

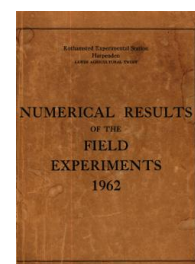
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62/R/C/8 and 62/W/C/8 Long-term Liming - Spring Beans (Test Crop)

Rothamsted Research

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62/0/8.1

LONG TERM LIMING EXPERIMENT - SPRING BEANS 1962

The effect of lime on the yield and composition of crops and on the status of P and K in soils - Rothamsted (R) Sawyers I and Woburn (W) Stackyard Series C 1962, the first year.

Design (each field): 2 blocks of 16 plots each, columns of 4 plots being split for uninoculated v. inoculated seed.

Area of each sub plot: 0.0145 acres. Area harvested: 0.0093 acres.

Treatments. All combinations of:-

Ground chalk: None; 2; 4; 6 tons CaCO_3 per acre applied in March 1962.

P: None; 0.5 cwt P_2O_5 per acre as superphosphate.

K: None; 1.0 cwt K_2O per acre as muriate of potash.

Inoculation of seed: None; Inoculated with *Rhizobium leguminosarum*.

The maximum pH range between plots was 4.8 - 5.6 on Sawyers I (R) and 5.6 - 6.3 on Stackyard Series C (W).

Basal dressing: None.

Cultivations, etc.:-

Sawyers I (R): Ploughed: Nov 17, 1961. Ground chalk applied: Mar 5, 1962. Rotary cultivated: Mar 14. Superphosphate and muriate of potash applied: Mar 15. Seed drilled at 200 lb per acre: Mar 16. Sprayed with simazine at 1 lb in 40 gallons per acre: Apr 11. Sprayed with demeton methyl at 6 fluid oz in 60 gallons per acre: July 6. Combine harvested: Sept 20. Variety: Tick 30B. Previous crops: Potatoes and fallow 1960, potatoes and fallow 1961.

Stackyard Series C (W): Ploughed: Nov 24, 1961. Ground chalk applied: Mar 9, 1962. Superphosphate and muriate of potash applied: Mar 15. Seed drilled at 200 lb per acre: Mar 19. Sprayed with simazine at 1 lb in 40 gallons per acre: Apr 12. Sprayed with demeton methyl at 6 fluid oz in 60 gallons per acre: July 12. Combine harvested: Sept 20. Variety: Tick 30B. Previous crops: Barley 1960, sugar beet 1961.

Note: Samples were taken for counts of pods and beans.

Standard errors per plot.	Grain (at 85% dry matter):
Sawyers I (R)	Whole plot: 4.26 cwt per acre or 25.4% (15 d.f.)
	Sub plot: 1.42 cwt per acre or 8.4% (16 d.f.)
Stackyard Series C (W)	Whole plot: 2.44 cwt per acre or 13.1% (15 d.f.)
	Sub plot: 2.79 cwt per acre or 14.9% (16 d.f.)

62/C/8.2

Summary of Results

Sawyers I (R)

Grain (at 85% dry matter): cwt per acre

	Ground chalk: tons per acre				Mean
	None	2	4	6	
Mean (± 1.51)	12.3	16.0	20.3	18.6	16.8
P ₂ O ₅ : cwt per acre		(± 2.13)			
None	12.7	17.2	21.2	17.5	17.2
0.5	12.0	14.7	19.5	19.7	16.5
Diff. (± 3.01)	-0.7	-2.5	-1.7	+2.2	-0.7
					(± 1.51)
K ₂ O: cwt per acre					
None	13.8	15.2	19.1	18.7	16.7
1.0	10.9	16.8	21.6	18.5	16.9
Diff. (± 3.01)	-2.9	+1.6	+2.5	-0.2	+0.2
					(± 1.51)
Inoculation of seed		(± 1.55) ¹			
None	12.1	15.9	19.7	18.4	16.5
Inoculated	12.5	16.1	20.9	18.8	17.1
Diff. (± 0.71) ²	+0.4	+0.2	+1.2	+0.4	+0.6
	P ₂ O ₅ : cwt per acre	K ₂ O: cwt per acre			
	None	0.5	None	1.0	
K ₂ O: cwt per acre	(± 1.51)				
None	16.7	16.7			
1.0	17.6	16.3			
Inoculation of seed	(± 1.10) ¹		(± 1.10) ¹		
None	17.0	16.1	16.5	16.6	
Inoculated	17.3	16.8	16.9	17.3	

Mean dry matter % as harvested: 76.2

(1) For use only in horizontal comparisons.

(2) For use only in testing the difference of 2 differences.

Stackyard Series C (W)

Grain (at 85% dry matter): cwt per acre

	Ground chalk: tons per acre				Mean
	None	2	4	6	
Mean (± 0.86)	14.8	19.0	19.1	22.0	18.7
P ₂₅ ⁰ : cwt per acre	(± 1.22)				
None	13.1	19.2	19.4	21.7	18.3
0.5	16.6	18.8	18.8	22.3	19.1
Diff. (± 1.73)	+3.5	-0.4	-0.6	+0.6	+0.8
K ₂₀ : cwt per acre					(± 0.86)
None	14.9	19.1	20.2	23.8	19.5
1.0	14.8	19.0	18.0	20.2	18.0
Diff. (± 1.73)	-0.1	-0.1	-2.2	-3.6	-1.5
Inoculation of seed	(± 1.11) ¹				(± 0.86)
None	14.7	20.2	18.0	21.6	18.6
Inoculated	14.9	17.9	20.2	22.4	18.8
Diff. (± 1.40) ²	+0.2	-2.3	+2.2	+0.8	+0.2
	P ₂₅ ⁰ : cwt per acre		K ₂₀ : cwt per acre		
	None	0.5	None	1.0	
K ₂₀ : cwt per acre	(± 0.86)				
None	20.2	18.8			
1.0	16.5	19.4			
Inoculation of seed	(± 0.79) ¹		(± 0.79) ¹		
None	18.7	18.5	18.8	18.4	
Inoculated	18.0	19.7	20.2	17.5	

Mean dry matter % as harvested: 77.6

- (1) For use only in **horizontal** comparisons
- (2) For use only in testing the differences of 2 differences