



MGA Conference 2021

Min-till debate

Chair - Jon Myhill- MGA Agronomist

Ploughing for maize works

- Understand why you are ploughing
- If you can not plough well, then don't plough
- Target rotational ploughing
- Plough again if the need is there

- Ploughing before maize has achieved good consistent results
- Best for weed control
- Only way to incorporate manure well....

Aim of any tillage system:

- Weed control
- Incorporation of residue
- Improve or maintain soil structure
- Prepare seedbed

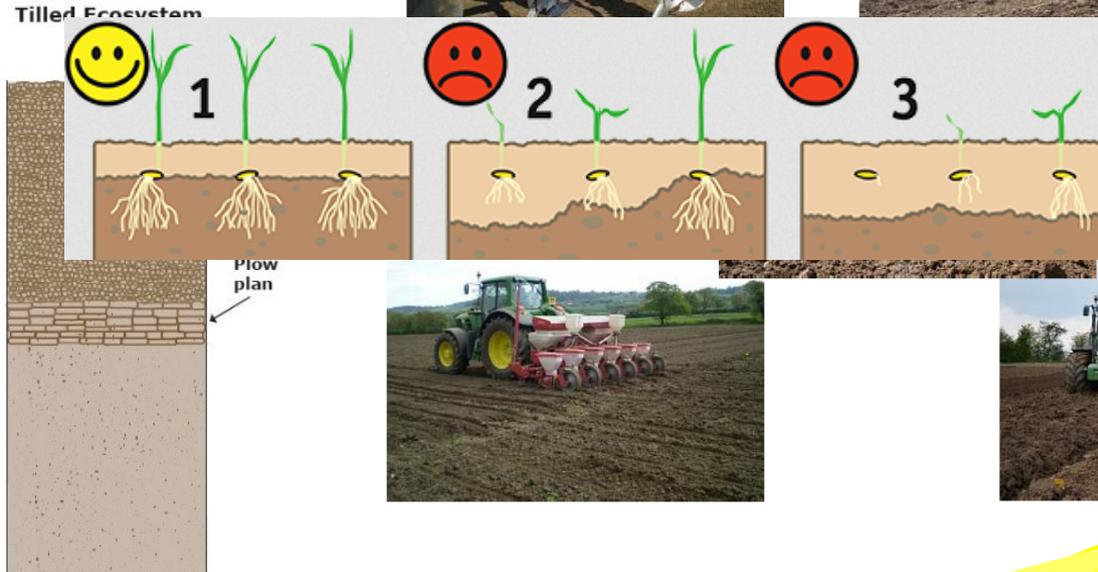
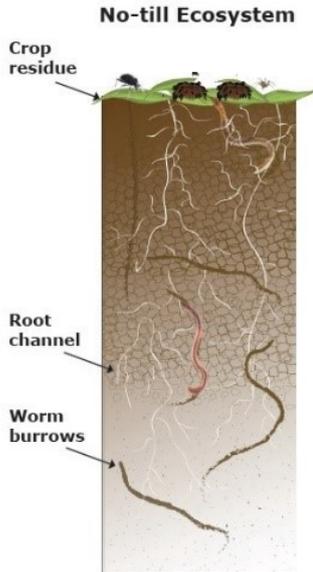


Many tools in the armoury when you plough



Key to success with seedbeds

- Remove compaction
- Don't lose moisture
- Adjust machines - depth, angles



On going work elsewhere



STAR Project

Further information

Visit niab.com or email: nathan.morris@niab.com

The STAR Project is

managed by NIAB TAG in conjunction with an independent advisory group and supported by The Felix Thornley Cobbold Trust and, historically, The Chadacre Agricultural Trust. The STAR project also contributes to a range of other research programmes including the SARIC funded Managing Herbal Leys in Arable Rotations project.



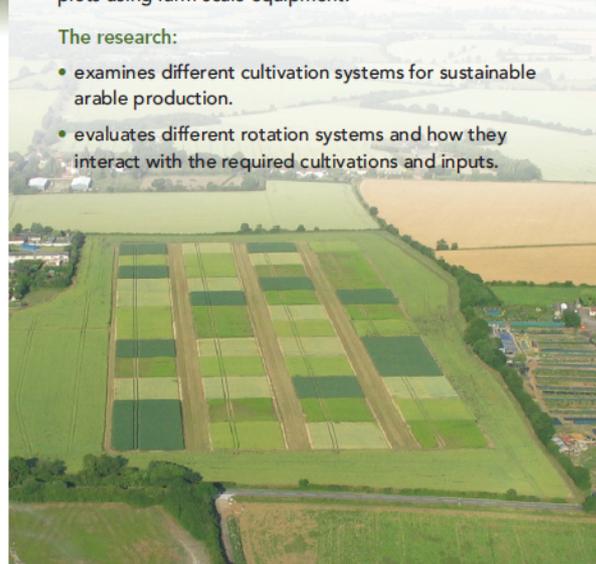
STAR Project

(Sustainability Trial for Arable Rotations)

The project started in 2005 and is fully replicated on large plots using farm scale equipment.

The research:

- examines different cultivation systems for sustainable arable production.
- evaluates different rotation systems and how they interact with the required cultivations and inputs.



NIAB TAG Star Project

	Plough	Deeper non-inversion	Shallow non-inversion
Crop yield (across rotation)			
Relative yield (% cf. plough) cv Shabras, 2018	100	98	99
Relative yield (% cf. plough) 2006-2018	100	96	95
£ margin (across rotation)			
Relative margin (% cf. plough) 2006-2018	100	104	104
Soil health parameter			
pH	7.2	7.1	7.1
Extractable P (mg/l)	17.1	17.6	17.9
Extractable K (mg/l)	106.2	112.3	110.0
Extractable Mg (mg/l)	57.7	61.1	63.8
Structure, VESS score	2.4	3.0	2.8
Organic matter (%LOI)	3.7	3.9	4.0
CO ₂ burst	112	136	130
Earthworm count (total number in a 20 x 20 x 20 cm block)	7.7	4.9	5.9

Impacts on soil health

Plots were sampled in spring 2018. An assessment was made of treatment (rotation, cultivation) effects on soil health indicators and linked to crop performance (winter wheat) and overall rotational performance.

There were no significant differences between tillage treatments in any of the main scorecard measures. None of the soil health measures currently included in the scorecard, determined in the spring, were well correlated with 2018 wheat yield.

Soil type has an over-riding effect on many of the soil health indicators, irrespective of management decisions (i.e. rotation or cultivation). Timeliness of cultivation, rather than cultivation system per se, is the most important factor controlling impacts on soil.



“Each one of us who is fortunate enough to farm, own or manage land leaves their own imprint on it, it can be negative, neutral or positive, and it can be seen for generations”

Nathan Anderson, IOWA farmer.