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Yields of the Field Experiments 1960

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60/R/CI/3 and 60/W/CI/3 Grass - K and Mg

Rothamsted Research

Rothamsted Research (1961) *60/R/CI/3 and 60/W/CI/3 Grass - K and Mg* ; Yields Of The Field Experiments 1960, pp 133 - 137 - DOI: <https://doi.org/10.23637/ERADOC-1-180>

60/Ci/3.1

GRASS

K and Mg - Rothamsted (R) Sawyers I and Woburn (W) Stackyard Series C 1960.

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 and 1960): All combinations of:-

Mg: None; 29; 58 lb Mg per acre applied
as sulphate of magnesia 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 1959: 1.0 cwt P_2O_5 as triple superphosphate,
0.5 cwt N as sulphate of ammonia. In Spring 1960: 0.5 cwt N as
sulphate of ammonia. After every cut except the last: 0.6 cwt
N as sulphate of ammonia.

Stackyard Series C (W): In seedbed 1960: 1.0 cwt P_2O_5 as triple
superphosphate, 0.5 cwt N as ammonium nitrate. Before 1st cut:
0.5 cwt N as ammonium nitrate. After every cut except the last:
1.0 cwt N as ammonium nitrate.

Cultivations, etc.:

Sawyers I (R) 1959: Part of ground chalk applied: Mar 25, 1959.
Ploughed: Apr 1. Remainder of ground chalk applied: Apr 10.
Sulphate of ammonia and triple superphosphate applied: Apr 29.
Sulphate of magnesia and sulphate of potash applied: May 1.
Seed drilled at 24 lb per acre: May 2. Sprayed with MCPA
at 6 pints in 40 gallons per acre: June 17. Grass cut: July 16
and Sept 29. (There was insufficient grass in each case to
weigh or cart off and therefore no sulphate of ammonia was
applied.)

Sawyers I (R) 1960: Basal sulphate of ammonia applied: Mar 3, 1960.
Sulphate of magnesia and sulphate of potash applied: Mar 4.
Cut 3 times: May 13 - 20, July 4, Sept 26. Sulphate of ammonia
applied: May 26 and July 14. Variety: S22 Italian ryegrass.
Previous crop: Barley.

60/Ci/3.2

Stackyard Series C (W): Ploughed: Oct 28, 1959. Rotavated twice, sulphate of potash, kieserite, triple superphosphate and ammonium nitrate applied, seed broadcast at 50 lb per acre: Mar 24, 1960. Ammonium nitrate applied at 0.5 cwt per acre: May 19. Cut 4 times: June 28, July 24, Sept 5, Oct 4. Ammonium nitrate applied after every cut except the last. Variety: S22 Italian ryegrass. Previous crop: Barley.

Standard errors per plot. Grass dry matter

Sawyers I (R)

1st cut	1.38 cwt per acre or 4.6% (48 d.f.)
2nd cut	1.23 cwt per acre or 9.0% (48 d.f.)
3rd cut	1.21 cwt per acre or 5.0% (48 d.f.)
Total of 3 cuts	2.84 cwt per acre or 4.2% (48 d.f.)

Stackyard Series C (W)

1st cut	0.90 cwt per acre or 4.3% (24 d.f.)
2nd cut	0.86 cwt per acre or 3.7% (24 d.f.)
3rd cut	1.10 cwt per acre or 4.6% (24 d.f.)
4th cut	1.05 cwt per acre or 9.4% (24 d.f.)
Total of 4 cuts	1.99 cwt per acre or 2.5% (24 d.f.)

60/Ci/3.3

Summary of Results

Sawyers I (R)

Grass, Dry matter: cwt per acre

	K: lb per acre			Mg: lb per acre			Mean
	None	95	190	None	29	58	
Calcium carbonate cwt per acre	<u>1st cut</u> (±0.40)*			(±0.40)*			
10	29.2	29.6	29.9	29.5	29.3	29.8	29.6
40	29.4	29.5	30.1	30.0	29.5	29.5	29.7
Diff.	+0.2	-0.1	+0.2	+0.5	+0.2	-0.3	+0.1
		(±0.56)**			(±0.56)**		

K: lb per acre	(±0.49)			(±0.28)
None	29.3	29.4	29.1	29.3
95	29.6	29.4	29.7	29.6
190	30.4	29.4	30.2	30.0
Mean	29.8	29.4	29.7	29.6
		(±0.28)		

2nd cut

Calcium carbonate cwt per acre	(±0.35)*			(±0.35)*			
	10	13.0	13.7	13.9	13.7	13.5	
40	13.4	13.5	14.7	13.3	14.1	14.1	13.8
Diff.	+0.4	-0.2	+0.8	-0.4	+0.6	+0.8	+0.3
		(±0.50)**			(±0.50)**		

K: lb per acre	(±0.43)			(±0.25)
None	13.3	13.2	13.2	13.2
95	13.4	13.8	13.6	13.6
190	13.9	14.5	14.4	14.3
Mean	13.5	13.8	13.7	13.7
		(±0.25)		

* 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 17.1
 2nd cut 31.6

60/Ci/3.4

Sawyers I (R)

Grass, Dry matter: cwt per acre

	K: lb per acre			Mg: lb per acre			Mean
	None	95	190	None	29	58	
Calcium carbonate cwt per acre	<u>3rd cut</u>						
	$(\pm 0.35)^*$			$(\pm 0.35)^*$			
10	22.7	24.4	25.0	23.7	24.2	24.1	24.0
40	22.1	24.7	25.4	23.8	24.4	24.0	24.0
Diff.	-0.6	+0.3 $(\pm 0.49)^{**}$	+0.4	+0.1	+0.2 $(\pm 0.49)^{**}$	+0.1	0.0
	K: lb per acre			(± 0.43)			(± 0.25)
	None	95	190	22.1	22.4	22.6	22.4
				23.9	25.0	24.7	24.5
				25.2	25.5	24.9	25.2
	Mean			23.7	24.3 (± 0.25)	24.1	24.0

Total of 3 cuts

Calcium carbonate cwt per acre	$(\pm 0.82)^*$			$(\pm 0.82)^*$			
10	64.9	67.6	68.8	67.0	67.1	67.3	67.1
40	64.8	67.7	70.1	67.1	67.9	67.6	67.5
Diff.	-0.1	+0.1 $(\pm 1.16)^{**}$	+1.3	+0.1	+0.8 $(\pm 1.16)^{**}$	+0.3	+0.4
	K: lb per acre			(± 1.00)			(± 0.58)
	None	95	190	64.7	65.0	64.9	64.9
				66.9	68.1	67.9	67.6
				69.5	69.4	69.5	69.5
	Mean			67.0	67.5 (± 0.58)	67.5	67.3

* For use in horizontal and interaction comparisons only.
 ** For use only in testing the difference of 2 differences.

Mean dry matter % as cut: 3rd cut 27.8
 Total of 3 cuts 25.5

60/Ci/3.5

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>			
		(±0.45)		(±0.25)		(±0.43)		(±0.25)	
None	17.5	18.1	18.6	18.1	22.2	22.4	22.1	22.2	
95	20.8	22.1	21.6	21.5	23.0	22.8	23.2	23.0	
190	21.6	23.2	23.0	22.6	24.0	24.1	24.0	24.0	
Mean	20.0	21.1	21.1	20.7	23.0	23.1	23.1	23.0	
		(±0.25)				(±0.25)			
		<u>3rd cut</u>				<u>4th cut</u>			
		(±0.55)		(±0.31)		(±0.53)		(±0.30)	
None	22.1	22.9	23.4	22.8	9.4	10.0	10.1	9.8	
95	23.8	23.6	23.7	23.7	10.3	12.1	11.0	11.1	
190	26.2	26.1	25.1	25.8	12.2	12.4	12.7	12.4	
Mean	24.0	24.2	24.0	24.0	10.6	11.5	11.3	11.1	
		(±0.31)				(±0.30)			
		<u>Total of 4 cuts</u>							
		(±0.99)		(±0.58)					
None	71.1	73.4	74.2	72.9					
95	77.8	80.6	79.4	79.3					
190	83.9	85.8	84.8	84.8					
Mean (±0.58)	77.6	79.9	79.4	78.9					

Mean dry matter % as cut: 1st cut 18.1
 2nd cut 14.1
 3rd cut 13.8
 4th cut 12.3
 Total of 4 cuts 14.6