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## Yields of the Field Experiments 1992

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### **92/R/CS/380 Cover Crops and 15n - Forage Rape, Tumbledown, W. Rye, W. Barley, S. Barley, Fallow**

#### **Rothamsted Research**

Rothamsted Research (1993) *92/R/CS/380 Cover Crops and 15n - Forage Rape, Tumbledown, W. Rye, W. Barley, S. Barley, Fallow* ; Yields Of The Field Experiments 1992, pp 92 - 94 - **DOI:**  
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92/R/CS/380

**COVER CROPS AND 15N**

**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 - Webbs.

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

The first year, forage rape, rye, tumbledown, w. and s. barley.

**Design:** 3 blocks of 5 plots split into 2.

**Whole plot dimensions:** 6.0 x 12.0.

**Treatments:** All combinations of:-

Whole plots

1. **LAND TRT**            Cover crops, sown in autumn, tumbledown and fallow.  
                                 All plots ploughed in spring and sown to s. barley:

FO RA SB	Forage rape
RYE SB	Rye
TUMDN SB	Tumbledown
FALLOWSB	Fallow

Sub plots

2. **N**                    Nitrogen fertilizer (kg N) to s. barley:

0  
75

plus one extra treatment

Whole plot

1. **EXTRA**

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

Sub plot

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

0  
150

**NOTE:** The tumbledown fallow was given 50 kg of seed from the previous s. barley crop to ensure volunteers.

92/R/CS/380

**Experimental diary:**

- 15-Aug-91 : B : Straw baled.  
21-Aug-91 : B : Dolomite at 5.0 t.  
: T : **LAND TRT** FO RA SB, RYE SB, TUMDN SB: Shallow cultivated twice with Bomford Dynadrive.  
: T : **LAND TRT** FO RA SB: Giant broadcast at 30 kg.  
: T : **LAND TRT** RYE SB: Halo broadcast at 180 kg.  
: T : **LAND TRT** TUMDN SB: S. barley (cv. Alexis) broadcast at 50 kg.  
: T : **LAND TRT** FO RA SB, RYE SB, TUMDN SB: Harrowed and rolled.  
12-Sep-91 : T : **LAND TRT** FO RA SB: Fusilade 5 at 1.0 l with Vassgro Spreader at 0.22 l in 220 l.  
13-Sep-91 : T : **EXTRA** W BARLEY: Ploughed.  
: T : **EXTRA** W BARLEY: Rotary harrowed twice.  
**EXTRA** W BARLEY: Rotary harrowed, Magie drilled at 144 kg, rolled.  
19-Sep-91 : T : **LAND TRT** FALLOWSB: Ploughed and heavy spring-tine cultivated.  
25-Sep-91 : T : **LAND TRT** FALLOWSB: Rolled.  
14-Nov-91 : T : **LAND TRT** FO RA SB: Pilot at 0.075 l with Actipron at 2.0 l in 220 l.  
03-Dec-91 : T : **LAND TRT** FALLOWSB: Gramoxone 100 at 3.0 l in 220 l.  
: T : **EXTRA** W BARLEY: Stefes IPU at 2.5 l and Stomp 400 at 3.3 l in 220 l.  
03-Mar-92 : T : **LAND TRT** FO RA SB, RYE SB, TUMDN SB, FALLOWSB: Ploughed.  
06-Mar-92 : T : **LAND TRT** FO RA SB, RYE SB, TUMDN SB, FALLOWSB: Rotary harrowed. Alexis, dressed Baytan, drilled at 146 kg.  
09-Mar-92 : B : Rolled  
24-Apr-92 : T : **N** 75: 27% N at 278 kg.  
: T : **N EXTRA** 150: as 27% N at 556 kg.  
22-May-92 : T : **LAND TRT** FO RA SB, RYE SB, TUMDN SB, FALLOWSB: Duplosan New System CMPP at 2.0 l, Vindex at 1.0 l and Calixin at 0.70 l in 220 l.  
30-Jul-92 : B : Hand harvested.

Previous crops: W. barley 1990, s. barley 1991.

**NOTE:** Main plots were labelled with 15N in autumn 1991. Recovery of 15N by each level of **LAND TRT**, **EXTRA** W BARLEY and the subsequent s. barley was measured.

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S. BARLEY

GRAIN TONNES/HECTARE

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

	N	0	75	Mean
LAND TRT				
FO RA SB		4.02	4.85	4.44
RYE SB		2.92	4.36	3.64
TUMDN SB		2.73	4.73	3.73
FALLOWSB		5.17	5.72	5.45
Mean		3.71	4.91	4.31

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

	LAND TRT	N	LAND TRT
			N
	0.239	0.288	0.472
Except when comparing means with the same level(s) of			
LAND TRT			0.576

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	6	0.293	6.8
BLOCK.WP.SP	8	0.705	16.3

EXTRA W BARLEY

N EXTRA	0	150	Mean
	3.79	6.05	4.92

GRAIN MEAN DM% 37.2

PLOT AREA HARVESTED 0.00008