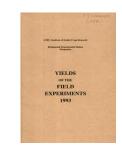
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Yields of the Field Experiments 1993



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Rothamsted Research

Rothamsted Research (1994) 93/W/CS/386 Cover Crops and Nitrogen - Forage Rape, Phacelia, Ryegrass, Rye, White Mustard, Tumbledown, W. Wheat, S. Wheat; Yields Of The Field Experiments 1993, pp 99 - 101 - DOI: https://doi.org/10.23637/ERADOC-1-48

93/W/CS/386

COVER CROPS AND NITROGEN

Object: To assess how effectively cover crops take up nitrogen and to assess how much of that nitrogen is subsequently available to the following crop - Woburn, Stackyard A I.

Sponsors: D.G. Christian, A.J. Macdonald, P.R. Poulton.

The first year, w. and s. barley, forage rape, phacelia, ryegrass, rye, white mustard.

Design: 3 blocks of 9 plots split into 2 sub plots.

Plot dimensions: 9.0 x 12.0.

Treatments: All combinations of:-

Whole plots

LANDTRT	Cover crops,	sown in autumn,	tumbledown and	fallow.
		ploughed in spri		

FALLOWSB	Fallow			
FO RA SB	Forage rape			
PHACL SB	Phacelia			
RYGRS SB	Ryegrass			
RYE SB	Rye			
RY+MU SB	Rye and white mustard			
TUMDN SB	Tumbledown			

TUMDN SB Tumbledown
MUSTD SB White mustard

Sub plots

2. N Nitrogen ferilizer (kg N) to s. barley:

0 75

plus one extra treatment

Whole plots

1. EXTRA

W BARLEY W. barley sown in autumn, taken to maturity

Sub plots

N EXTRA Nitrogen fertilizer (kg N) to w. barley:

0 150

93/W/CS/386

NOTE: The tumbledown fallow was given 50 kg of seed from the previous w. wheat crop to ensure volunteers.

Experimental diary:

19-Aug-92 : T : LANDTRT FO RA SB, PHACL SB, RYGRS SB, RYE SB, RY+MU SB, TUMDN SB: Cultivated twice to 5 cm with Bomford Dynadrive. : T : LANDTRT FO RA SB: Ember broadcast at 30 kg. : T : LANDTRT RYGRS SB: Perennial ryegrass broadcast at 25 kg. : T : LANDTRT PHACL SB: Phacelia broadcast at 30 kg. : T : LANDTRT RY+MU SB: Rye broadcast at 90 kg and w. mustard broadcast at 15 kg. : T : LANDTRT RYE SB: Amando broadcast at 180 kg. : T : LANDTRT TUMDN SB: Beaver broadcast at 50 kg. : T : LANDTRT MUSTD SB: White mustard broadcast at 30 kg. 14-Sep-92 : T : LANDTRT FALLOWSB: Ploughed. : T : EXTRA W BARLEY: Ploughed. : T : LANDTRT FALLOWSB: Rotary harrowed. 16-Sep-92 : T : EXTRA W BARLEY: Rotary harrowed, Puffin, dressed Cerevax Extra, drilled at 340 seeds per square metre. 10-Mar-93 : T : LANDTRT: All plots ploughed, rolled. 12-Mar-93 : T : LANDTRT: All plots rotary harrowed, Alexis, dressed Cerevax Extra, drilled at 350 seeds per square metre.

Previous crops: Grass 1991, w. wheat 1992.

16-Aug-93 : B : Combine harvested.

NOTES: (1) In November and March crop samples were taken to measure plant populations, dry weights and nitrogen content. At harvest ear numbers and thousand grain weights were assessed.

22-Jun-93 : T : LANDTRT: All plots sprayed Dorin at 1.0 1 in 200 1.

- (2) In autumn, winter and spring soil and soil water samples were taken for N analysis.
- (3) EXTRA W BARLEY plots were not harvested.

06-Apr-93 : T : N EXTRA 150: 27.5% N applied at 545 kg. 08-Apr-93 : T : N: 75: 27.5% N applied at 273 kg.

93/W/CS/386

GRAIN TONNES/HECTARE

***** Tables of means *****

N	0	75	Mean
LANDTRT			
FALLOWSB	3.36	4.55	3.96
FO RA SB	3.08	4.26	3.67
PHACL SB	3.90	5.30	4.60
RYGRS SB	3.17	5.02	4.09
RYE SB	2.86	5.28	4.07
RY+MU SB	1.53	5.11	3.32
TUMDN SB	2.47	4.84	3.66
MUSTD SB	3.26	4.62	3.94
Mean	2.95	4.87	3.91

*** Standard errors of differences of means ***

		LAI	NDTRT			N	LANDTRT	
							N	
		(3.384		0.15	56	0.495	
Except w	when	comparing	means	with	the	same	level(s)	of
LANDTRI	r						0.442	

***** Stratum standard errors and coefficients of variation *****

Stratum	d.f.	s.e.	cv*	
BLOCK.WP	14	0.470	12.0	
BLOCK.WP.SP	16	0.541	13.8	

GRAIN MEAN DM% 85.6

SUB PLOT AREA HARVESTED 0.00082