

Soil Fertility and Weed Control

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Introduction

- ▶ Farming in Co Meath with two thirds arable, one third grassland/ commercial forestry. Growing a wide range of combinable crops.
- ▶ Co Meath was traditionally known as cattle finishing land, now widespread tillage cropping with a number of very large potato producers.
- ▶ Silty clay loam soils, not inherently free draining. Not ideal tillage soils but potentially very high wheat yields.
- ▶ Average yearly rainfall of 850mm

2001: A watershed

- ▶ Moved away from fully plough-based system in 2001.
- ▶ Power harrows should come with a soil health warning.
- ▶ Power harrows batter wet soils into submission. Soils were suffering.
- ▶ Continually forcing autumn seedbeds is farming without a future.
- ▶ Move to min till and shallow cultivations. Straw incorporated.
- ▶ Initially successful, top 3-4in became very friable, like a flower bed.
- ▶ Problems with compaction and water infiltration soon developed

SIMBA SOLO AT WORK WITH GOOD STRAW INCORPORATION AND DEEP LOOSENING.



Drawbacks and challenges

- ▶ Establishing spring min till crops has proved problematic on our heavy land. Obvious yield penalty over conventional establishment.
- ▶ Spring crops are rotationally important to us - spring OSR, beans, barley.
- ▶ Cultivating in the autumn for spring crops doesn't work.
- ▶ Cultivating in the spring doesn't work either. Soils come up slabby and are light years away from a traditional spring seedbed.
- ▶ Cover crops are probably the missing link

Benefits of Min Till to date

- ▶ Utilised successfully over the last 13 years. No yield penalty on winter crops.
- ▶ Occasional breaks due to poor weather (years of 08, 09, 12).
- ▶ Soil is in much better condition with residue incorporation and good friability. Organic matter content stable at around 5.5%.
- ▶ Establishment costs (metal and diesel) have fallen considerably (20L diesel/ha).
- ▶ Increased work rates.
- ▶ Water infiltration is good.
- ▶ Weeds challenges and pressure haven't hugely increased.

Strip-Till: A logical progression from min till?



Changing from min till to zero till?

- ▶ Zero till first appeared in the 1970s, then known as direct drilling.
- ▶ Renewed interest now. Several strip till farmers progressing to zero till.
- ▶ Drill directly into the stubbles, with no deep loosening.
- ▶ Advocates claim an increase in worm activity and soil micro organisms.
- ▶ Ultimate in low cost establishment and sustainable low carbon farming.
- ▶ Why might it succeed this time around?
- ▶ BEWARE; REDUCED COSTS WITH REDUCED OUTPUT IS NO GOOD.
- ▶ Strip till with localised deep loosening under the seed band seems right. That's a no to zero till for me.

Blackgrass and Sterile Brome

- ▶ Cultural control of sterile brome important (stale seedbeds)
- ▶ Importance of oilseed rape in rotation to control grassweeds.
- ▶ Thankfully we don't (yet) have to battle with the blackgrass scourge.
- ▶ Reports of isolated outbreaks across Ireland are extremely concerning. Be vigilant and take remedial action for any outbreaks.
- ▶ Having to deal with blackgrass in addition to high levels of disease pressure could be lights out for cereal production in Ireland from a cost point of view.
- ▶ Use of (mainland) UK imported seed should be avoided if at all possible.

Cover Crops: The missing link?

- ▶ Mop up available nitrogen for the following crop.
- ▶ Their root activity keeps the winter soil open, active and alive.
- ▶ Provide valuable nutrients for earthworms and other beneficials.
- ▶ Some species can help reduce compaction and plough pans.
- ▶ Improve filtration rates?
- ▶ Alleviate the soil from capping caused by heavy winter rainfall
- ▶ Potentially very useful in allowing spring crops to be successfully sown using reduced tillage methods.
- ▶ Choice of cover crop must suit your rotation (e.g. club root threat)

What cover crops can do for your soil



Muck and Magic

- ▶ A good cost-effective source of muck is invaluable but difficult to find.
- ▶ Benefits can be difficult to quantify. Range from no obvious effect to a totally flat field of wheat.
- ▶ The really unpleasant stuff is usually free but for good reason!
- ▶ Good pig slurry can be cost-effective as equipment to handle it may be already on farm.
- ▶ Don't underestimate the value of cover crops and incorporated crop residue in this regard.
- ▶ It's easy to be a busy fool with some organic wastes. Granular fertiliser might well be a cheaper option with predictable results.