

Thank you for using eradoc, a platform to publish electronic copies of the Rothamsted Documents. Your requested document has been scanned from original documents. If you find this document is not readable, or you suspect there are some problems, please let us know and we will correct that.



ROTHAMSTED  
RESEARCH

## Yields of the Field Experiments 1976

[Full Table of Content](#)

### 76/W/RN/13 Intensive Cereals - Ley, Potatoes, Wheat, Barley

#### Rothamsted Research

Rothamsted Research (1977) *76/W/RN/13 Intensive Cereals - Ley, Potatoes, Wheat, Barley* ; Yields Of The Field Experiments 1976, pp 99 - 103 - DOI: <https://doi.org/10.23637/ERADOC-1-15>

76/W/RN/13

INTENSIVE CEREALS

Object: To study the effects of intensive cereal cropping on yield, incidence of soil-borne diseases and organic matter in the soil - Woburn Stackyard I.

Sponsor: D.B. Slope.

The 11th year, ley, potatoes, winter wheat, barley.

For previous years see 66/B/9(t), 67/B/9, 68/B/7(t), 69/W/RN/13(t), 70/W/RN/13(t), 71/W/RN/13(t) and 72-75/W/RN/13.

Design: For each experiment: 2 randomised blocks of 6 plots, split into 4.

Whole plot dimensions: 8.53 x 20.4.

Treatments:-

One experiment on winter wheat on part of the site of the classical wheat experiment 1877-1954

One experiment on barley on part of the site of the classical barley experiment 1877-1954

Factors tested on both experiments are the same but crop and nitrogen rates differ. All combinations of:-

Whole plots

1. PREVCROP

Previous crops:

	1969	1970	1971	1972	1973	1974	1975
C/C/L/P	L	P	C	C	C	L	P
C/L/P/C	P	C	C	C	L	P	C
L/P/C/C	C	C	C	L	P	C	C
P/C/C/C	C	C	L	P	C	C	C
C/C/C/L	C	L	P	C	C	C	L
C/C/C/C	C	C	C	C	C	C	C

Ley = 1 year ley P = Potatoes C = Cereal: wheat or barley.

Sub plots

2. N

Nitrogen fertiliser (kg N):

Wheat	Barley	To wheat	To barley
63	50	63	50
126	100	126	100
189	150	189	150
252	200	252	200

NOTE: Ley and potatoes receive standard N only, residues of dressings to cereals are tested (NRESID).

76/W/RN/13

Basal applications: All crops: P205 at 130 kg, K20 at 260 kg as (0:14:28), half ploughed in, half applied to the plough furrow.

Standard applications:

Leys: N at 60 kg as 'Nitro-Chalk' in the seedbed, repeated after sowing.

Weedkiller: Glyphosate at 1.7 kg in 340 l to wheat stubble only.

Potatoes: N at 150 kg as 'Nitro-Chalk'. Weedkiller: Linuron at 1.2 kg plus paraquat at 0.42 kg ion in 280 l. Insecticide: Pirimicarb at 0.14 kg in 450 l. Fungicide with insecticide: Mancozeb at 1.3 kg with demeton-s-methyl at 0.25 kg in 450 l. Fungicide: Mancozeb at 1.3 kg in 450 l. Haulm desiccant: Diquat at 0.59 kg ion in 280 l.

Wheat: Weedkillers: Glyphosate at 1.7 kg in 340 l. Ioxynil at 0.63 kg plus mecoprop at 1.9 kg in 280 l.

Barley: Weedkiller: Ioxynil at 0.52 kg and mecoprop at 1.6 kg in 280 l.

Seed: Ley: Italian ryegrass, sown at 40 kg

Potatoes: Pentland Crown

Wheat: Cappelle sown at 210 kg

Barley: Julia, dressed with ethirimol, sown at 160 kg

Cultivations, etc.: - All plots: Half PK applied, ploughed: 24 Oct, 1975. Remaining PK applied: 27 Oct.

Leys: Weedkiller applied to wheat stubble only: 5 Oct, 1975. Spring-tine cultivated wheat blocks only: 27 Oct. Deep-tine cultivated barley blocks only: 29 Dec. Spring-tine cultivated barley blocks: 2 Mar, 1976, wheat blocks: 9 Mar. N applied: 20 Apr. Seed sown: 27 Apr. N applied: 9 June. Cut once: 20 Oct.

Potatoes: Rotary cultivated: 14 Oct, 1975. Spring-tine cultivated barley blocks: 2 Mar, 1976, wheat blocks: 9 Mar. N applied: 30 Mar. Rotary cultivated, potatoes planted: 6 Apr. Weedkiller applied: 7 May. Rotary ridged: 3 June. Pirimicarb applied: 18 June. Fungicide with insecticide applied: 30 June. Fungicide applied: 30 July. Haulm mechanically destroyed: 15 Sept. Haulm desiccant applied: 6 Oct. Lifted: 19 Oct.

Wheat: Glyphosate applied: 5 Oct, 1975. Spring-tine cultivated, seed sown: 27 Oct. N applied: 1 Apr, 1976. Weedkiller applied: 20 Apr. Combine harvested: 2 Aug.

Barley: Deep-tine cultivated: 29 Dec, 1975. Spring-tine cultivated: 2 Mar, 1976. Seed sown: 8 Mar. N applied: 9 Mar. Weedkiller applied: 28 Apr. Combine harvested: 26 July.

NOTES: (1) Five plots of wheat N 63 were damaged by birds shortly before harvest. No yields are presented for N 63 on wheat.  
(2) Four other plots of wheat were also affected by bird damage:

PREVCROP	N
C/C/L/P	189
C/L/P/C	126
C/L/P/C	189
L/P/C/C	126

Estimated values were used in the analysis.

76/W/RN/13

LEY WHEAT SITE

1ST AND ONLY CUT (20/10/76) DRY MATTER TONNES/HECTARE

\*\*\*\*\* TABLES OF MEANS \*\*\*\*\*

NRESID	63	126	189	252	MEAN
	0.68	0.64	0.66	0.51	0.62

1ST CUT MEAN DM% 15.9 PLOT AREA HARVESTED 0.00089

LEY BARLEY SITE

1ST AND ONLY CUT (20/10/76) DRY MATTER TONNES/HECTARE

\*\*\*\*\* TABLES OF MEANS \*\*\*\*\*

NRESID	50	100	150	200	MEAN
	0.95	0.85	0.98	1.07	0.96

1ST CUT MEAN DM% 14.0 PLOT AREA HARVESTED 0.00089

POTATOES WHEAT SITE

TOTAL TUBERS TONNES/HECTARE

\*\*\*\*\* TABLES OF MEANS \*\*\*\*\*

NRESID	63	126	189	252	MEAN
	22.6	24.3	22.4	24.7	23.5

PERCENTAGE WARE 3.81CM (1.5 INCH) RIDDLE

\*\*\*\*\* TABLES OF MEANS \*\*\*\*\*

NRESID	63	126	189	252	MEAN
	93.6	93.7	93.3	93.3	93.5

PLOT AREA HARVESTED 0.00139

POTATOES BARLEY SITE

TOTAL TUBERS TONNES/HECTARE

\*\*\*\*\* TABLES OF MEANS \*\*\*\*\*

NRESID	50	100	150	200	MEAN
	30.4	33.4	32.8	31.9	32.1

PERCENTAGE WARE 3.81CM (1.5 INCH) RIDDLE

\*\*\*\*\* TABLES OF MEANS \*\*\*\*\*

NRESID	50	100	150	200	MEAN
	95.3	95.7	95.0	95.8	95.7

PLOT AREA HARVESTED 0.00139

76/W/RN/13

WINTER WHEAT

GRAIN TONNES/HECTARE

\*\*\*\*\* TABLES OF MEANS \*\*\*\*\*

	N	126	189	252	MEAN
PREVCROP					
C/C/L/P		2.41	1.97	1.92	2.10
C/L/P/C		2.22	1.92	1.74	1.96
L/P/C/C		1.59	2.05	1.74	1.79
C/C/C/C		1.63	1.94	1.91	1.83
MEAN		1.96	1.97	1.83	1.92

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

TABLE	N	PREVCROP*
		N
	0.090	0.179

\* WITHIN THE SAME LEVEL OF PREVCROP ONLY

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

STRATUM	DF	SE	CV%
BLOCK.WP.SP	4	0.179	9.3
GRAIN MEAN DM%			88.0

STRAW TONNES/HECTARE

\*\*\*\*\* TABLES OF MEANS \*\*\*\*\*

	N	126	189	252	MEAN
PREVCROP					
C/C/L/P		3.02	2.80	2.56	2.79
C/L/P/C		2.39	2.64	2.75	2.59
L/P/C/C		1.71	2.60	2.43	2.24
C/C/C/C		2.14	2.55	2.13	2.27
MEAN		2.31	2.65	2.47	2.48

STRAW MEAN DM% 87.5

SUB PLOT AREA HARVESTED 0.00273

76/W/RN/13

BARLEY

GRAIN TONNES/HECTARE

\*\*\*\*\* TABLES OF MEANS \*\*\*\*\*

N	50	100	150	200	MEAN
PREVCROP					
C/C/L/P	3.31	3.18	3.54	3.75	3.44
C/L/P/C	3.16	3.61	3.36	3.29	3.36
L/P/C/C	2.73	3.48	3.83	3.43	3.37
C/C/C/C	2.34	2.76	2.38	2.93	2.60
MEAN	2.88	3.26	3.28	3.35	3.19

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

TABLE	N	PREVCROP*
		N
-----		
SED	0.163	0.326

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

STRATUM	DF	SE	CV%
BLOCK.WP.SP	12	0.326	10.2
GRAIN MEAN DM%	87.5		

STRAW TONNES/HECTARE

\*\*\*\*\* TABLES OF MEANS \*\*\*\*\*

N	50	100	150	200	MEAN
PREVCROP					
C/C/L/P	1.83	2.11	2.52	2.62	2.27
C/L/P/C	1.55	1.74	2.21	2.05	1.89
L/P/C/C	1.36	1.91	2.48	2.27	2.00
C/C/C/C	1.00	1.54	1.48	1.59	1.40
MEAN	1.44	1.83	2.17	2.13	1.89

STRAW MEAN DM% 88.6

SUB PLOT AREA HARVESTED 0.00273