

Soil conditions and oilseed rape establishment



Subcasting

Soil conditions

Oilseed rape seedlings are weak and susceptible to poor seedbed conditions, weather and early growing conditions.

Many growers have settled on establishment methods that suit their farms. However, different seasons require flexibility due to weather conditions and degree/location of soil compaction as well as available machinery on the farm.

Adapting the planting method to each season's conditions can improve establishment and subsequent root development through the soil profile (Figure 2).

A good soil structure that allows water infiltration will reduce the risk of herbicide run-off to water courses.

Slug activity before cultivation is an ominous sign. Thorough cultivation followed by effective consolidation significantly reduces risk.

Agronomy factors

Weather conditions, not date, should be the main driver. Early sowing may ease autumn workflow but increase pesticide costs, but reduce nitrogen requirement.

Variety type – conventional or hybrid – has no consistent effect on suitability for early or later sowing. Any differences are likely to be masked by environmental effects.

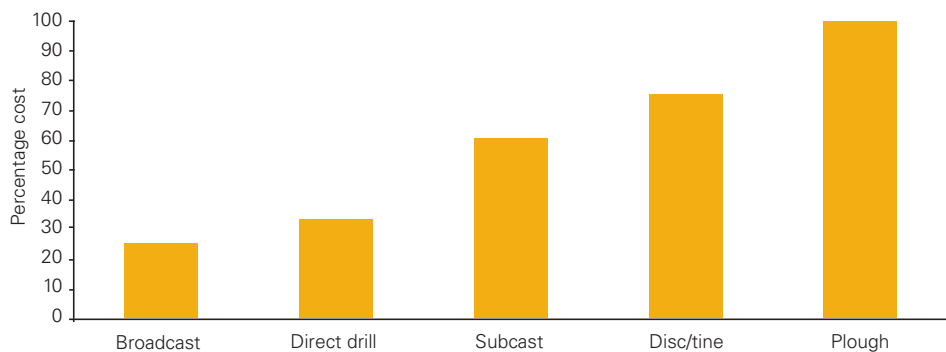
Autumn nitrogen, where considered necessary, should be applied to the seedbed – or as a dressing – before mid-September. Crops sown after early September are unlikely to benefit.

Consolidation is critical for establishment and for optimum performance of soil-applied herbicides and helps to reduce slug damage.

Seed rates may need to be amended according to establishment methods.

As well as equipment availability and soil conditions, costs of different options may influence choice (Figure 1).

Figure 1. Relative costs of different establishment methods



Establishment options

Broadcasting and cultivation

Spreading seed into standing cereals, or via 'Autocast', while very cost-effective is high risk. Often, straw spreaders cannot evenly distribute chopped straw. A dense straw mat may cause spindly seedlings prone to growth cracks and phoma. Typically slug pellets are applied with seed.

Key points

- Assess soil conditions and check for compaction in July well before sowing oilseed rape.
- Identify an appropriate establishment method.
- Change plans if harvesting causes compaction and/or surface trash is poorly distributed.

If soil is in poor condition consider:

- ploughing, with or without subsoiling, especially if slugs are a problem; consolidate soil afterwards
- non-inversion tillage or subcasting; consolidate soil afterwards.

If soil is in good condition consider:

- non-tillage methods, including broadcasting and Autocasting
- scratch tillage methods and direct drilling.

Always consider your local conditions and consult a BASIS-qualified adviser if necessary.

Do not broadcast seed on to compacted soil without tilth.
Do not broadcast slug pellets into a standing wheat crop to avoid contamination of grain at harvest.
Do not broadcast treated seed.
Do not use pre-emergence herbicides on broadcast crops.

Leave lengthy stubble to minimise trash and crop residues. Roll as soon as possible after seeding. Regularly monitor for slugs. While broad-leaved weeds are unlikely to be a problem, watch for an early flush of volunteer cereals. Thistle control may be needed later.

Direct drill or scratch tillage

Consider this option if no surface tilth is present, particularly on lighter soils, as soil moisture loss is minimised. It is less risky than using Autocast in most seasons. However, slug attack and a rapid flush of volunteers can still be problems, and broad-leaved weed control may be needed.

Seed on the surface precludes use of treated seed and pre-emergence residual herbicides. Trash – particularly if poorly distributed and in large amounts – can be a problem and a stubble or trash rake may help. Consider leaving long stubble to minimise trash and dissuade pigeons from landing.

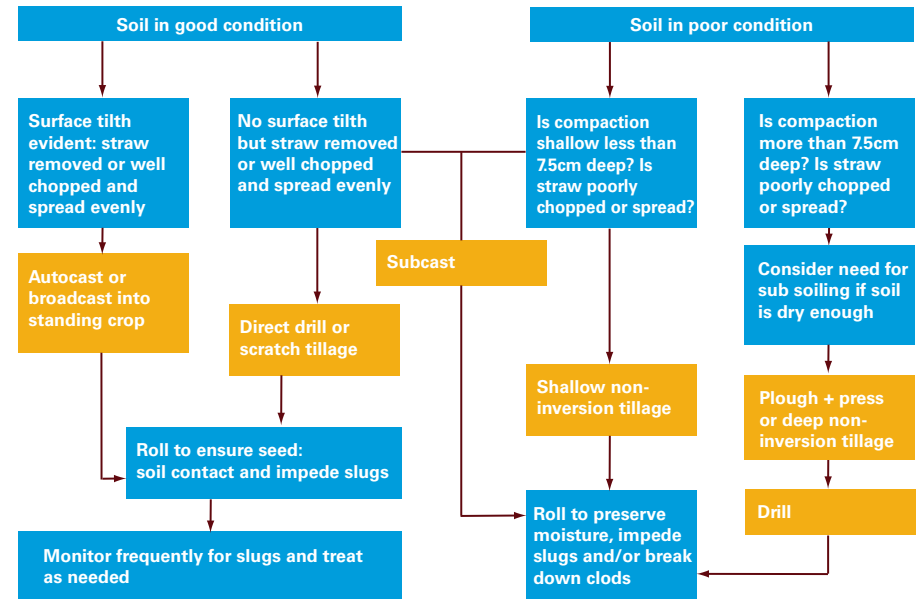
‘Subcasting’

Seed is distributed into disturbed soil behind widely-spaced tines, such as those of a subsoiler. This system can work well in dry soil conditions, where there is surface capping or shallow compaction. However, on wet soils tines can make waterlogging and root penetration worse.

Adjust equipment to ensure seed placement in the prepared seedbed, not immediately behind the leg, at less than 5cm depth.

The method can cope with high trash levels as legs are widely spaced. Speed depends on machine width. A relatively shallow pass, when soil is not compacted at depth, will reduce draught requirements and diesel usage.

Figure 2. Choosing between establishment and cultivation options



It is essential to roll to effectively consolidate afterwards.

A broad-leaved herbicide is likely to be necessary.

Non-inversion tillage

Disc, or tined, cultivators offer greatest flexibility, particularly if seeder can be coupled or de-coupled easily. Some mixing is desirable if soil is compacted near the surface and/or high doses of residual herbicides were used in late spring or early summer in the previous crop.

Consolidate to reduce slug populations and apply a pre-emergence herbicide. Control germinating volunteer cereals and roll to minimise moisture loss.

Ploughing systems

Ploughing, often the last resort on poorly structured soil, is expensive and slow. However, it will reduce slugs if soil is properly consolidated afterwards and help to reduce grass weeds in a rotation.

Problems can be massive moisture loss and expensive secondary cultivations.

Pre-emergence herbicide is needed to control broad-leaved weeds, but

volunteer flush will be slower than after shallower cultivation. Rapid secondary cultivation and consolidation saves moisture and can produce the best seedbed.

Further information

Ben Freer, The Arable Group
ben.freer@thearablegroup.com

Topic Sheets **37** (2000), **59** (2002), **85** (2005), **88** (2005), **103** (2009),

Project Reports OS13 (1995), **OS31** (1998), **OS40** (1999), **OS55** (2002), **373** (2005)

Soil management for sustainable profit (2005) HGCA (G27)

HGCA has provided funding for this project but has not conducted the research or written this report. While authors have worked on the best information available to them, neither the HGCA nor the authors shall in any event be liable for any loss, damage or injury howsoever suffered directly or indirectly in relation to the report or the research on which it is based.

Reference herein to trade names and proprietary products without stating that they are protected does not imply they may be regarded as unprotected and thus free for general use. No endorsement of named products is intended, nor is any criticism implied of other alternative, but unnamed products.

400917