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## Yields of the Field Experiments 1992

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### 92/W/CS/381 N Uptake and Cover Crops - Linseed

#### Rothamsted Research

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92/W/CS/381

**N UPTAKE AND COVER CROPS**

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

**Sponsor:** D.G. Christian.

The first year, forage rape, rye and linseed.

**Design:** 3 blocks of 5 plots plus a single replicate of 3 extra plots, split into 2.

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

**Treatments:** All combinations of:-

Whole plots

1. **LANDTRT** Land treatments over winter, ploughed and conventionally drilled to linseed in spring:

FO RA LN	Forage rape
RYE LN	Rye
TUMDN LN	Tumbledown plus w. barley
FALLW LN	Fallow
STUBL LN	Stubble

Sub plots

2. **N** Nitrogen fertilizer (kg N) in spring to linseed:

0  
75

plus three extra unreplicated treatments, direct drilled to linseed in spring and split for N:

1. **EXTRA**

EX FR LN	Forage rape
EX RY LN	Rye
EX TD LN	Tumbledown plus w. barley

**NOTE:** W. barley seed from previous crop was drilled into TUMDN LN plots to ensure volunteers.

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**Experimental diary:**

- 19-Aug-91 : T : **LANDTRT** FO RA LN, RYE LN and TUMDN LN and **EXTRA**: Disc harrowed to 5 cm depth.  
: T : **LANDTRT** FO RA LN and **EXTRA** EX FR LN: Ember drilled at 30 kg.  
: T : **LANDTRT** TUMDN LN and **EXTRA** EX TD LN: Magie drilled at 50 kg.  
: T : **LANDTRT** RYE LN and **EXTRA** EX RY LN: Amando drilled at 180 kg.
- 20-Aug-91 : T : **LANDTRT** FO RA LN, RYE LN, TUMDN LN and **EXTRA**: Harrowed and rolled.
- 12-Sep-91 : T : **LANDTRT** FO RA LN and FALLW LN and **EXTRA** EX FR LN: Pilot at 0.15 l in 200 l.
- 08-Oct-91 : T : **LANDTRT** FALLW LN: Ploughed.
- 01-Apr-92 : T : **EXTRA**: Gramoxone 100 at 4.0 l in 200 l.
- 13-Apr-92 : T : **EXTRA**: Antares, dressed Prelude 20LF, direct drilled at 52 kg.  
: T : **LANDTRT**: FO RA LN, RYE LN, TUMBDN LN, STUBL LN: Ploughed.
- 14-Apr-92 : T : **LANDTRT**: Rotary cultivated with crumbler attached. Antares, dressed Prelude 20LF, drilled at 52 kg.
- 22-Apr-92 : B : Harrowed lightly.
- 18-May-92 : T : N: 75. Applied as 27% N.
- 08-Jun-92 : B : Ally at 0.03 kg in 200 l.
- 29-Aug-92 : B : Reglone at 3.0 l with Vassgro Spreader at 0.30 l in 300 l.
- 29-Sep-92 : B : Combine harvested.

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

**NOTE:** Plant samples of cover crops were taken for growth analysis in autumn and spring. Linseed was sampled for growth analysis and disease incidence.

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**GRAIN (AT 90% DRY MATTER) TONNES/HECTARE**

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

	N	0	75	Mean
<b>LANDTRT</b>				
FO RA LN		0.77	1.12	0.94
RYE LN		0.77	1.34	1.06
TUMDN LN		0.54	1.08	0.81
FALLW LN		0.70	1.15	0.92
STUBL LN		0.89	1.23	1.06

Mean 0.73 1.18 0.96

	N	0	75	Mean
<b>EXTRA</b>				
EX FR LN		0.70	1.51	1.10
EX RY LN		0.81	1.47	1.14
EX TD LN		0.91	1.17	1.04

Mean 0.80 1.38 1.09

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

	LANDTRT	N	LANDTRT
	0.166	0.078	0.207
Except when comparing means with the same level(s) of			
<b>LANDTRT</b>			0.175

**NOTE:** Do not use SED for comparisons involving **EXTRA**

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	8	0.204	21.2
BLOCK.WP.SP	10	0.214	22.4

GRAIN MEAN DM% 85.9

SUB PLOT AREA HARVESTED 0.00082