

RIGHTSTART RIGHTRESULT

CONNECTING CROP ESTABLISHMENT WITH AGRONOMY FOR HIGH OUTPUT CROPS



Lean Machines Finding The Economic Balance For Optimum Crop Establishment

With today's low crop prices and escalating fuel prices, the need for effective crop establishment has never been more critical. It has become clear, however, that the key is to find the optimum system for each farm, minimising costs but also maximising yield. It is this 'lean' but profitable balance that we have endeavoured to discover in a series of trials. Vaderstad and Masstock have been

working on specific crop establishment trials for almost two years now. This partnership has proved to be very constructive, generating new thoughts and techniques in cultivations and drilling. In this newsletter we have summarised the main points from the past season's work and added a brief protocol of the work that is being undertaken this autumn.

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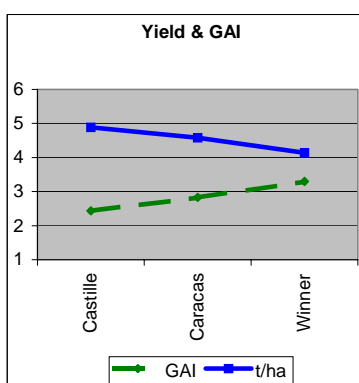
Equipping you
With establishment and agronomy systems for high performing crops

Oilseed Rape Establishment and Variety Interaction

Over the last few years there has been much interest in reducing both the costs and time associated with establishment. On many farms oilseed rape now occupies up to 30% of the acreage. It is of similar profitability to wheat. However, yields have not increased over the last 15 years despite the potential of 7.5T/ha. We need to lift rape performance and not jeopardise the results from 30% of the farm by not getting establishment right.

Last year we looked at three establishment systems (direct drill, single pass with discs, 2 passes) and six varieties (2 hybrid, 2 low biomass and 2 conventional). Due to wet harvest and soil structure damage, the whole field was sub-soiled at 10" – with the wet autumn this turned out to be most important decision with sub-surface drainage a key factor.

MEAN of Input Yield	Yield			Mean
	Simba	Carrier	Direct	
Castille	4.9	5.0	4.9	4.9
Toccata	4.2	4.9	4.9	4.7
Caracas	4.7	4.8	4.4	4.6
Excalibur	4.2	4.7	4.7	4.5
Winner	3.7	4.4	4.4	4.1
Lioness	3.8	4.2	4.2	4.1
Mean	4.2	4.7	4.6	4.5



Establishment was similar across all cultivation systems. Compaction soil resistance was lower on the direct drilled as each cultivation pass compacted a fragile soil. However discing produced aeration of the soil and mineral N release resulting in higher above ground biomass from spring growth.

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Vaderstad Ltd

The UK subsidiary of Vaderstad Verken AB has been supplying Vaderstad machinery to the farmers of Great Britain and Ireland since 1992 and has now delivered more than 6,000 machines (including over 2,000 Rapid drills) to farmers throughout the market.

The Vaderstad Ltd team work closely with their 65 dedicated dealers to bring the customer the service and support that they have come to rely upon and expect from the market leaders in cultivation and seed drilling machinery.

Masstock Arable UK

Masstock Arable UK are one of the UK's leading agronomy groups and supplier of seed fertiliser and crop protection products. Working through twenty two local companies, Masstock agronomists support their farming customers with advice and technology to manage their farms efficiently and maximise the economic returns from their arable enterprise.

We operate one of the UK's most advanced arable trials programmes, working with a number of specialist partners such as Vaderstad, to equip our customers with the most up to date solutions to boost yields and gross margins.

OSR Establishment & Variety Interaction

Cultivations

In the wet autumn of 2004 the key to success was water movement down through the profile. By sub-soiling the whole field we took out the biggest variable in rape establishment in Autumn 2004.

Varieties

There was a trend for higher biomass and hybrid varieties to perform better under the direct drill system where a lower, more appropriate canopy was created.

Top Down Cultivation Work

As many growers looked to min till to save cultivation costs, a disc based system was often the first approach. On many soils this resulted in a disc pan developing, resulting in poor subsurface drainage and rooting with a need to rectify the problem with sub-soiling. The introduction a number of years ago of the Simba Solo with its discs and deep working tines enabled a one-pass system. However, on lighter soils is the Solo too aggressive - could a less invasive tool achieve a similar one-pass result ?



We compared the Vaderstad Top Down against the Solo, cultivating alternate tramlines on two soil types. Site 1 was near Hungerford on a chalk soil (Frilsham association), the depth of soil overlying the chalk varying from 25- 40cm. The crop planted following cultivation was Oilseed rape; the previous crop was winter barley.

The Simba Solo mixed/buried the barley stubble throughout the top 12 cm of the soil profile. The Top Down, with its less aggressive discs, left more trash on the surface. From a rape development perspective no differences were detected between cultivations during the season. Any variation in crop height and development related to depth of soil over the chalk. Good rooting was found under both cultivation regimes and no differences were found in soil compaction.

Site 2- was near Faringdon- the soil is an Oxford Clay. Here the soil was anything but free draining and was in need of sub-soiling. The previous crop was set a side and following cultivation was planted with an early drilled crop of winter wheat. In January there were no obvious differences between cultivations, the soil was wet but with generally good structure with plenty of vertical fissures. On both cultivation systems there was still a more consolidated layer down at 40cm with water slow to move through it but wheat roots were starting to penetrate through this layer.

Indications from this work were that the Top Down created as good establishment and soil structure as the Solo but cost less per Ha.



2005/6 Development Work

Oilseed Rape Work

Two areas for further investigation came out of last years work. Firstly there is a lot of interest in establishing rape in chopped straw. Unless this straw is adequately chopped and mixed in the soils, many drills struggle to cope. One way round this has been to use a seed broadcaster on the back of a cultivator. Vaderstad make the Bio-drill (a broadcaster fitted on their Carrier disc system) and this year have introduced their Top Down including their Biodrill. This year we will compare three cultivation systems with and without straw removed. 1) Top Down Bio drill 2) Carrier Bio- drill 3) Single discing followed by drilling with Vaderstad System disc drill. The second area of interest has been plant population and seed rate. Observation work in 2005 had shown that a plant population of Winner Oilseed rape of just 15 plants/m² remained standing, branched extensively, produced more even pods and carried on grain fill for a further 7-10 days compared to the rest of the field where 50 plants/m² had been established. We have selected seed rates of 30, 60 and 90 seeds m² to look at under each cultivation regime.

Lean Wheat Establishment

The recent hikes in the oil price have once again re-focused the mind on cultivation costs. With much oilseed rape having been established with sub-soiler broadcaster systems last year followed by the dry harvest, would these fields present an opportunity to save money on this years wheat establishment and maybe even enable direct drilling ? We have set up a wheat establishment trial comparing a Plough based system with the Vaderstad Top Down. We will be looking at crop development including detailed studies on rooting and any subsurface drainage issues as well as that key measure of final yield.

Vaderstad vs Horsch Drill

Over the last three years we have been investigating the relationship between crop competition and blackgrass control. Early wheat competition has been found to reduce blackgrass tillering and final blackgrass head number by 35%. Evenly spaced seed will help create that competitive environment. Work last year showed a much greater variation in seed distribution with the Horsch drill compared to the Vaderstad system. Unfortunately in last years sites we had too little blackgrass to see if this carried through to influencing blackgrass head number. This work is being repeated this year on three sites.

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We hope you can join us during the 2005/6 season to view and discuss our joint development work. Please consult your Masstock or Vaderstad specialist for more information