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

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79/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 14th year, winter wheat, barley.

For previous years see 'Details' 1973 and 74-78/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 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. DAZOMET Dazomet (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
P C2	C	C	C	L	P	C	C
P C3	C	C	L	P	C	C	C
P C4	C	L	P	C	C	C	C
P C5	L	P	C	C	C	C	C
L C2	P	C	C	C	L	C	C
C13	C	C	C	C	C	C	C

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

Sub plots

3. N Nitrogen fertiliser (kg N as 'Nitro-Chalk'):

Wheat	Barley	Wheat		Barley
		Autumn	Spring	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

79/W/RN/13

Standard applications:

Wheat: Manures: (0:20:20) at 310 kg, combine drilled. Weedkillers:
Methabenzthiazuron at 1.5 kg in 220 l.

Barley: Manures: (0:20:20) at 300 kg, combine drilled. Weedkillers:
Bromoxynil with ioxynil ('Oxytril CM' at 2.1 kg in 250 l).

Seed: Wheat: Flanders, sown at 180 kg.

Barley: Porthos, dressed with ethirimol, sown at 160 kg.

Cultivations, etc.:-

All plots: Ploughed: 30 Aug, 1978. Spring-tine cultivated, with crumbler
attached: 31 Aug. Dazomet applied and all plots rotary cultivated:
7 Sept.

Wheat: Rotary cultivated: 11 Oct, 1978. Seed sown: 13 Oct. Autumn N
and weedkiller applied: 18 Oct. Spring N applied: 10 Apr, 1979.
Combine harvested: 30 Aug.

Barley: Heavy spring-tine cultivated: 16 Oct, 1978. Spring-tine cultivated,
with crumbler attached, twice: 16 Apr, 1979, 20 Apr. Seed sown:
23 Apr. N applied: 30 Apr. Weedkiller applied: 5 June. Combine
harvested: 28 Aug.

79/W/RN/13

WINTER WHEAT

GRAIN TONNES/HECTARE

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

PREVCROP	P C2	P C3	P C4	P C5	L C2	C13	MEAN
DAZOMET							
0	4.38	4.37	4.15	4.76	3.96	4.64	4.38
336	5.19	5.15	4.94	5.23	4.64	4.91	5.01
MEAN	4.79	4.76	4.54	5.00	4.30	4.77	4.69

N	0+63	0+126	0+189	63+189	MEAN
DAZOMET					
0	3.50	4.61	4.80	4.60	4.38
336	4.96	5.67	4.95	4.47	5.01
MEAN	4.23	5.14	4.87	4.54	4.69

N	0+63	0+126	0+189	63+189	MEAN
PREVCROP					
P C2	4.00	5.37	4.82	4.96	4.79
P C3	4.25	5.15	5.08	4.56	4.76
P C4	4.17	4.87	4.58	4.55	4.54
P C5	4.47	5.56	5.29	4.68	5.00
L C2	3.80	4.86	4.31	4.23	4.30
C13	4.68	5.01	5.16	4.24	4.77
MEAN	4.23	5.14	4.87	4.54	4.69

	N	0+63	0+126	0+189	63+189
DAZOMET PREVCROP					
0	P C2	3.25	4.69	4.69	4.91
	P C3	3.36	4.87	4.55	4.69
	P C4	3.38	3.97	4.64	4.61
	P C5	3.82	5.18	5.23	4.84
	L C2	2.92	4.19	4.43	4.32
	C13	4.26	4.75	5.27	4.27
336	P C2	4.74	6.06	4.96	5.02
	P C3	5.14	5.42	5.61	4.43
	P C4	4.97	5.76	4.53	4.48
	P C5	5.13	5.93	5.35	4.53
	L C2	4.68	5.54	4.20	4.14
	C13	5.10	5.27	5.04	4.21

GRAIN MEAN DM% 86.4

SUB PLOT AREA HARVESTED 0.00277

79/W/RN/13

BARLEY

GRAIN TONNES/HECTARE

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

PREVCROP DAZOMET	P C2	P C3	P C4	P C5	L C2	C13	MEAN
0	4.52	4.28	4.72	4.28	4.42	4.03	4.38
336	4.96	4.99	5.06	4.71	4.70	4.86	4.88
MEAN	4.74	4.63	4.89	4.50	4.56	4.44	4.63

N DAZOMET	50	100	150	200	MEAN
0	2.61	4.26	5.26	5.37	4.38
336	3.84	5.15	5.23	5.29	4.88
MEAN	3.22	4.71	5.25	5.33	4.63

N PREVCROP	50	100	150	200	MEAN
P C2	3.10	4.88	5.35	5.64	4.74
P C3	3.28	4.83	5.11	5.31	4.63
P C4	3.66	4.94	5.44	5.51	4.89
P C5	2.90	4.63	5.24	5.22	4.50
L C2	3.34	4.43	5.18	5.28	4.56
C13	3.06	4.52	5.16	5.03	4.44
MEAN	3.22	4.71	5.25	5.33	4.63

N	50	100	150	200
DAZOMET PREVCROP				
0 P C2	2.29	4.52	5.58	5.70
P C3	2.52	4.41	5.02	5.18
P C4	3.34	4.53	5.37	5.64
P C5	2.03	4.36	5.30	5.44
L C2	3.09	3.85	5.37	5.38
C13	2.37	3.93	4.92	4.89
336 P C2	3.90	5.25	5.12	5.58
P C3	4.05	5.25	5.20	5.44
P C4	3.97	5.36	5.52	5.38
P C5	3.78	4.90	5.18	5.00
L C2	3.59	5.02	5.00	5.18
C13	3.75	5.12	5.40	5.17

GRAIN MEAN DM% 85.3

SUB PLOT AREA HARVESTED 0.00277