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Yields of the Field Experiments 1975

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75/ R/CS/155 - Rainfall & Leaching - Spring Wheat

Rothamsted Research

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75/R/CS/155

RAINFALL AND LEACHING

Object: To study the leaching of nitrate nitrogen by a range of winter rainfall rates and to relate leaching and responses to fertiliser nitrogen applied to spring wheat - Long Hoos VI/VII 4.

Sponsors: T.M. Addiscott, D. Cox.

The first year, spring wheat.

Design: 2 blocks of 16 plots, randomisation restricted.

Whole plot dimensions: 2.13 x 2.13.

Treatments: All combinations of:

1. 'Rainfall' (mm), October-February inclusive:	RAINFALL
177	177
258	258
396	396
484	484

2. Nitrogen fertiliser, applied 16 May (kg N):	N
None	0
40	40
80	80
120	120

NOTE: Natural rainfall in the period October-February was 396 mm. Smaller rates were achieved by covering and the larger rate by supplementing natural rainfall with irrigation.

Basal applications: Manures: (0:20:20) at 250 kg combine drilled.
Weedkiller: Dicamba with mecoprop and MCPA ('Tetralix Plus' at 7.0 l in 340 l).

Seed: Kleiber, sown at 190 kg.

Cultivations, etc.: - Ploughed: 19 Sept, 1974. Power harrowed: 20 Sept.
Hand dug: 26 Mar, 1975. Power harrowed and seed sown: 22 Apr.
Weedkiller applied: 6 June. Combine harvested: 28 Sept. Previous crops: Fallow 1973 and 1974.

- NOTES: (1) Concentrations of nitrate and ammonium ions at two soil depths were determined at monthly intervals, and nitrate concentration at additional levels on 11 March.
(2) N content of grain was determined.
(3) There was evidence of a fertility trend across the site and yields adjusted for this trend are presented.

75/R/CS/155

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

	N	0	40	80	120	MEAN
RAINFALL						
	177	1.51	2.45	2.35	2.68	2.25
	258	1.67	2.42	2.79	2.28	2.29
	396	1.73	2.03	2.10	2.10	1.99
	484	1.70	1.90	2.47	2.13	2.05
MEAN		1.65	2.20	2.42	2.30	2.14

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	RAINFALL	N	RAINFALL
			N
-----			-----
SED	0.168	0.169	0.330

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	14	0.317	14.8

GRAIN MEAN DM% 87.6

PLOT AREA HARVESTED 0.00035