

**Trial Title:** The effect of a range of cover crop species on spring barley

**Centre** Morley      **Trial Code** SB13-9502      **Variety** Tipple

**Objective :** To examine a range of alternative and novel cover crop options and to determine their impact on the performance of spring barley.

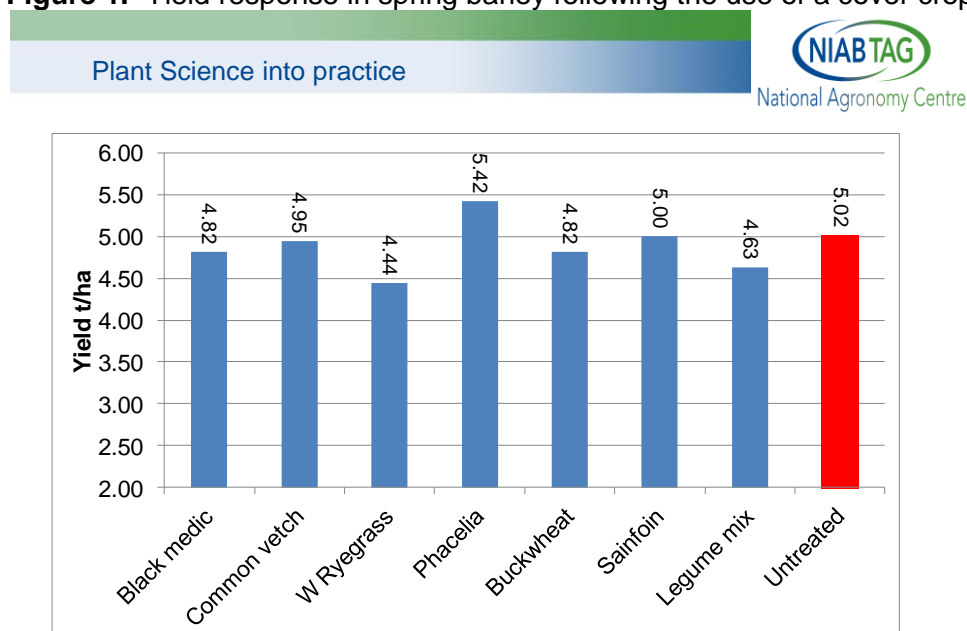
**NAC theme:** Agronomy (best practice & system resilience)

**Summary:** This experiment examined further the use of a range of autumn established over winter cover crops ahead of spring barley. Autumn 2012 proved difficult for the establishment of the cover crop species and growth was generally poor. While there were some differences in yield in the following spring barley crop these were not statistically significant.

**Table 1. Treatments table**

Treatments (kg/ha)			
	Cover crop	Seeding rate	Follow crop
1.	Black medic	6 kg/ha	Spring barley
2.	Common Vetch	100 kg/ha	Spring barley
3.	Westerwold Ryegrass	25 kg/ha	Spring barley
4.	Phacelia	10 kg/ha	Spring barley
5.	Buckwheat	8 kg/ha	Spring barley
6.	Sainfoin	25 kg/ha	Spring barley
7.	Legume mixture	10 kg/ha	Spring barley
8.	No cover crop	-	Spring barley

**Figure 1.** Yield response in spring barley following the use of a cover crop.



Morley LSD 0.59 t/ha CV:8.2 % (NS, P=0.09)

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- Where cover crops are to be grown the choice of species can be an issue. The species should not only be suitable to deliver the cover cropping goals (e.g. fertility building or soil conditioning) but should also fit with agronomic considerations (e.g. follow crop, cover crop management/issues etc).
- The National Agronomy Centre R&D committee identified that there was a need to investigate and demonstrate a wider range of cover crop species. The specific species used (Table 1) were selected in conjunction with University of Aarhus on Denmark where similar work is being undertaken.
- All cover crops were sown in September 2012, sprayed off with glyphosate in January 2013 and then incorporated with a Sumo Trio prior to drilling spring barley. The legume mixture used was a mix of crimson clover, white clover, black medick and lucerne; based on the mix developed in the Leg LINK project (HGCA project report 513) that is also being used in the New Farming Systems project.
- Difficult and wet conditions in autumn 2012 resulted in poor establishment and growth of all cover crop species and there was substantial winter kill. In general good autumn growth is needed to take full advantage of a cover crop (e.g. to maximise performance in terms of rooting, nodulation etc).
- In general there were no specific weed issues associated with the cover crops noted in the following spring barley crops and there were no significant differences in barley green area index at crop maturity (data not shown).
- Where a cover crop had not been used a spring barley yield of 5.02 t/ha was recorded (Figure 1). While there was some yield variation between cover crop treatments differences were not statistically significant (NS,  $P = 0.09$ ).
- Through the support of the National Agronomy Centre initiative this research is being repeated again during the 2013/14 season.

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## Field details & overall applications to crop

**Crop:** Spring Barley  
**Location:** Morley, Norfolk  
**Soil type:** Sandy loam  
**Soil analysis:** P-23 ppm, K-98 ppm, Mg-40 ppm, pH-7.6  
**Previous crop:** S Beet  
**Drill date:** 28/03/13  
**Drilled plot size:** 2 x 12m  
**Replicates:** 4

Input type	Product	Rate	Date
Herbicide:	Finish SX	70 g/ha	18/05/13
Fertiliser:	Liquid N 27 + S	65 Kg/Ha	20/04/13
	Liquid N 27 + S	50 Kg/Ha	01/05/13
	Epsos Top	5 Kg/Ha	18/06/13
PGR:	Terpal	0.75 l/ha	15/06/13
	Moddus	0.20 l/ha	18/05/13
Insecticide:	Groove	1.0 l/ha	18/05/13
Fungicide:	Jaunt	0.4 l/ha	18/05/13
	Clayton Spigot	1.0 l/ha	15/06/13
	Proline	0.25 l/ha	15/06/13
	Jaunt	0.4 l/ha	18/06/13
	Arizona	0.75 l/ha	18/06/13

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