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72/R/CS/10 and 72/W/CS/10 Long Term Liming - Barley

Rothamsted Research

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72/R/CS/10 and 72/W/CS/10

LONG TERM LIMING

Object: To study the effects of different amounts of lime on the yields of a range of crops. The effects of P and K are also studied - Rothamsted (R) Sawyers I and Woburn (W) Stackyard C.

Sponsors: J. Bolton, D.B. Slope.

The eleventh year - barley.

For previous years see 'Details' 1967, 68/C/3(t) and 69-71/R&W/CS/10.

Whole plot dimensions: 6.40 x 18.3. Area harvested: Sawyers I (R): 0.00512. Stackyard C (W): 0.00516.

Basal applications:

Sawyers I (R): 90 kg N as 'Nitro-Chalk' combine drilled.

Weedkillers: Paraquat at 0.56 kg ion in 220 l. Ioxynil, bromoxynil, 2,4-DP and MCPA ('Tetroxone' at 5.6 l in 220 l).

Stackyard C (W): 130 kg N as 'Nitro-Chalk' broadcast before sowing. Weedkiller: Paraquat at 0.56 kg ion in 280 l.

Seed: Sawyers I (R): Julia (dressed with ethirimol) sown at 160 kg. Stackyard C (W): Julia (dressed with ethirimol) sown at 150 kg.

Cultivations, etc.:-

Sawyers I (R): Paraquat applied: 9 Sept, 1971. Ploughed:

11 Nov. P and K applied, seed combine drilled: 20 Mar, 1972.

'Tetroxone' applied: 17 May. CAO plots cut and carted, because the crop had failed and plots were very weedy. CAO plots rotary cultivated twice: 3 July, 11 July. Combine harvested: 24 Aug.

Stackyard C (W): Paraquat applied: 9 Sept, 1971. Ploughed:

27 Oct. N, P and K applied: 14 Mar, 1972. Seed drilled:

15 Mar. CAO plots cut and carted, because the crop had failed and plots were very weedy: 3 July. CAO plots rotary cultivated three times: 4 July, 18 July, 31 July. Combine harvested: 15 Aug.

Standard errors per plot. Grain, tonnes/hectare:

Sawyers I (R): 1.130 or 25.8% (11 d.f.)

Stackyard C (W): 0.371 or 7.0% (11 d.f.)

72/R/CS/10 and 72/W/CS/10

TABLES OF MEANS

SAWYERS I (R)

GRAIN: TONNES/HECTARE

	CA			Mean
	2	4	8	
Mean	3.67	4.55	4.90	4.37
P O 1	2.72 4.63	3.92 5.19	4.23 5.56	3.62 5.12
K O 1	3.38 3.96	4.14 4.97	4.26 5.54	3.93 4.82
	P			
	0	1		
K O 1	3.34 3.90	4.51 5.74		
K	0 1	0 1	0 1	
	CA			
P O 1	3.09 2.35 3.68 5.57	3.51 4.33 4.77 5.61	3.43 5.03 5.08 6.05	

STANDARD ERRORS OF DIFFERENCES

CA	P	K	CA	CA	P	CA
			P	K	K	P
0.565	0.461	0.461	0.799	0.799	0.653	1.130

Mean D.M. %: 80.7

72/R/CS/10 and 72/W/CS/10

SAWYERS I (R)

STRAW: TONNES/HECTARE

	CA			Mean
	2	4	8	
Mean	3.28	4.32	4.75	4.12
P 0 1	2.36	3.93	4.20	3.50
K 0 1	4.19	4.71	5.30	4.73
P 0 1	2.83	3.89	4.19	3.64
K 0 1	3.73	4.74	5.31	4.59
	P			
	0	1		
K 0 1	3.18	4.10		
K 0 1	3.82	5.37		
K	0 2	1 4	0 8	1
P 0 1	2.51 2.22	3.55 4.31	3.47 4.93	
	3.15 5.24	4.24 5.17	4.91 5.69	

Mean D.M. %: 86.8

72/R/CS/10 and 72/W/CS/10

STACKYARD C (W)

GRAIN: TONNES/HECTARE

	2	CA 4	8	Mean
Mean	4.81	5.28	5.83	5.31
P 0 1	4.53 5.09	4.97 5.59	5.75 5.91	5.09 5.53
K 0 1	4.25 5.37	5.19 5.37	5.43 6.23	4.96 5.66

	0	P 1
K 0 1	4.89 5.28	5.03 6.03

K	2		CA 4		8	
	0	1	0	1	0	1
P 0 1	4.32 4.18	4.74 5.99	4.96 5.42	4.98 5.76	5.38 5.47	6.12 6.35

STANDARD ERRORS OF DIFFERENCES

CA P	P	K	CA P	CA K	P K	CA P	CA K
0.186	0.152	0.152	0.263	0.263	0.214	0.371	

Mean D.M. %: 81.9

72/R/CS/10 and 72/W/CS/10

STACKYARD C (W)

STRAW: TONNES/HECTARE

	2	CA 4	8	Mean
Mean	3.52	3.84	4.25	3.87
P 0 1	3.00 4.04	3.53 4.14	4.20 4.31	3.57 4.17
K 0 1	3.01 4.03	3.55 4.13	3.99 4.52	3.51 4.22

	0	1
K 0	3.31	3.72
K 1	3.84	4.61

K	2		CA 4		8	
	0	1	0	1	0	1
P 0	2.70	3.29	3.32	3.74	3.90	4.49
P 1	3.32	4.76	3.77	4.51	4.08	4.55

Mean D.M. %: 88.6