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## Yields of the Field Experiments 1993

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### **93/R/CS/399 Cover Crops and N Cycling - Forage Rape, Tumbledown, W. Barley, S. Barley**

#### **Rothamsted Research**

Rothamsted Research (1994) *93/R/CS/399 Cover Crops and N Cycling - Forage Rape, Tumbledown, W. Barley, S. Barley* ; Yields Of The Field Experiments 1993, pp 102 - 104 - **DOI:**

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93/R/CS/399

**COVER CROPS AND N CYCLING**

**Object:** To assess how effectively cover crops take up nitrogen and to assess how much of that nitrogen is subsequently made 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 sub plots.

**Whole plot dimensions:** 9.0 x 12.0.

**Treatments:**

Whole plots

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

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

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:** **LAND TRT TUMBDN SB** was given 50 kg of seed from the previous s. barley crop to ensure volunteers.

93/R/CS/399

**Experimental diary:**

- 20-Aug-92 : T : **LAND TRT** FO RA SB, RYE SB, TUMBDN SB: Shallow cultivated with Bomford Dynadrive.
- 21-Aug-92 : T : **LAND TRT** FO RA SB: Forage rape broadcast at 30 kg.  
: T : **LAND TRT** RYE SB: Amando broadcast at 180 kg.  
: T : **LAND TRT** TUMBDN SB: S. barley (cv Alexis) broadcast at 50 kg.  
: T : **LAND TRT** FO RA SB, RYE SB, TUMBDN SB: Rolled.
- 10-Sep-92 : T : **LAND TRT** FALLOWSB: Ploughed.  
: T : **EXTRA** W BARLEY: Ploughed.
- 11-Sep-92 : T : **EXTRA** W BARLEY: Disced, rotary harrowed twice, Puffin, dressed Cerevax, drilled at 380 seeds per square metre.
- 16-Sep-92 : T : **LAND TRT** FALLOWSB: Rolled.  
: T : **EXTRA** W BARLEY: Rolled.
- 19-Oct-92 : T : **LAND TRT** FO RA SB: Pilot at 75 ml with Cropspray 11E at 2.0 l in 200 l.
- 05-Mar-93 : T : **LAND TRT** FALLOWSB, FO RA SB, RYE SB, TUMBDN SB: Ploughed.
- 08-Mar-93 : T : **LAND TRT** FALLOWSB, FO RA SB, RYE SB, TUMBDN SB: Rotary harrowed twice, Alexis, dressed Cerevax Extra, drilled at 350 seeds per square metre.
- 14-Apr-93 : T : **N EXTRA** 150: 27% N at 556 kg.
- 06-May-93 : T : **N** 75: 27% N at 278 kg.
- 10-May-93 : B : Ally at 30 g and Starane 2 at 1.0 l in 200 l.
- 13-Aug-93 : B : Combine harvested.

Previous crops: S. barley 1991 and 1992.

**NOTE:** Plots were labelled with 15N in autumn. Crop, soil and soil water samples were taken for N analysis at various times during the season.

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**GRAIN TONNES/HECTARE**

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

**SPRING BARLEY**

	N	NONE	APPLIED	Mean
<b>LAND TRT</b>				
FALLOWSB		2.49	3.65	3.07
FO RA SB		2.37	2.62	2.50
RYE SB		1.99	2.76	2.38
TUMBDN SB		2.74	3.21	2.98
Mean		2.40	3.06	2.73

**WINTER BARLEY**

N EXTRA	0	150	Mean
	1.61	3.24	2.42

GRAND MEAN 2.67

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

LAND TRT	N	LAND TRT N & N EXTRA
0.296	0.148	0.362

Except when comparing means with the same level(s) of  
**CROPS** 0.295

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	8	0.362	13.6
BLOCK.WP.SP	10	0.362	13.6

GRAIN MEAN DM% 84.7

SUB PLOT AREA HARVESTED 0.00082