Wakelyns

Visit to agro forestry demonstration farm

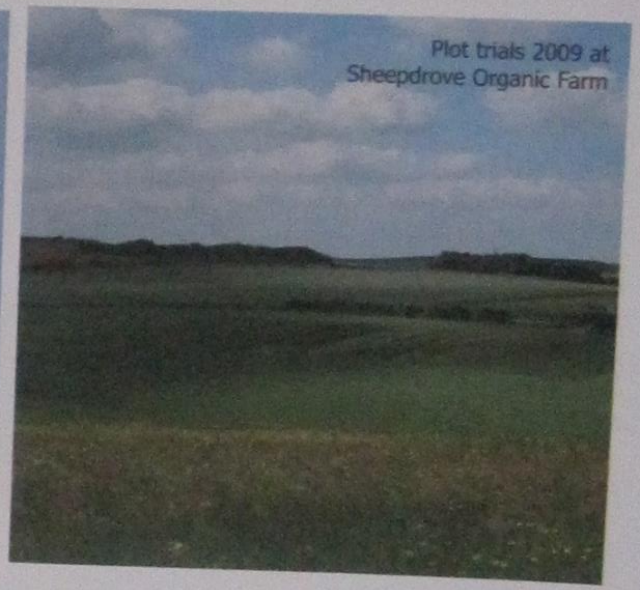
Professor Martin Wolfe


POPULATION
INTERCROP


CAROLUS

"...the more widely and perfectly the animals and plants are diversified for different habits of life, so will a greater number of individuals be capable of there supporting themselves." (Charles Darwin, 1859)

Using high genetic diversity can increase the reliability and stability of crop performance. This approach is being trialled with winter wheat across a large range of environments in the UK.



The challenge

- Higher frequencies of extreme weather events predicted

The benefits of using greater genetic diversity in wheat

CENTRE

ELM FARM

Chickens Return to Their Woodland Roots

Chickens and trees

Organic poultry production is good but not perfect, often over-reliant on imported feeds and not making full use of the range. To provide the highest welfare standards and most natural conditions possible for raising chickens we designed and implemented a novel silvopoultry system on Sheepdrove Organic Farm. The birds are part of the whole farm rotation, obtaining more of their feed from bugs and plants in the range and providing nutrients for the following crops.

ELM FARM

Balancing Productivity with Environmental Protection

Climate change and mounting concerns about energy supply have placed new demands on agriculture. We need to develop new land-use systems that can resolve the 'food vs. fuel' conflict, enhance biodiversity, sequester carbon and are adaptable and robust to climate change. Agro-forestry - the integration of trees into farming systems – has the potential to meet these multiple demands, and our eco-agroforestry programme is leading the way in investigating this low-input, biodiverse approach to sustainable production.




Social and economic benefits

- Economic stability

Environmental benefits

Crop height, yield and lodging in organic oats: Looking at response to added fertility

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INTRODUCTION

Oats (*Avena sativa*) are a resource-efficient crop, well suited to organic and low-input systems. They are highly competitive against weeds, partly due to their tallness. However, tallness may come at the cost of increased lodging, i.e. the crop falling over and lying down, and breeding effort has gone into the production of dwarf varieties.

To understand the relationship between yield, height, and lodging in oats under organic conditions, the performance of eight winter oat varieties was compared under two different fertility regimes on an organically managed site in the UK over two years as part of the QUOATS project (**www.quoats.org**). Fertility was found to have little effect on yield although it increased lodging. Across oat varieties, tallness was positively correlated with yield.

RESULTS AND DISCUSSION

In the first year of trials (2009/10), higher fertility significantly increased **lodging** in both the husked ($p < 0.01$) and the naked oats ($p < 0.05$).

However, higher fertility did not significantly increase yield in either the husked or naked oat varieties. Lodging only occurred in plots where the average plant height was 95 cm or more (**Fig. 1**).

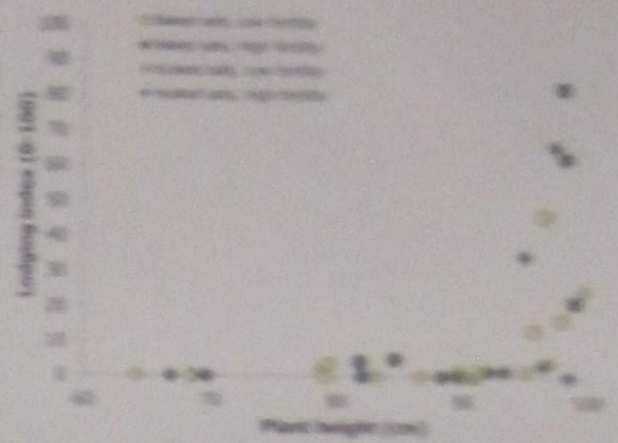

Fig. 1: Relationship between height and lodging in the first trial year (2009/10)

In the second year of trials (2010/11) no lodging was observed in any of the trial plots due to dry weather in spring.

cover crops

OSCAR

Optimising Subsidiary Crop Application in Rotations

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Introduction

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 which aims to maintain soil structure by

- minimising **soil disturbance**,
- maximising **soil cover**, and
- and using **crop rotation**.

Impact through a Cover Crop Toolbox

OSCAR will develop a Cover Crop Toolbox, which –

- Brings together the **knowledge generated** through the research and make project information available
- Reduces the fragmentation of existing knowledge by **drawing together existing information** in a central place.
- Aims to **help farmers** to identify SC species most suited to their specific production systems, including economic aspects and