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Yields of the Field Experiments 1957

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57/R/CI/1 Grass - N Fertilizers - 2nd Year

Rothamsted Research

Rothamsted Research (1958) *57/R/CI/1 Grass - N Fertilizers - 2nd Year* ; Yields Of The Field Experiments 1957, pp 116 - 118 - DOI: <https://doi.org/10.23637/ERADOC-1-177>

57/Ci/1.1

GRASS

Rates and times of application of nitrogenous fertilizers - Long Hoos I, II, III, 1957, the second year.

Design: 4 randomized blocks of 16 plots each.

Area of each plot: 0.0076 acres. Area harvested: 0.0045 acres.

Treatments: None (2 plots per block) together with all combinations of:-

Materials and methods of application

Applied in one single dressing:

| | |
|-------------------|--------------------------|
| Formalized casein | 12.2% N in 1956 |
| " " | 12.2% N in 1957 |
| Casein | 12.6% N in 1956 and 1957 |

Applied in 4 dressings of one quarter the single rate each:

| | |
|-------------------|--------------------------|
| Ammonium sulphate | 21.0% N in 1957 |
| " " | 21.0% N in 1956 and 1957 |
| Urea | 43.5% N in 1956 and 1957 |
| Calcium nitrate | 15.5% N in 1956 and 1957 |

Rates of application

0.75; 1.5 cwt N per acre.

Basal dressing: 5 cwt compound fertilizer (10% P_2O_5 , 20% K_2O) per acre; 30 cwt ground chalk per acre.

Cultivations, etc.: Basal fertilizer applied: Dec 19, 1956. Single and first quarter dressings of nitrogen applied: Feb 21, 1957. Ground chalk applied: Apr 18. 2nd, 3rd and 4th quarter dressings of nitrogen applied: Apr 15, June 12, July 31. Cut: 4 times - Apr 15, June 12, July 31, Oct 11. Variety: New Zealand H1 Ryegrass.

Standard errors per plot. Dry matter:

| | |
|------------------|--------------------------------------|
| 1st cut: | 1.60 cwt per acre or 9.6% (46 d.f.) |
| 2nd cut: | 1.64 cwt per acre or 9.3% (46 d.f.) |
| 3rd cut: | 0.48 cwt per acre or 8.3% (46 d.f.) |
| 4th cut: | 0.33 cwt per acre or 13.8% (46 d.f.) |
| Total of 4 cuts: | 2.44 cwt per acre or 5.7% (46 d.f.) |

57/Ci/1.2

Summary of Results

Dry Matter: cwt per acre

| Level of N in fertilizer: cwt per acre | Fertilizer | | | | | | | Mean |
|--|-----------------|-----------|---------------------|------------------|-----------------------|------|------|--------------|
| | Single dressing | | | Divided dressing | | | | |
| | 1956 F | 1957 F | 1956 & 1957 C | 1957 A | 1956 and 1957 A | U | N | |
| 1st Cut | | | | | | | | |
| (±0.80) | | | | | | | | |
| None | | | | | | | | 6.0 (±0.57) |
| 0.75 | 9.8 | 6.8 | 24.7 | 15.9 | 15.9 | 16.3 | 15.7 | 15.0 (±0.30) |
| 1.50 | 13.9 | 9.2 | 31.2 | 21.2 | 24.0 | 26.1 | 25.4 | 21.6 |
| Mean (±0.57) | 11.9 | 8.0 | 28.0 | 18.5 | 19.9 | 21.2 | 20.6 | 16.7 |
| Diff. (±1.13) | 4.1 | 2.4 | 6.5 | 5.3 | 8.1 | 9.8 | 9.7 | 6.6 (±0.43) |
| 2nd Cut | | | | | | | | |
| (±0.82) | | | | | | | | |
| None | | | | | | | | 10.4 (±0.58) |
| 0.75 | 10.1 | 9.9 | 12.9 | 19.7 | 18.8 | 20.0 | 20.1 | 15.9 (±0.31) |
| 1.50 | 10.3 | 11.4 | 24.0 | 29.1 | 23.9 | 25.0 | 26.2 | 21.4 |
| Mean (±0.58) | 10.2 | 10.6 | 18.5 | 24.4 | 21.3 | 22.5 | 23.1 | 17.6 |
| Diff. (±1.16) | 0.2 | 1.5 | 11.1 | 9.4 | 5.1 | 5.0 | 6.1 | 5.5 (±0.44) |
| 3rd Cut | | | | | | | | |
| (±0.24) | | | | | | | | |
| None | | | | | | | | 2.9 (±0.17) |
| 0.75 | 3.4 | 4.8 | 3.7 | 5.5 | 5.0 | 7.6 | 6.9 | 5.3 (±0.09) |
| 1.50 | 3.9 | 6.8 | 4.4 | 8.2 | 7.6 | 10.0 | 10.6 | 7.4 |
| Mean (±0.17) | 3.6 | 5.8 | 4.0 | 6.8 | 6.3 | 8.8 | 8.8 | 5.8 |
| Diff. (±0.34) | 0.5 | 2.0 | 0.7 | 2.7 | 2.6 | 2.4 | 3.7 | 2.1 (±0.13) |

57/Ci/1.3

| Level of N in fertilizer: cwt per acre | Dry Matter: cwt per acre | | | | | | | Mean |
|--|--------------------------|------|---------------|------------------|----------|------|------|--------------|
| | Fertilizer | | | | | | | |
| | Single dressing | | | Divided dressing | | | | |
| | 1956 | 1957 | 1956& 1957 | 1957 | 1956 and | 1957 | | |
| F | F | C | A | A | U | N | | |
| 4th Cut | | | | | | | | |
| (±0.16) | | | | | | | | |
| None | | | | | | | | 0.9 (±0.12) |
| 0.75 | 0.9 | 3.1 | 1.0 | 1.9 | 2.1 | 2.2 | 2.3 | 1.9 (±0.06) |
| 1.50 | 1.1 | 6.3 | 1.3 | 3.6 | 3.8 | 4.2 | 3.4 | 3.4 |
| Mean (±0.12) | 1.0 | 4.7 | 1.1 | 2.8 | 2.9 | 3.2 | 2.9 | 2.4 |
| Diff. (±0.23) | 0.2 | 3.2 | 0.3 | 1.7 | 1.7 | 2.0 | 1.1 | 1.5 (±0.09) |
| Total of 4 cuts | | | | | | | | |
| (±1.22) | | | | | | | | |
| None | | | | | | | | 20.2 (±0.86) |
| 0.75 | 24.3 | 24.6 | 42.3 | 43.0 | 41.8 | 46.1 | 44.9 | 38.1 (±0.46) |
| 1.50 | 29.2 | 33.6 | 61.0 | 62.1 | 59.2 | 65.3 | 65.7 | 53.7 |
| Mean (±0.86) | 26.7 | 29.1 | 51.6 | 52.5 | 50.5 | 55.7 | 55.3 | 42.7 |
| Diff. (±1.73) | 4.9 | 9.0 | 18.7 | 19.1 | 17.4 | 19.2 | 20.8 | 15.6 (±0.65) |

| Treatments | Mean dry matter % as cut: |
|-------------------------------|---------------------------|
| F = Formalized casein 12.2% N | 1st cut: 23.4 |
| C = Casein 12.6% N | 2nd cut: 29.8 |
| A = Ammonium sulphate 21.0% N | 3rd cut: 28.8 |
| U = Urea 43.5% N | 4th cut: 24.2 |
| N = Calcium nitrate 15.5% N | Total of 4 cuts: 26.6 |