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80/W/RN/13 Intensive Cereals

Rothamsted Research

Rothamsted Research (1981) *80/W/RN/13 Intensive Cereals* ; Yields Of The Field Experiments 1980, pp 88 - 91 - DOI: <https://doi.org/10.23637/ERADOC-1-31>

80/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 15th year, w. wheat, s. barley.

For previous years see 'Details' 1973 and 74-79/W/RN/13.

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

Whole plot dimensions: 8.53 x 20.4.

Treatments:-

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

One experiment on s. 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. DAZOMET Dazomet (1979 & 1980, cumulative to a test of none and aldicarb in 1977 & 1978) applied in autumn (kg):

0
336

Whole plots

2. PREVCROP Previous crops:

	1972	1973	1974	1975	1976	1977	1978	1979
P C3	C	C	C	L	P	C	C	C
P C4	C	C	L	P	C	C	C	C
P C5	C	L	P	C	C	C	C	C
P C6	L	P	C	C	C	C	C	C
L C3	P	C	C	C	L	C	C	C
C14	C	C	C	C	C	C	C	C

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

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Sub plots

3. N Nitrogen fertiliser (kg N), cumulative:

W. Wheat	S. Barley	W. Wheat		S. Barley
		Autumn	Spring	
0 + 63	50	0 + 63		50
0 + 126	100	0 + 126		100
0 + 189	150	0 + 189		150
63 + 189	200	63 + 189		200

Standard applications:

W. wheat: Manures: (0:20:20) at 310 kg, combine drilled. Weedkillers: Glyphosate at 1.7 kg in 250 l. Isoproturon at 2.1 l in 280 l. Mecoprop, bromoxynil and ioxynil ('Brittox' at 3.5 l in 280 l). Insecticide: Demeton-s-methyl at 0.21 kg in 300 l.

S. barley: Manures: (0:20:20) at 300 kg, combine drilled. Weedkillers: ('Brittox' at 3.5 l in 280 l). Fungicide: Tridemorph at 0.53 kg in 280 l. Ethirimol ('Milgo E' at 1.3 l in 280 l).

Seed: W. wheat: Flanders, sown at 190 kg.

S. barley: Georgie, dressed with ethirimol, sown at 160 kg.

Cultivations, etc.:-

All plots: Ploughed: 24 Sept, 1979. Dazomet applied and all plots rotary cultivated: 25 Sept.

W. wheat: Glyphosate applied: 13 Sept, 1979. Spring-tine cultivated with crumbler attached: 24 Oct. Seed sown: 13 Nov. Autumn N applied: 19 Nov. Isoproturon applied: 12 Apr, 1980. Spring N and 'Brittox' applied: 15 Apr. Insecticide applied: 5 July. Combine harvested: 26 Aug.

S. barley: Heavy spring-tine cultivated: 3 Mar, 1980, 24 Mar, 9 Apr. Rotary cultivated, seed sown: 10 Apr. N applied: 15 Apr. 'Brittox' and tridemorph applied: 16 May. Ethirimol applied: 5 June. Combine harvested: 22 Aug.

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WINTER WHEAT

GRAIN TONNES/HECTARE

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

PREVCROP	P C3	P C4	P C5	P C6	L C3	C14	MEAN
DAZOMET							
0	4.18	4.16	4.19	4.44	3.99	4.50	4.24
336	4.56	4.73	4.38	5.13	3.98	4.50	4.55
MEAN	4.37	4.44	4.28	4.78	3.99	4.50	4.39

N	0+63	0+126	0+189	63+189	MEAN
DAZOMET					
0	3.31	4.27	4.80	4.59	4.24
336	3.34	4.46	5.07	5.32	4.55
MEAN	3.32	4.37	4.93	4.95	4.39

N	0+63	0+126	0+189	63+189	MEAN
PREVCROP					
P C3	3.20	4.56	4.67	5.05	4.37
P C4	3.41	4.50	4.98	4.89	4.44
P C5	3.12	4.20	4.65	5.15	4.28
P C6	3.67	4.54	5.59	5.32	4.78
L C3	2.95	4.18	4.43	4.38	3.99
C14	3.59	4.22	5.27	4.93	4.50
MEAN	3.32	4.37	4.93	4.95	4.39

DAZOMET	N	0+63	0+126	0+189	63+189
0	PREVCROP				
	P C3	3.29	4.53	4.24	4.64
	P C4	3.33	4.31	4.62	4.39
	P C5	3.03	4.12	4.62	4.98
	P C6	3.51	4.19	5.29	4.75
	L C3	2.81	4.34	4.73	4.08
	C14	3.91	4.15	5.29	4.67
336	P C3	3.11	4.58	5.10	5.46
	P C4	3.48	4.69	5.34	5.40
	P C5	3.22	4.29	4.69	5.31
	P C6	3.84	4.89	5.90	5.90
	L C3	3.10	4.02	4.13	4.68
	C14	3.27	4.29	5.25	5.19

GRAIN MEAN DM% 86.2

SUB PLOT AREA HARVESTED 0.00277

80/W/RN/13

SPRING BARLEY

GRAIN TONNES/HECTARE

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

PREVCROP	P C3	P C4	P C5	P C6	L C3	C14	MEAN
DAZOMET							
0	4.72	4.52	4.64	4.09	4.63	4.47	4.51
336	5.33	4.68	5.27	5.29	5.13	5.26	5.16
MEAN	5.02	4.60	4.95	4.69	4.88	4.86	4.83

N	50	100	150	200	MEAN
DAZOMET					
0	3.46	4.34	5.09	5.15	4.51
336	4.21	5.29	5.64	5.50	5.16
MEAN	3.83	4.81	5.37	5.33	4.83

N	50	100	150	200	MEAN
PREVCROP					
P C3	4.24	4.96	5.65	5.23	5.02
P C4	3.72	4.73	4.87	5.07	4.60
P C5	3.66	5.07	5.63	5.44	4.95
P C6	3.74	4.65	5.09	5.28	4.69
L C3	3.83	4.66	5.53	5.50	4.88
C14	3.81	4.80	5.42	5.43	4.86
MEAN	3.83	4.81	5.37	5.33	4.83

DAZOMET	PREVCROP	N	50	100	150	200
0	P C3		3.83	4.40	5.50	5.13
	P C4		3.34	4.55	5.01	5.17
	P C5		3.24	4.88	5.28	5.15
	P C6		3.16	3.80	4.53	4.87
	L C3		3.69	4.09	5.35	5.39
	C14		3.50	4.30	4.87	5.21
	336	P C3		4.65	5.52	5.80
P C4			4.10	4.90	4.74	4.97
P C5			4.09	5.27	5.98	5.74
P C6			4.33	5.50	5.65	5.69
L C3			3.98	5.23	5.71	5.61
C14			4.11	5.30	5.98	5.64

GRAIN MEAN DM% 83.3

SUB PLOT AREA HARVESTED 0.00277