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## Yields of the Field Experiments 1990

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### 90/W/CS/336 Set-aside Study - W. Wheat

#### Rothamsted Research

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90/W/CS/336

**SET-ASIDE STUDY**

**Object:** To compare different treatments of land temporarily withdrawn from arable cropping and to study their effects on nitrate leaching and on subsequent wheat crops - Woburn Horsepool.

**Sponsors:** R.D. Prew, E.T.G. Bacon, M.V. Hewitt, D.P. Yeoman, J.F. Jenkyn, R.J. Gutteridge, W. Powell, J. Ashby.

**Associate sponsors:** D.L.O. Smith, I. Shield.

The second year, w. wheat.

For first year see 89/W/CS/336.

**Design:** 3 randomised blocks of 7 plots split into 7 sub plots.

**Whole plot dimensions:** 10.0 x 24.0.

**Treatments:** All combinations of:-

Whole plots

- |                    |   |
|--------------------|---|
| 1. <b>LAND TRT</b> | Land treatment in 1989, after s. wheat 1988 (all treatments ploughed in autumn 1989 before w. wheat):     |
| CA WW              | Cultivated in autumn, sown to w. wheat  |
| CA RA              | Cultivated in autumn, sown to ryegrass in autumn, topped in spring  |
| SA CA FA           | Straw chopped and spread in autumn, cultivated in autumn, sown to forage rape in autumn, topped in spring |
| CA CS              | Cultivated in autumn, cultivated in spring  |
| SA CS              | Straw chopped and spread in autumn, cultivated in spring  |
| WT                 | Weeds topped  |
| WT CS TS           | Weeds topped, cultivated in spring, trefoil sown in spring, topped  |

Sub plots

- |             |  |
|-------------|--|
| 2. <b>N</b> | Nitrogen fertilizer (kg N) as 'Nitro-Chalk': |
| 0           |  |
| 37          |  |
| 56          |  |
| 73          |  |
| 92          |  |
| 110         |  |
| 128         |  |

- NOTES:** (1) An additional fallow sub plot was present, systematically arranged on one side of each whole plot.  
(2) Rates of N shown were those used in error for the intended N scale of 0, 80, 120, 160, 200, 240, 280.

90/W/CS/336

**Standard applications:** W. wheat: Weedkillers: Isoproturon at 2.1 kg with isoxaben at 75 g in 220 l. Isoproturon at 2.1 kg with fluroxypyr at 0.15 kg in 220 l. Fungicides: Propiconazole at 0.12 kg with chlorothalonil at 0.50 kg in 300 l. Insecticide: Deltamethrin at 6.2 g in 220 l.

**Seed:** W. wheat: Mercia, sown at 170 kg.

**Cultivations, etc.:-** Straw chopped on CA WW plots: 21 Aug, 1989. Ploughed: 31 Aug. Rolled: 1 Sept. Rotary cultivated with crumbler attached: 28 Sept. Seed sown: 29 Sept. Isoproturon and isoxaben applied: 11 Dec. Insecticide applied: 23 Feb, 1990. N applied: 27 Mar. Isoproturon and fluroxypyr applied: 24 Apr. Fungicides applied: 22 May. Fallow rotary cultivated: 12 June. Wheat combine harvested: 8 Aug.

**NOTE:** Amounts of soil and plant dry matter were measured in autumn, spring and summer. Assessments of plant cover were made in autumn and spring.

**GRAIN TONNES/HECTARE**

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

NITROGEN	0	37	56	73	92	110	128	Mean
<b>LAND TRT</b>								
CA WW	3.34	4.72	5.50	5.11	5.94	6.21	6.26	5.30
CA RA	3.13	5.24	5.80	5.06	5.54	6.13	6.56	5.35
SA CA FA	4.51	5.90	6.59	6.20	6.70	6.24	6.30	6.06
CA CS	5.65	6.91	7.10	7.58	7.93	8.09	8.51	7.40
SA CS	5.27	6.84	7.05	7.47	7.77	7.33	7.87	7.08
WT	3.67	5.93	6.63	6.84	6.98	7.09	7.15	6.33
WT CS TS	5.04	5.64	5.70	5.93	6.39	6.32	6.51	5.93
Mean	4.37	5.88	6.34	6.31	6.75	6.77	7.02	6.21

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

	LAND TRT	NITROGEN	LAND TRT NITROGEN
	0.671	0.171	0.791
Except when comparing means with the same level(s) of			
<b>LAND TRT</b>			0.452

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	12	0.822	13.2
BLOCK.WP.SP	84	0.553	8.9

GRAIN MEAN DM% 89.6

SUB PLOT AREA HARVESTED 0.00199