic, and conservation agriculture systems. It is complemented by three long-term agricultural experiments (LTE) on CA and SC based farming systems. Established and novel plant species, agronomic measures and machinery will be assessed for their effect on productivity, need for fertilizers and pesticides, soil ecological impacts, and basic economical aspects. Research on the identification of new species and genotypes of interest in SC based systems and the development of adapted farm machinery accompany the MEE. The soil ecological impacts, basic mechanisms of competition in LM systems, problems concerning perennial weeds, as well as potential phytopathological risks and their solutions are also covered in OSCAR.

The knowledge generated through the research is made widely available to all relevant target groups in a Cover Crop Toolbox. The Toolbox makes project information available but also aims to reduce the fragmentation of existing knowledge by drawing together information in a central place. The Toolbox aims to help farmers to identify SC species most suited to their specific production systems, including economic aspects and technology requirements. In addition, the Toolbox encourages feedback from users and thus can evolve dynamically during and beyond the present project. Thus OSCAR will enable and motivate a substantial number of growers in different regions to adopt conservation agriculture methods and make a significant and durable contribution to soil conservation.