



# 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.



# STAR Project

## Further information

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## 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.



The STAR Project is located in Suffolk on a clay loam soil. The research uses a fully replicated factorial design and is undertaken on large plots (36m x 36m) using farm scale equipment and techniques.

## ROTATIONS

### Winter Cropping

(winter wheat with winter break crops)

### Spring Cropping

(winter wheat with spring break crops)

### Continuous Wheat

### Alternate Fallow

(ended 2018)

/3yr Herbal Ley

## ESTABLISHMENT

### Annual Plough

### Deep Non-Inversion Tillage

(targeting 20-25 cm)

### Shallow Non-Inversion Tillage

(targeting ca. 10 cm)

### Managed Approach

(guided by field assessment)

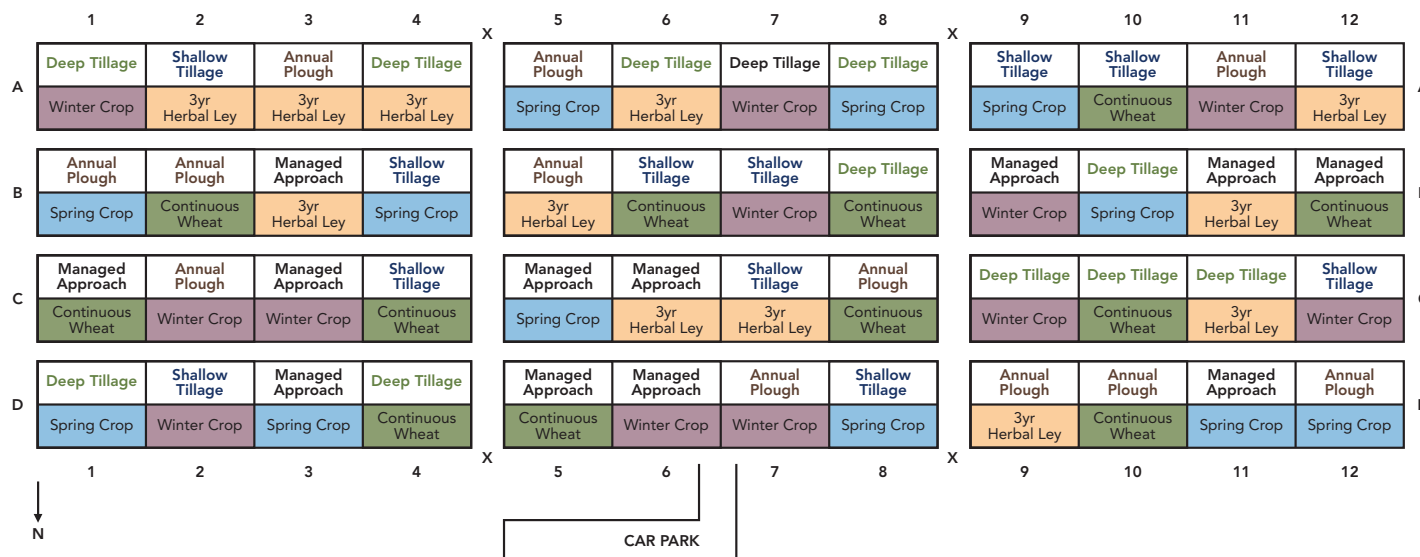


## STAR Project Cropping Plan

	Cropping													
Rotation	2006 (Year 1)	2007 (Year 2)	2008 (Year 3)	2009 (Year 4)	2010 (Year 5)	2011 (Year 6)	2012 (Year 7)	2013 (Year 8)	2014 (Year 9)	2015 (Year 10)	2016 (Year 11)	2017 (Year 12)	2018 (Year 13)	2019 (Year 14)
Winter Cropping	Winter OSR	Wheat	Winter Beans	Wheat	Winter OSR	Wheat	Winter Beans	Wheat	Winter OSR	Wheat	Winter Beans	Wheat	Wheat	Winter OSR
Spring Cropping	Spring Beans	Wheat	Spring Oats	Wheat	Spring Beans	Wheat	Spring Linseed	Wheat	Spring Oats	Wheat	Spring Beans	Wheat	Wheat	Sugar Beet
Continuous Wheat	Wheat	Wheat	Wheat	Wheat	Wheat	Wheat	Wheat	Wheat	Wheat	Wheat	Wheat	Wheat	Wheat	Wheat
Alternate Fallow / Herbal Ley	Fallow	Wheat	Fallow	Wheat	Fallow	Wheat	Fallow	Wheat	Fallow	Wheat	Fallow	Wheat	Wheat	3yr Herbal Ley

FOUR ROTATIONS X FOUR CULTIVATION SYSTEMS X THREE REPLICATES

## STAR Project Tillage/Cropping Plan



## STAR Project overview

- The STAR project is a long-term rotational systems study examining the interaction between four different rotations and four different cultivation methods.
- The impact of rotation and cultivation on weed burden, soil structure and mycotoxin risks are becoming increasingly apparent as the study progresses.
- Considering yields over all crops in the rotation, the difference between cultivation systems is small. The plough-based cultivation system is tending to give the highest yields but margin is barely distinguishable across systems.
- Tillage decisions seem to be more critical in break crops. Rotational choices have tended to have a bigger impact on margin than primary tillage decisions; with winter cropping rotations giving the higher margins.