

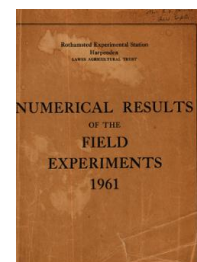
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61/R/C/7 and 61/W/C/7 Effect of K, Mg and Ca - Ryegrass 3rd Year

Rothamsted Research

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61/C/7.1

GRASS

K and Mg - Rothamsted (R) Sawyers I 1961 the third year and Woburn (W) Stackyard Series C 1961 the second year.

Design: Sawyers I (R): 8 randomised blocks of 9 plots each.
Stackyard Series C (W): 4 randomised blocks of 9 plots each.

Area of each plot (acres):	Area harvested (acres):
Sawyers I (R): 0.0209	0.0050
Stackyard Series C (W): 0.0011	0.0005

Treatments (applied 1959, 1960 and 1961). All combinations of:-

Mg: None; 29; 58 lb Mg per acre applied as magnesium sulphate on Sawyers I (R) and as kieserite (16.3% Mg) on Stackyard Series C (W).

K: None; 95; 190 lb K per acre (approximately 1; 2 cwt K_2O per acre) applied as sulphate of potash.

In addition in 1959 magnesium-free calcium carbonate was applied to blocks on Sawyers I (R) at 10; 40 cwt per acre (four blocks at each rate).

Basal dressings per acre:

Sawyers I (R): In seedbed 1961: 1.0 cwt P_2O_5 as triple superphosphate, 0.5 cwt N as sulphate of ammonia. In spring 1961: 0.5 cwt N as sulphate of ammonia. After every cut except the last: 1.0 cwt N as sulphate of ammonia.

Stackyard Series C (W): 1.0 cwt P_2O_5 as triple superphosphate, 1.0 cwt N as ammonium nitrate. After every cut except the last: 1.0 cwt N as ammonium nitrate.

Cultivations, etc.:

Sawyers I (R): Ploughed: Dec 2, 1960. Sulphate of ammonia and triple superphosphate applied: Mar 20, 1961. Magnesium sulphate and sulphate of potash applied: Mar 22. Seed drilled at 39 lb per acre: Mar 26. Sprayed with MCPA/TBA at 4 pints in 40 gallons per acre: May 13. Sulphate of ammonia applied: May 15. Grass cut: Aug 9 and Sept 25. Sulphate of ammonia applied: Aug 10. Variety: S22 Italian ryegrass.

Stackyard Series C (W): Sulphate of potash, kieserite, triple superphosphate and ammonium nitrate applied: Mar 6, 1961. Cut 3 times: Apr 27, June 16, July 31. Ammonium nitrate applied after every cut except the last. Variety: S22 Italian ryegrass.

Note: For details of the previous year's results see "Results of the Field Experiments", 60/Ci/3.

61/C/7.2

Standard errors per plot. Grass dry matter

Sawyers I (R)

1st cut: 1.89 cwt per acre or 14.8% (48 d.f.)
 2nd cut: 0.91 cwt per acre or 9.5% (48 d.f.)
 Total of 2 cuts: 2.55 cwt per acre or 11.4% (48 d.f.)

Stackyard Series C (W)

1st cut: 3.34 cwt per acre or 8.1% (24 d.f.)
 2nd cut: 2.34 cwt per acre or 9.4% (24 d.f.)
 3rd cut: 0.86 cwt per acre or 11.5% (24 d.f.)
 Total of 3 cuts: 5.43 cwt per acre or 7.4% (24 d.f.)

Summary of Results

Sawyers I (R)

Grass, Dry matter: cwt per acre

	K: lb per acre			Mg: lb per acre				
	None	95	190	None	29	58	Mean	
Calcium carbonate cwt per acre	<u>1st cut</u>							
	$(\pm 0.55)^*$			$(\pm 0.55)^*$				
	10	10.4	14.6	14.8	12.9	13.8	13.1	13.2
	40	9.4	13.7	14.0	12.3	12.4	12.3	12.3
Diff.	-1.0	-0.9	-0.8	-0.6	-1.4	-0.8	-0.9	
		$(\pm 0.77)^{**}$			$(\pm 0.77)^{**}$			
		K: lb per acre			(± 0.67)		(± 0.39)	
		None	9.3	10.1	10.2	9.9		
		95	13.6	14.8	14.0	14.1		
		190	14.9	14.4	13.9	14.4		
		Mean	12.6	13.1	12.7	12.8		
			(± 0.39)					

* For use in horizontal and interaction comparisons only.

** For use only in testing the difference of 2 differences.

Mean dry matter % as cut: 1st cut 25.4

61/C/7.3

Sawyers I (R)

Grass, Dry matter: cwt per acre

	K: lb per acre			Mg: lb per acre			Mean
	None	95	190	None	29	58	
	<u>2nd cut</u>						
Calcium carbonate cwt per acre	$(\pm 0.26)^*$			$(\pm 0.26)^*$			
10	8.2	10.4	10.5	9.9	9.8	9.4	9.7
40	7.5	10.5	10.8	9.7	9.7	9.5	9.6
Diff.	-0.7	+0.1 $(\pm 0.37)^{**}$	+0.3	-0.2	-0.1 $(\pm 0.37)^{**}$	+0.1	-0.1
	K: lb per acre			(± 0.32)			(± 0.19)
	None			8.1	7.9	7.5	7.8
	95			10.5	10.7	10.3	10.5
	190			10.8	10.6	10.5	10.6
	Mean			9.8	9.7 (± 0.19)	9.4	9.6

Total of 2 cuts

Calcium carbonate cwt per acre	$(\pm 0.74)^*$			$(\pm 0.74)^*$			
10	18.5	25.0	25.2	22.8	23.5	22.5	22.9
40	16.9	24.2	24.8	22.0	22.1	21.7	22.0
Diff.	-1.6	-0.8 $(\pm 1.04)^{**}$	-0.4	-0.8	-1.4 $(\pm 1.04)^{**}$	-0.8	-0.9
	K: lb per acre			(± 0.90)			(± 0.52)
	None			17.4	18.0	17.7	17.7
	95			24.0	25.5	24.3	24.6
	190			25.7	25.0	24.3	25.0
	Mean			22.4	22.8 (± 0.52)	22.1	22.4

* For use in horizontal and interaction comparisons only.

** For use only in testing the difference of 2 differences.

Mean dry matter % as cut: 2nd cut 20.9
Total of 2 cuts 23.1

61/C/7.4

Stackyard Series C (W)Grass, Dry matter: cwt per acre

K: lb per acre	Mg: lb per acre			Mean	Mg: lb per acre			Mean
	None	29	58		None	29	58	
	<u>1st cut</u>				<u>2nd cut</u>			
	(±1.66)			(±0.96)	(±1.16)			(±0.68)
None	38.1	39.3	36.0	37.8	20.7	23.1	23.3	22.4
95	44.2	41.0	41.8	42.3	22.7	25.9	25.9	24.8
190	42.7	43.1	45.3	43.7	26.3	27.5	27.8	27.2
Mean	41.7	41.1	41.0	41.2	23.2	25.5	25.7	24.7
	(±0.96)				(±0.68)			
	<u>3rd cut</u>				<u>Total of 3 cuts</u>			
	(±0.43)			(±0.25)	(±2.71)			(±1.56)
None	7.5	7.7	6.8	7.3	66.3	70.0	66.1	67.5
95	7.0	6.9	7.4	7.1	73.9	73.8	75.0	74.2
190	7.8	8.3	8.0	8.0	76.7	78.8	81.1	78.9
Mean	7.4	7.6	7.4	7.4	72.3	74.2	74.1	73.5
	(±0.25)				(±1.56)			

Mean dry matter % as cut: 1st cut 14.8
 2nd cut 27.7
 3rd cut 35.3
 Total of 3 cuts 25.9