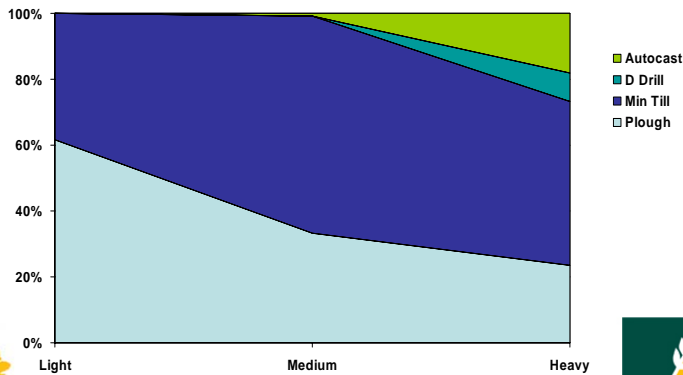


Oilseed Rape—Early Autumn Pointers 2007

WOSR – Changes in Cultivation Method with Soil Type 2005



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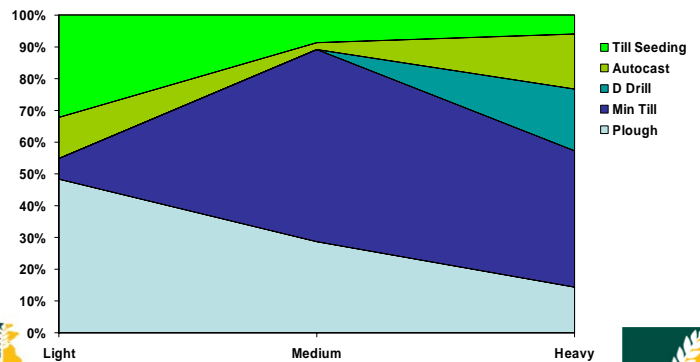
Source: ProCam 4cast

Ploughing was still the preferred method of establishment on light soils in autumn 2004 with a big shift towards min till on medium soils and a wide variety of methods used on heavy soils. Obviously, the main causes of concern on the heavier soils is loss of moisture during cultivations and reduction of establishment cost. Hence, autocasting and direct drilling feature more on these soil types.

In autumn 2005 the trend towards using 'Till seeding' to establish oilseed rape was picked up in 4cast data.

Ironically in percentage terms most shows up on the lighter soils—probably not a true reflection of actual farm practice. But the data emphasise the further shift away from ploughing to more 'one pass' systems

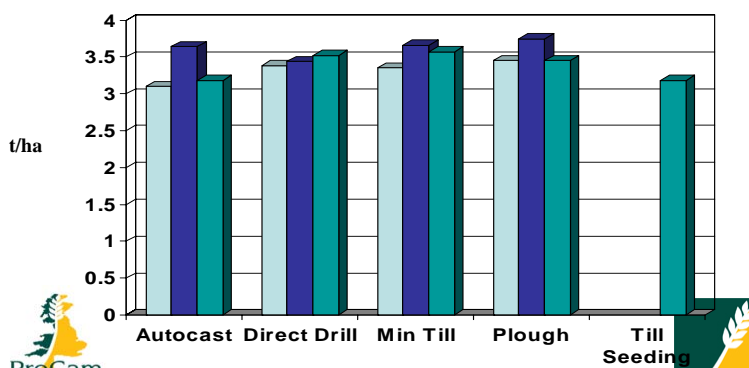
WOSR – Changes in Cultivation Method with Soil Type Harvest 2006



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Source: ProCam 4cast 2006

WOSR –Interaction of Yield with Establishment Methods 2000-04 v 05 v 06



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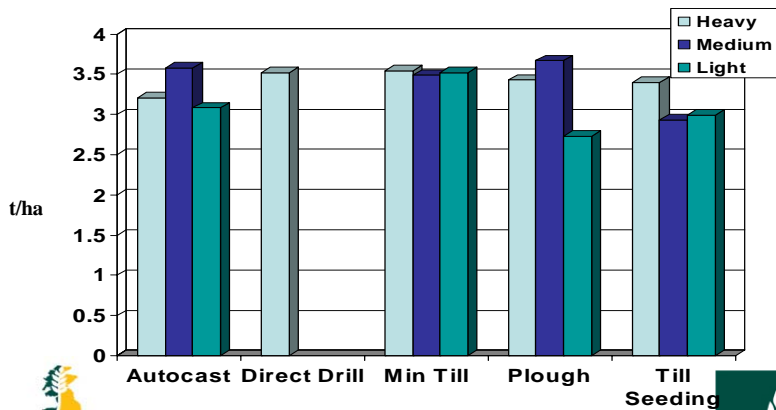
Source: ProCam 4cast 2000-06

There would appear to be little difference in yield across all establishment methods. The average for the 2000-04 period is compared with the individual years 2005 & 2006.

Overall, there is little to choose between any of the methods except possibly a lower trend and more variability from autocasting.

'Till seeding' i.e. mounting a seed box on a cultivator—usually a subsoiler or flat lift has only featured as a separate method for 1 year and recorded yields from 2006 were below those from conventional Min Till.

WOSR –Interaction of Yield with Establishment Methods & Soil Type Harvest 2006



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Source: ProCam 4cast 2006

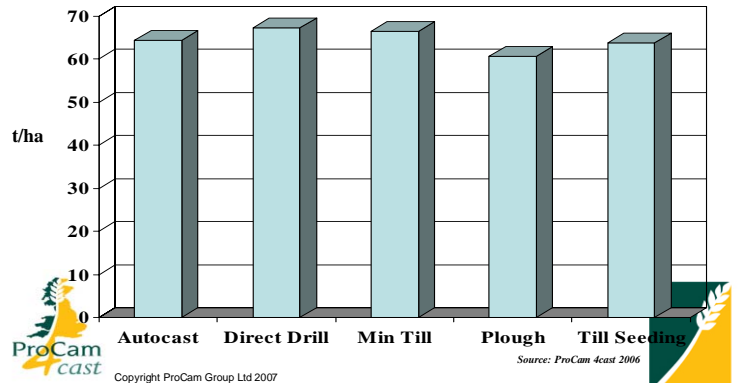
Looking at last year's 4cast data in more detail shows that 'Till seeding' stood up well on the heavier soils but yields were not as good on the lighter soil types.

From last year there may well be an effect of the high temperatures and dry soil conditions during pod fill. Crops after ploughing on the lighter soils also seemed to suffer disproportionately.

The 'one pass' systems of establishment do not appear to require any significant increase in herbicide inputs.

Costs are lower with a plough based system as might be expected. Also most of the ploughing was done on the lighter soils where the weed burden—especially grass weeds may not be so great.

WOSR –Interaction of Herbicide cost with Establishment Method 2006



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Source: ProCam 4cast 2006

OSR Establishment Costings

Establishment Method	Est cost/ha	Time req.
Autocast type	£8.00	Min
Direct drill	£27.00	
Till-Seeding - Stubble cultivator	£28.00	
Till-Seeding - Subsoiler	£50.50	
Typical minimum till	£98.00	
Plough based Establishment	£108.00	Max



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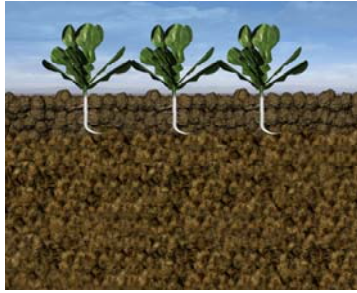
Using contractor costs - J.Nix 2006

The main reason for looking at one pass or reduced tillage options is to reduce costs.

The adjacent figures give some guidance on relative costs/ha of the various establishment techniques.

Establishment costs are estimated to make up around 40% of labour and machinery costs on arable farms. Any method of reducing establishment cost can have a major impact on overall fixed costs and net farm income.

The Key - Rape is a Lazy Root



Soil Structure is Critical



Copyright ProCam Group Ltd 2007

Source: Opico



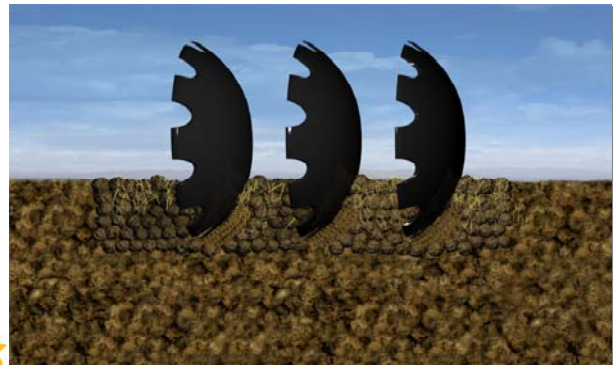
Oilseed rape is described as a 'lazy rooter'. Low level compaction in the seedbed layers and top-soil can impede root development and lead to 'horizontal' rooting that may in dry seasons, limit the plant's ability to extract water and nutrient from the soil.

Creating a firm but uncompacted seedbed is key to rapid and effective crop development.

The very action of a disc on the soil is to compact it. In the wrong soil conditions i.e. too wet, localised compaction can be created in the cultivation zone.

Hence sequences or combinations of discs and tines are needed to avoid creating these problems.

Disc Effects on Soil



Soil Structure is Critical

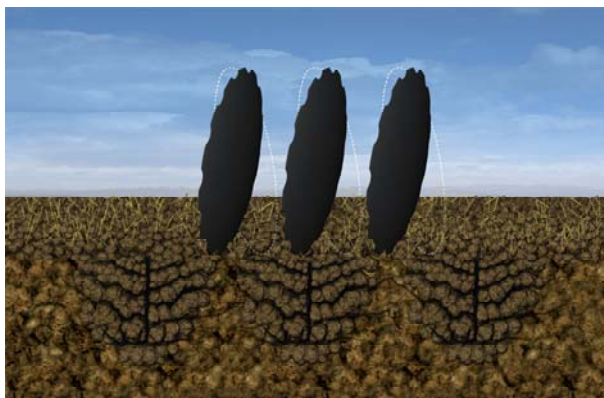


Copyright ProCam Group Ltd 2007

Source: Opico



OSR Combi Lift & Disc



Soil Structure is Critical



Copyright ProCam Group Ltd 2007

Source: Opico



Till seeding using subsoilers or combinations of discs and subsoilers is claimed to leave the topsoil in a more loosened state to allow fast and deep root establishment.

Other drills e.g. Horsch and the Claydon No Till with deeper penetrating tines may also drill oilseed rape into a similarly loosened and open seedbed.

A disadvantage of till seeding is that although it is potentially a 'one pass' system workrate is restricted to the width of the cultivator or subsoiler. Also further passes with a press and/or rolling are also usually required.

Mintill vs Subsoiler Till-Seeding

Conventional Mintill Plant

Average plant weight 25 g
18 g Leaf & 7 g Root



Subsoiler Till-Seeded Plant

Average plant weight 30 g
20 g Leaf & 10 g Root

11% more Leaf

43% more Root

(10 washed plants were taken from each crop all with 6 true leaves)



Copyright ProCam Group Ltd 2007

Source: Opico



Claims from Opico are that oilseed rape established with a subsoiler grew more vigorously in the autumn and produced more leaf and root than a conventionally min-tilled plant

Canopy Management has been the fashionable topic of conversation in oilseed rape in recent years. A final Green Area Index of 3.5 is estimated to allow optimum light interception for yield.

The suggestion is that plant populations can be reduced compared to those often produced on farm.

Nitrogen and growth regulating fungicides can do a lot to help but the key is starting with the right number of plants in the first place.

Target Oilseed Rape Populations

- Target GAI 3.5
- Conventional Varieties 30-40 pl/m²
- Hybrid Varieties 25-35 pl/m²



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Oilseed Rape Dense/lodged canopies

- Excessive early season leaf and stem growth.
- Poor light penetration to lower pods.
- Increased pod & seed abortion.
- Increased lodging.



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Oilseed Rape Canopy Management



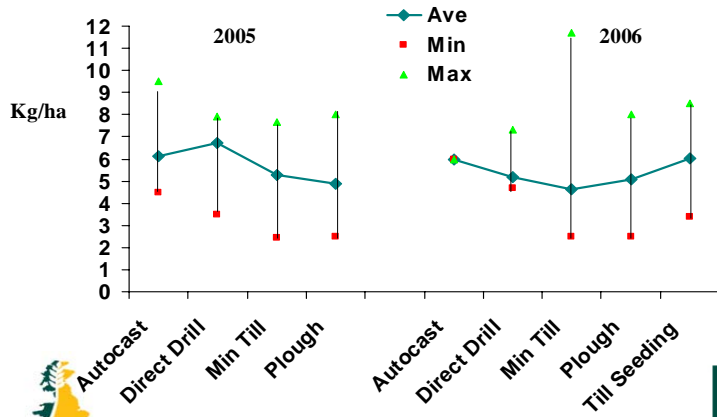
- A relatively open canopy at and just after flowering is important
- Photosynthetic activity of the leaves is what increases seed numbers and size
- "Seed Numbers in rape correlate directly to the amount of light that can be intercepted by the green tissue within the crop soon after mid-flowering"



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WOSR – Variation in Seed Rate with Establishment Method Harvest 2005 & 2006



Copyright ProCam Group Ltd 2007

Source: ProCam 4cast 2005-2006

ProCam 4cast data from the last 2 harvests shows that average seed rates for oilseed rape have stayed broadly the same irrespective of establishment method.

The average has stayed around 5-7 kg/ha but it is worth noting the ranges over the last 2 years as well.

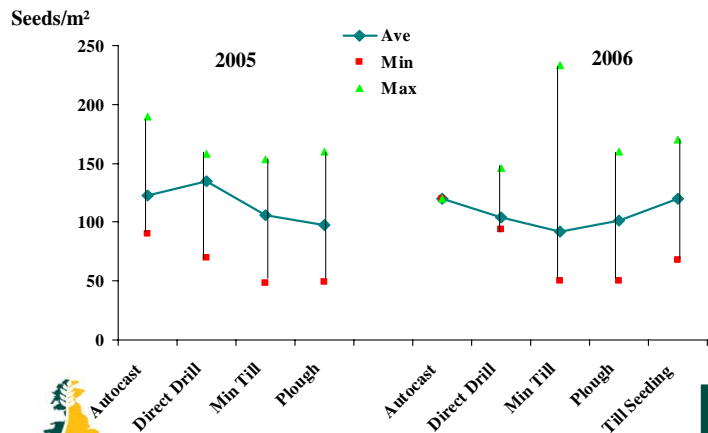
Translating the seed rates into seeds per m² obviously produces the same shaped graph but the different scale indicates that at a typical thousand seed weight of 5 g/ 1000 average seed numbers sown could have ranged from 110-150 seeds/m².....

....somewhat in excess of the suggested optimum of 60-80 seeds/m²!

At the maximum seed rates recorded seed numbers are even more excessive

Only at the lowest recorded seed rates are seed numbers approaching the desired levels.

WOSR – Variation in Seed Nos with Establishment Method Harvest 2005 & 2006



Copyright ProCam Group Ltd 2007

Source: ProCam 4cast 2007

Assuming 5g/1000 seed

WOSR Seed Rate - Getting It Right !

- TSW makes a big difference:-

If drilling 60 seeds/m²

- 4g TSW = 2.4 kg/ha seed
- 6g TSW = 3.6 kg/ha seed
- 8g TSW = 4.8 kg/ha seed

If drilling 6 Kg/ha

- 4g TSW = 150 seeds/sq m
- 6g TSW = 100 seeds/sq
- 8g TSW = 75 seeds/sq m



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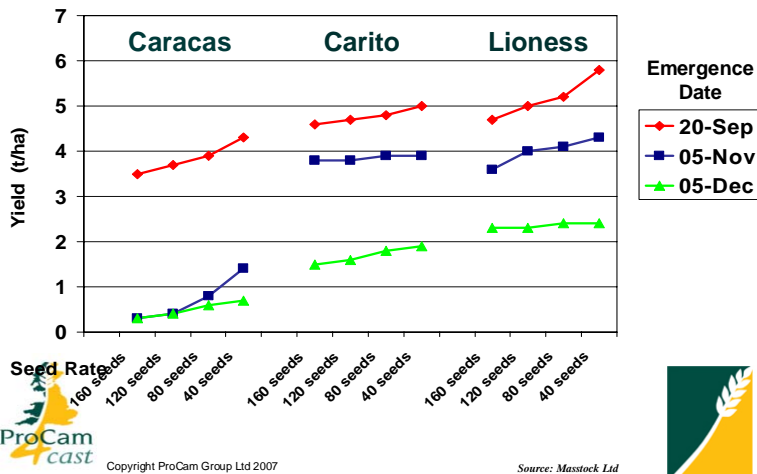
The figures opposite illustrate the impact that Thousand Seed Weight has on seed numbers.

If the drill adjuster is welded tight at 6kg/ha seasonal variation in TSW will have a tremendous impact on seed numbers sown and on the crop canopy produced.

Alternatively, a target of 60m seeds/m² will need widely differing weights of seed according to the TSW.

This year seed size looks to be big due to water availability during pod fill. So, TSWs could be at the higher end of the range—don't over adjust this year!

Brotherton SMARTfarm



The adjacent graph shows data produced from a Masstock trial where 3 varieties were drilled at 4 seed rates at 3 drill dates.

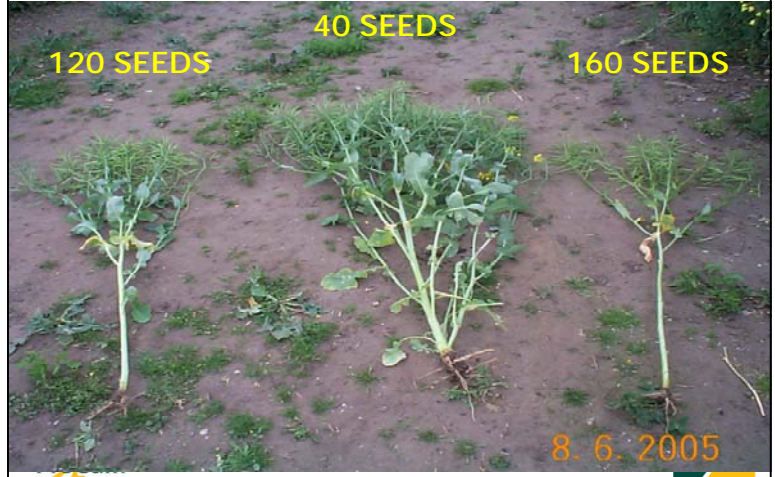
Yields fell off dramatically as drill dates were delayed

But at all drill dates the higher yields were produced at the lower seed numbers. At the earliest sowing date 40 seeds/m² was producing the best yields— close to 6 t/ha on the Lioness.

Lower seed and ultimately plant numbers produced a much more branched plant with lateral branches coming from much further down the main stem.

60% of oilseed rape yield is produced from the lateral branches so a thinner, more evenly branched plant has a greater capacity to produce better yields.

Pod numbers per raceme were also greatly increased.



WOSR - Effect of TSW on Seed Rate For Establishment

	40 Seeds	80 Seeds	120 Seeds	160 Seeds
Lioness 4.3 TSW	1.7	3.4	5.2	6.9
Carito 5.5 TSW	2.2	4.4	6.6	8.8
Caracas 6.3 TSW	2.5	5.0	7.6	10.1

Seed rate in Kg/ha

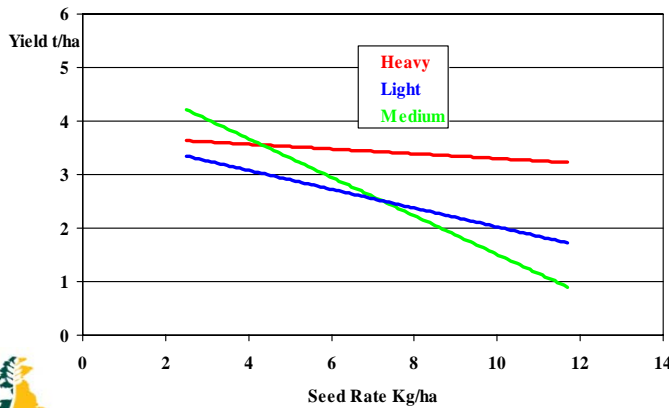
The table opposite shows the actual seed rates used to establish the above trial.

The figures emphasise the adjustment in actual seed rates required between varieties depending on TSW.

These variations will also exist between different seed lots of the same variety and certainly between different seasons.

The last 2 years have seen generally low TSWs - this year could be different!

WOSR – Interaction of Seed Rate with Yield Harvest 2006



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Source: ProCam 4cast 2006



To support the case for lower seed numbers and ultimately lower seed rates, 4cast data from last year confirms the trend that yields decline as seed rate is increased.

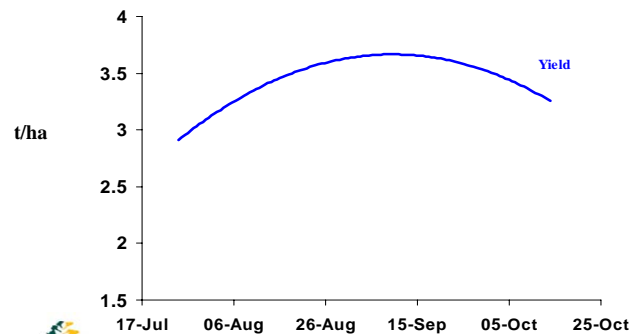
The effect is more dramatic on the lighter soils. Is this indicative of increased water demand from a bigger canopy when soil moisture may have been restricted in a dry pod-fill period?

Over the last few years the better yields seem to be produced from drill dates in the latter part of August into early September. This was confirmed again in 2006 as shown in the adjacent graph.

There seems to be little advantage in drilling in the first half of August as has become popular in recent years.

(some of the early sowing may be from auto-cast crops which will be sown when the previous wheat crop is harvested.)

WOSR Response to Drill Date Harvest 2006

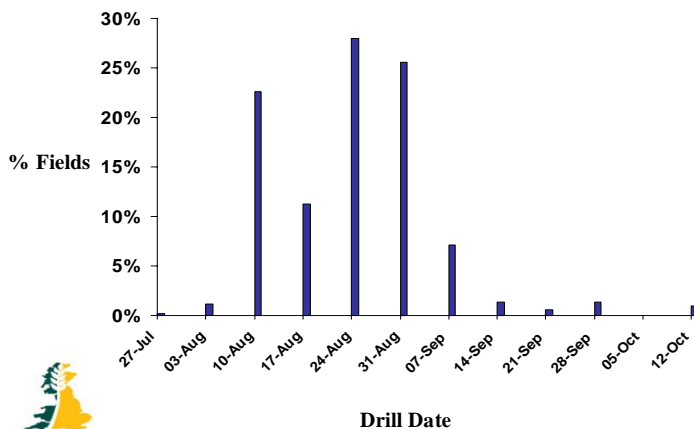


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Source: ProCam 4cast 2006



WOSR Drill Date Pattern Harvest 2006



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Source: ProCam 4cast 2006

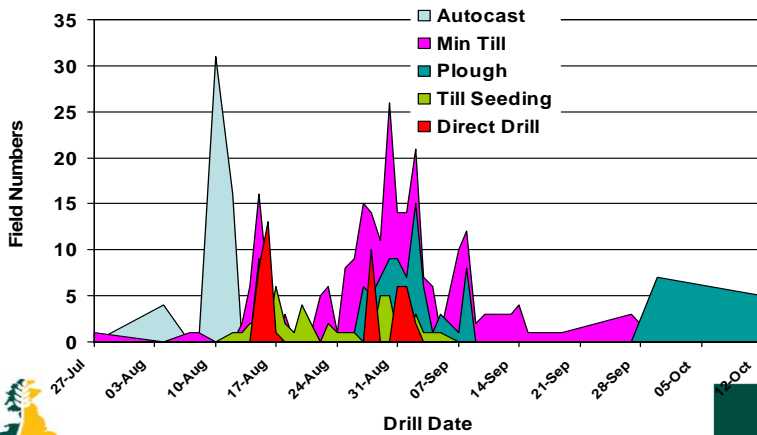


For interest the adjacent graph shows the drilling date pattern for the 2006 crop.

Over 50% of oilseed rape fields on 4cast were sown in the weeks beginning the 24th & 31st August.

Another 20%+ were sown in the week beginning 10th August—indicative of a wet week and a break in combining or autocast crops?

Interaction of Drill Date with Establishment Method Harvest 2006



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Source: ProCam 4cast 2006

Plotting drill date against cultivation method shows that the peak in mid August was due to auto cast crops.

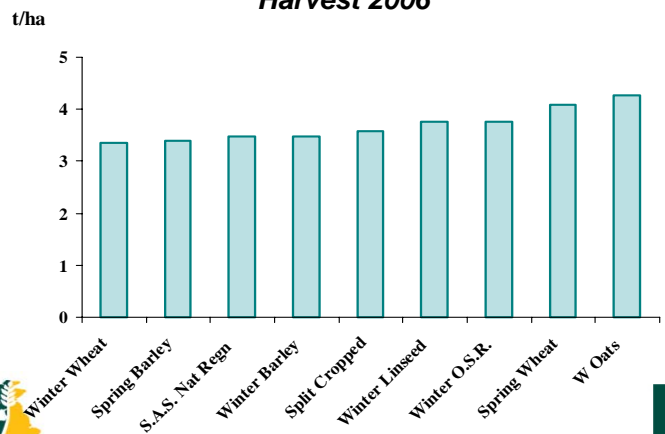
The other establishment methods were associated with a wider range of drill dates. But the peak of drilling activity was in the late August—early September period

With the improving cereal prices and better prospects for gross margins from winter barley there is a thought of going back to barley as entry for oilseed rape.

The earlier harvest of the barley crop would allow more time to permit better seedbed preparation and weed control for the oilseed rape and lead to improved yields.

Plotting oilseed rape yields against previous crop would seem to support this idea.....

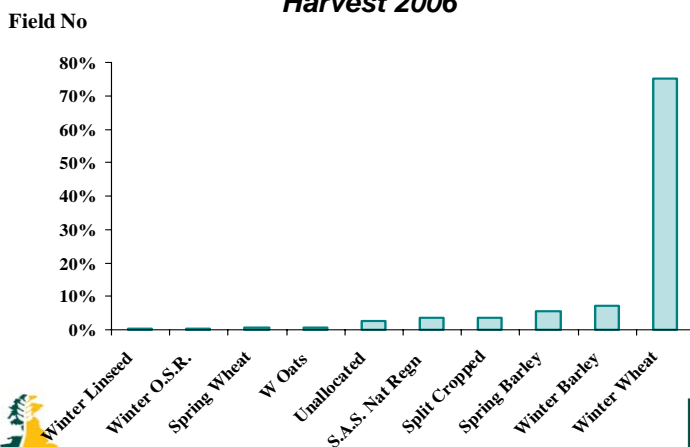
WOSR – Interaction of Yield with Previous Crop Harvest 2006



Copyright ProCam Group Ltd 2007

Source: ProCam 4cast 2006

WOSR – Establishment and Previous Crop Harvest 2006



Copyright ProCam Group Ltd 2007

Source: ProCam 4cast 2006

.....unfortunately the comparison is an unfair one.

Over 75% of oilseed crops on 4cast were established after winter wheat in 2005/06 and only a handful after the various alternatives. So, no firm conclusion can be drawn but this will be monitored.

Target seeding rate	80 seeds/m ²	100 seeds/m ²	120 seeds/m ²
Bag weight Kg	Drilling rate Kg/Ha		
16.5	3.3	4.1	5.0
17.0	3.4	4.3	5.1
17.5	3.5	4.4	5.3
18.0	3.6	4.5	5.4
18.5	3.7	4.6	5.6
19.0	3.8	4.8	5.7
19.5	3.9	4.9	5.9
20.0	4.0	5.0	6.0
20.5	4.1	5.1	6.2
21.0	4.2	5.3	6.3
21.5	4.3	5.4	6.5
22.0	4.4	5.5	6.6
22.5	4.5	5.6	6.8
23.0	4.6	5.8	6.9
23.5	4.7	5.9	7.1
24.0	4.8	6.0	7.2
24.5	4.9	6.1	7.4
25.0	5.0	6.3	7.5

The table opposite appears on Monsanto's varieties' bags. These are packaged at 4 million seeds per bag. The table then allows the farmer to work out seed rates in kg/ha for a given target seeds/m²

This table is for conventional varieties. Hybrids need a different table to reflect the lower seeding rates e.g. 60 seeds/m²