ROTHAMSTED RESEARCH

Yields of the Field Experiments 1977

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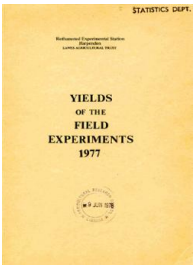

77/W/RN/13 Intensive Cereals - Wheat, Barley

Rothamsted Research

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77/W/RN/13

INTENSIVE CEREALS

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

Sponsors: A.E. Johnston, J. McEwen.

The 12th year, winter wheat, barley.

For previous years see 'Details' 1973 and 74-76/W/RN/13.

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

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:-

Blocks

1. ALDICARB — Aldicarb worked into the seedbed (kg):

0
10

Whole plots

2. PREVCROP — Previous crops:

	1972	1973	1974	1975	1976
C/C/L/P	C	C	C	L	P
C/L/P/C	C	C	L	P	C
L/P/C/C	C	L	P	C	C
P/C/C/C	L	P	C	C	C
C/C/C/L	P	C	C	C	L
C/C/C/C	C	C	C	C	C

Ley = 1 year ley P = Potatoes C = Cereal: wheat or barley. All plots in cereal only from 1977.

Sub plots

3. N — Nitrogen fertiliser (kg N):

Wheat	Barley
63	50
126	100
189	150
252	200

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Standard applications:
Wheat: Manures: (0:20:20) at 290 kg, combine drilled. Weedkillers: Glyphosate at 1.7 kg in 280 l, methabenzthiazuron at 1.6 kg in 280 l, Ioxynil at 0.53 kg plus mecoprop at 1.6 kg in 220 l. Insecticide: Pirimicarb at 0.14 kg in 270 l.
Barley: Manures: (0:20:20) at 300 kg, combine drilled. Weedkillers: Glyphosate at 1.7 kg in 280 l, Ioxynil at 0.53 kg plus mecoprop at 1.6 kg in 220 l.

Seed:
Wheat: Cappelle, sown at 210 kg.
Barley: Julia, dressed with ethirimol, sown at 160 kg.

Cultivations, etc.:- All plots: Glyphosate applied: 24 Sept, 1976. Rotary cultivated grass leys: 1 Nov. Ploughed: 8 Nov.

Wheat: Aldicarb applied, rotary cultivated, seed sown: 24 Nov, 1976. Methabenzthiazuron applied: 25 Nov. N applied: 13 Apr, 1977. Ioxynil plus mecoprop applied: 15 May. Pirimicarb applied: 11 July. Combine harvested: 7 Sept.
Barley: Spring-tine cultivated: 7 Mar, 1977. Aldicarb applied, rotary cultivated, seed sown: 8 Apr. N applied: 13 Apr. Ioxynil plus mecoprop applied: 19 May. The following treatments were combine harvested on 16 Aug:

ALDICARB 0 PREVCROP C/C/C/L N 50, 150, 200	ALDICARB 10 PREVCROP P/C/C/C N 50, 150	ALDICARB 0 PREVCROP C/C/L/P N 100, 200	ALDICARB 10 PREVCROP C/L/P/C N 100, 150

Remaining treatments combine harvested: 30 Aug.

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WINTER WHEAT

GRAIN TONNES/HECTARE

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

PREVCROP ALDICARB	C/C/L/P	C/L/P/C	L/P/C/C	P/C/C/C	C/C/C/L	C/C/C/C	MEAN
0	3.79	3.58	3.38	2.84	3.44	3.26	3.38
10	3.89	3.65	3.43	2.37	2.70	2.90	3.16
MEAN	3.84	3.62	3.41	2.61	3.07	3.08	3.27

N ALDICARB	63	126	189	252	MEAN
0	3.15	3.48	3.56	3.34	3.38
10	2.81	3.55	3.17	3.10	3.16
MEAN	2.98	3.51	3.36	3.22	3.27

N PREVCROP	63	126	189	252	MEAN
C/C/L/P	3.55	4.39	3.76	3.66	3.84
C/L/P/C	3.51	4.07	3.60	3.28	3.62
L/P/C/C	2.94	3.50	3.65	3.54	3.41
P/C/C/C	1.98	2.64	2.88	2.93	2.61
C/C/C/L	2.90	3.31	3.00	3.08	3.07
C/C/C/C	3.02	3.18	3.28	2.85	3.08
MEAN	2.98	3.51	3.36	3.22	3.27

N ALDICARB	PREVCROP	63	126	189	252
0	C/C/L/P	3.57	4.10	3.68	3.82
	C/L/P/C	3.53	3.86	3.51	3.42
	L/P/C/C	2.79	3.60	3.53	3.59
	P/C/C/C	2.39	2.72	3.18	3.07
	C/C/C/L	3.15	3.57	3.80	3.26
	C/C/C/C	3.50	3.02	3.64	2.90
10	C/C/L/P	3.53	4.69	3.85	3.49
	C/L/P/C	3.49	4.28	3.70	3.14
	L/P/C/C	3.09	3.40	3.76	3.49
	P/C/C/C	1.57	2.56	2.58	2.79
	C/C/C/L	2.66	3.05	2.21	2.90
	C/C/C/C	2.55	3.34	2.92	2.81

GRAIN MEAN DM% 82.6

SUB PLOT AREA HARVESTED 0.00277

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BARLEY

GRAIN TONNES/HECTARE

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

PREVCROP	C/C/L/P	C/L/P/C	L/P/C/C	P/C/C/C	C/C/C/L	C/C/C/C	MEAN
ALDICARB							
0	4.26	4.36	4.49	4.22	4.53	4.06	4.32
10	4.29	4.74	4.48	4.02	4.31	3.82	4.28
MEAN	4.28	4.55	4.48	4.12	4.42	3.94	4.30

N	50	100	150	200	MEAN
ALDICARB					
0	3.35	4.60	4.67	4.67	4.32
10	2.95	4.65	4.98	4.53	4.28
MEAN	3.15	4.63	4.82	4.60	4.30

N	50	100	150	200	MEAN
PREVCROP					
C/C/L/P	3.15	4.62	4.58	4.76	4.28
C/L/P/C	3.88	5.07	4.97	4.29	4.55
L/P/C/C	3.45	4.81	4.97	4.71	4.48
P/C/C/C	2.82	4.33	5.16	4.19	4.12
C/C/C/L	2.83	4.82	4.98	5.06	4.42
C/C/C/C	2.78	4.11	4.28	4.59	3.94
MEAN	3.15	4.63	4.82	4.60	4.30

N		50	100	150	200
ALDICARB	PREVCROP				
0	C/C/L/P	3.49	4.58	4.31	4.67
	C/L/P/C	3.70	4.70	4.65	4.40
	L/P/C/C	3.85	4.65	4.63	4.82
	P/C/C/C	3.38	4.46	4.72	4.34
	C/C/C/L	2.78	4.94	5.05	5.34
	C/C/C/C	2.91	4.27	4.63	4.42
10	C/C/L/P	2.82	4.66	4.84	4.86
	C/L/P/C	4.06	5.43	5.29	4.17
	L/P/C/C	3.05	4.97	5.31	4.60
	P/C/C/C	2.26	4.20	5.60	4.04
	C/C/C/L	2.87	4.70	4.90	4.78
	C/C/C/C	2.64	3.95	3.93	4.76

GRAIN MEAN DM% 81.7

SUB PLOT AREA HARVESTED 0.00277

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