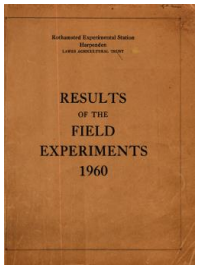
ROTHAMSTED RESEARCH

# Yields of the Field Experiments 1960

*Full Table of Content*




## 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**

# 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.

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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.) |

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60/Ci/3.3

## 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 |
| **1st cut** | | | | | | | |
| Calcium carbonate cwt per acre | | (±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 (±0.56)** | +0.2 | +0.5 | +0.2 (±0.56)** | −0.3 | +0.1 |
| 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 (±0.28) | 29.7 | 29.6 |
| **2nd cut** | | | | | | | |
| Calcium carbonate cwt per acre | | (±0.35)* | | | (±0.35)* | | |
| 10 | 13.0 | 13.7 | 13.9 | 13.7 | 13.5 | 13.3 | 13.5 |
| 40 | 13.4 | 13.5 | 14.7 | 13.3 | 14.1 | 14.1 | 13.8 |
| Diff. | +0.4 | −0.2 (±0.50)** | +0.8 | −0.4 | +0.6 (±0.50)** | +0.8 | +0.3 |
| 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 (±0.25) | 13.7 | 13.7 |

*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

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## Sawyers I (R)

## Grass, Dry matter: cwt per acre

| | K: lb per acre | | | Mg: lb per acre | | | |
|---|---|---|---|---|---|---|---|
| | None | 95 | 190 | None | 29 | 58 | Mean |
| **3rd cut** | | | | | | | |
| Calcium carbonate cwt per acre | | (±0.35)* | | | (±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 (±0.49)** | +0.4 | +0.1 | +0.2 (±0.49)** | -0.1 | 0.0 |
| K: lb per acre | | | | | (±0.43) | | (±0.25) |
| None | | | | 22.1 | 22.4 | 22.6 | 22.4 |
| 95 | | | | 23.9 | 25.0 | 24.7 | 24.5 |
| 190 | | | | 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 | | (±0.82)* | | | (±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 (±1.16)** | +1.3 | +0.1 | +0.8 (±1.16)** | +0.3 | +0.4 |
| K: lb per acre | | | | | (±1.00) | | (±0.58) |
| None | | | | 64.7 | 65.0 | 64.9 | 64.9 |
| 95 | | | | 66.9 | 68.1 | 67.9 | 67.6 |
| 190 | | | | 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

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60/Ci/3.5

## Stackyard Series C (W)

### Grass, Dry matter: cwt per acre

| K: lb per acre | Mg: lb per acre None | 29 | 58 | Mean | Mg: lb per acre None | 29 | 58 | Mean |
|---|---|---|---|---|---|---|---|---|
| | 1st cut | | | | 2nd cut | | | |
| | | (±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) | | |
| | 3rd cut | | | | 4th cut | | | |
| | | (±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) | | |

| | Total of 4 cuts | | | |
|---|---|---|---|---|
| | | (±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 |

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