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94/R/CS/10 and 94/W/CS/10 Long-term Liming - W. Lupins

Rothamsted Research

Rothamsted Research (1995) *94/R/CS/10 and 94/W/CS/10 Long-term Liming - W. Lupins* ; Yields Of The Field Experiments 1994, pp 52 - 53 - DOI: <https://doi.org/10.23637/ERADOC-1-49>

94/R/CS/10 and 94/W/CS/10

LONG TERM LIMING

Object: To study the effects of different amounts of lime, phosphate and sulphur on the yields and compositions of a sequence of crops - Rothamsted (R) Sawyers I and Woburn (W) Stackyard C.

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The 33rd year, w. lupins.

For previous years see 'Details' 1967, 1973 and 74-93/R&W/CS/10.

Design: 2 randomised blocks of 16 plots split into 2 sub-plots.

Whole plot dimensions: 5.8 x 16.1 (R), 5.6 x 16.1 (W).

Treatments: All combinations of:-

Whole plots

1. **CHALK** Residual effects of ground chalk (tonnes CaCO₃) (total applied 1962-87):

R	W	Rothamsted total		Woburn total	
		1962-78	1982-87	1962-78	1982-87
0	0	0	0	0	0
15	9	7	8	6	3
24.5	25.5	15	9.5	14	11.5
52.5	45.5	30	22.5	23	22.5

2. **P** Residual effects of P fertilizer applied:

	Until 1978		1981	1982	1983		1988	
	R & W	R & W	R & W	R & W	R	W	R	W
0	0	0	0	0	0	0	0	0
P1	0	P1	P1	0	P2	P1	P1	
P2	P	P1	0	P2	P2	P1	P1	
P3	P	P3	P1	P2	P4	P3	P3	

Rates 1981-83 and 1988 P1, P2, P3, P4 = 25, 50, 75, 100 kg P as superphosphate

Sub-plots

3. **SULPHUR** Sulphur (kg S, as calcium sulphate), applied cumulatively since 1991:

0
30

94/R/CS/10 and 94/W/CS/10

NOTES: (1) Until 1978 test P was applied cumulatively, rates varied with crop, none in 1979 and 1980. K was also applied cumulatively, to P1 and P3 plots. Since 1981 K has been applied basally (none in 1986, 1987, 1989, 1990, 1993 and 1994).

(2) Test manganese was applied cumulatively, 1987-90.

Experimental diary:

Sawyers I (R):

16-Oct-93 : B : Ploughed.

19-Oct-93 : B : Discd.

20-Oct-93 : B : Spring-tine cultivated, CH304/70 drilled at 40 seeds per m².

26-Oct-93 : B : Opogard 500 FW at 2.8 l in 200 l.

16-Feb-94 : B : Atlas Simazine at 1.0 l in 200 l.

13-Jun-94 : T : **SULPHUR** 30: 30 kg S as gypsum.

06-Sep-94 : B : Barclay Gallup at 4.0 l in 200 l.

Stackyard C (W):

16-Sep-93 : B : Ploughed.

24-Sep-93 : B : Rotary harrowed, CH304/70 drilled at 40 seeds per m².

18-Feb-94 : B : Atlas Simazine at 1.0 l in 200 l.

10-Mar-94 : T : **SULPHUR** 30: 30 kg S as gypsum.

09-May-94 : B : Sportak 45 at 1.5 l in 200 l.

NOTE: Due to poor winter survival at Rothamsted and to excessive grazing damage at Woburn, both crops were abandoned in summer and no yields were taken.