

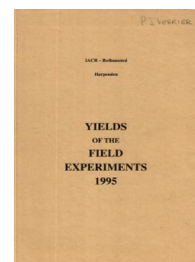
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95/R/PG/5 Park Grass - Old Grass

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Rothamsted Research (1996) *95/R/PG/5 Park Grass - Old Grass* ; Yields Of The Field Experiments 1995, pp 26 - 30 - DOI: <https://doi.org/10.23637/ERADOC-1-50>

95/R/PG/5

PARK GRASS

Object: To study the effects of organic and inorganic manures and lime on old grass for hay.

The 140th year, hay.

For previous years see 'Details' 1967 and 1973 and 74-94/R/PG/5.

Treatments: Combinations of:-

Whole plots

1. **MANURE** Fertilizers and organic manures:

| | | |
|---------|-----------|----------------------------|
| N1 | Plot 1 | N1 |
| O(D) | Plot 2 | None (D until 1863) |
| O | Plot 3 | None |
| P | Plot 4/1 | P |
| N2P | Plot 4/2 | N2 P |
| N1MN | Plot 6 | N1 P K Na Mg |
| MN | Plot 7 | P K Na Mg |
| PNAMG | Plot 8 | P Na Mg |
| MN(N2) | Plot 9/1 | P K Na Mg (N2 until 1989) |
| N2MN | Plot 9/2 | N2 P K Na Mg |
| N2PNAMG | Plot 10 | N2 P Na Mg |
| N3MN | Plot 11/1 | N3 P K Na Mg |
| N3MNSI | Plot 11/2 | N3 P K Na Mg Si |
| O | Plot 12 | None |
| (D/F) | Plot 13/1 | None (D/F until 1994) |
| D/F | Plot 13/2 | D/F |
| MN(N2*) | Plot 14/1 | P K Na Mg (N2* until 1989) |
| N2*MN | Plot 14/2 | N2* P K Na Mg |
| MN(N2*) | Plot 15 | P K Na Mg (N2* until 1875) |
| N1*MN | Plot 16 | N1* P K Na Mg |
| N1* | Plot 17 | N1* |
| N2KNAMG | Plot 18 | N2 K Na Mg |
| D | Plot 19 | D |
| D/N*PK | Plot 20 | D/N*P K |

| | |
|-------------|---|
| N1, N2, N3: | 48, 96, 144 kg N as sulphate of ammonia |
| N1*, N2*: | 48, 96 kg N as nitrate of soda (30 kg N to Plot 20, only in years with no farmyard manure) |
| P: | 35 kg P (15 kg P to Plot 20, only in years with no farmyard manure) as triple superphosphate in 1974 and since 1987, single superphosphate in other years |
| K: | 225 kg K (45 kg K to Plot 20, only in years with no farmyard manure) as sulphate of potash |
| Na: | 15 kg Na as sulphate of soda |
| Mg: | 10 kg Mg as sulphate of magnesia |
| Si: | Silicate of soda at 450 kg |
| D: | Farmyard manure at 35 t every fourth year |
| F: | Fishmeal every fourth year to supply 63 kg N |
| MN: | P K Na Mg |

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Sub-plots

2. **LIME** Liming plots 1-17:

- | | |
|---|--|
| A | a Ground chalk applied as necessary to achieve pH7 |
| B | b Ground chalk applied as necessary to achieve pH6 |
| C | c Ground chalk applied as necessary to achieve pH5 |
| D | d None |

NOTE: Lime was applied regularly, and at the same rate, to all 'a' and 'b' sub-plots of Plots 1 to 17 (except 12) from 1924. Differential liming started in 1965 on certain 'b' and 'c' sub-plots (except on Plot 12) and in 1976 on certain 'a' sub-plots (including Plot 12) and 12b. Lime last applied in 1994.

Liming plots 18-20:

Differential rates of lime were applied to sub-plots 2 and 3 regularly 1920-1964. Since 1965 Plot 18-1 has been split into two for treatments 'c' and 'd' above and Plot 18-3 split into two for treatments 'a' and 'b'. Plots 19 and 20 received no further chalk after 1968; plot 18/2 no further chalk after 1972.

For 1995 plot 13 was split in two, 13/1 to receive no more manure, 13/2 to receive organic manures as hitherto.

For a fuller record of treatments see 'Details' etc.

Experimental diary:

- 02-Dec-94 : **T** : P applied, except plot 20.
- 14-Dec-94 : **T** : K, Na, Mg, Si and fishmeal applied.
 : **T** : Plot 20: P applied.
- 27-Apr-95 : **T** : N applied.
- 21-Jun-95 : B : Cut.
- 22-Jun-95 : B : Hay turned.
- 23-Jun-95 : B : Hay turned, rowed up and baled.
- 25-Oct-95 : B : Cut and herbage removed.

95/R/PG/5

1ST CUT (21/6/95) DRY MATTER TONNES/HECTARE

***** Tables of means *****

| | LIME | A | B | C | D | MEAN |
|----------|---------------|------|------|------|------|------|
| | MANURE | | | | | |
| N1 | 1 | 2.39 | 2.31 | 2.16 | 0.60 | 1.86 |
| O(D) | 2 | 2.01 | 2.31 | 1.81 | 1.63 | 1.94 |
| O | 3 | 2.10 | 1.98 | 1.33 | 1.30 | 1.68 |
| P | 4/1 | 2.51 | 3.21 | 2.28 | 2.12 | 2.53 |
| N2P | 4/2 | 2.31 | 2.81 | 2.07 | 1.09 | 2.07 |
| N1MN | 6 | 3.61 | 3.10 | | | 3.36 |
| MN | 7 | 3.24 | 3.61 | 3.54 | 1.96 | 3.09 |
| PNAMG | 8 | 1.99 | 2.53 | 2.08 | 1.92 | 2.13 |
| MN(N2) | 9/1 | 2.97 | 1.77 | 0.83 | 0.45 | 1.50 |
| N2MN | 9/2 | 3.93 | 3.38 | 2.19 | 1.45 | 2.74 |
| N2PNAMG | 10 | 2.95 | 2.75 | 1.93 | 1.37 | 2.25 |
| N3MN | 11/1 | 5.43 | 4.60 | 3.24 | 3.40 | 4.17 |
| N3MNSI | 11/2 | 5.37 | 4.15 | 3.54 | 3.26 | 4.08 |
| O | 12 | 1.46 | 1.54 | 1.20 | 1.12 | 1.33 |
| (D/F) | 13/1 | 2.85 | 3.23 | 2.46 | 2.54 | 2.77 |
| D/F | 13/2 | 3.33 | 4.34 | 4.34 | 3.68 | 3.92 |
| MN(N2*) | 14/1 | 3.77 | 3.40 | 2.79 | 2.63 | 3.15 |
| N2*MN | 14/2 | 5.55 | 4.74 | 5.04 | 5.15 | 5.12 |
| MN(N2*) | 15 | 3.64 | 4.63 | 2.80 | 2.22 | 3.32 |
| N1*MN | 16 | 4.00 | 4.37 | 4.00 | 3.43 | 3.95 |
| N1* | 17 | 2.29 | 2.49 | 2.66 | 2.69 | 2.53 |
| N2KNAMG0 | 18/1 | | | 1.98 | 0.10 | 1.04 |
| N2KNAMG2 | 18/2 | | | | | 2.58 |
| N2KNAMG1 | 18/3 | 2.41 | 2.47 | | | 2.44 |
| D0 | 19/1 | | | | | 3.14 |
| D2 | 19/2 | | | | | 3.82 |
| D1 | 19/3 | | | | | 3.40 |
| D/N*PK0 | 20/1 | | | | | 4.14 |
| D/N*PK2 | 20/2 | | | | | 4.67 |
| D/N*PK1 | 20/3 | | | | | 4.68 |

1ST CUT MEAN DM% 29.4

95/R/PG/5

2ND CUT (25/10/95) DRY MATTER TONNES/HECTARE

***** Tables of means *****

| LIME MANURE | | A | B | C | D | MEAN |
|----------------|------|------|------|------|------|------|
| N1 | 1 | 0.50 | 0.33 | 0.09 | 0.00 | 0.23 |
| O(D) | 2 | 0.05 | 0.12 | 0.13 | 0.25 | 0.14 |
| O | 3 | 0.07 | 0.07 | 0.12 | 0.27 | 0.13 |
| P | 4/1 | 0.18 | 0.23 | 0.38 | 0.39 | 0.30 |
| N2P | 4/2 | 0.65 | 0.64 | 0.17 | 0.07 | 0.38 |
| N1MN | 6 | 0.57 | 0.56 | | | 0.56 |
| MN | 7 | 0.87 | 0.98 | 0.68 | 0.43 | 0.74 |
| PNAMG | 8 | 0.35 | 0.40 | 0.40 | 0.38 | 0.38 |
| MN(N2) | 9/1 | 0.48 | 0.22 | 0.02 | 0.04 | 0.19 |
| N2MN | 9/2 | 1.00 | 0.80 | 0.18 | 0.27 | 0.56 |
| N2PNAMG | 10 | 0.30 | 0.68 | 0.30 | 0.27 | 0.39 |
| N3MN | 11/1 | 1.52 | 1.06 | 0.47 | 0.20 | 0.81 |
| N3MNSI | 11/2 | 1.83 | 1.47 | 0.74 | 0.29 | 1.08 |
| O | 12 | 0.04 | 0.08 | 0.24 | 0.29 | 0.16 |
| (D/F) | 13/1 | 0.67 | 0.80 | 0.31 | 0.56 | 0.58 |
| D/F | 13/2 | 0.72 | 1.05 | 0.66 | 0.77 | 0.80 |
| MN(N2*) | 14/1 | 0.48 | 0.63 | 0.32 | 0.30 | 0.43 |
| N2*MN | 14/2 | 1.45 | 1.64 | 1.81 | 1.96 | 1.72 |
| MN(N2*) | 15 | 0.57 | 0.65 | 0.37 | 0.44 | 0.51 |
| N1*MN | 16 | 0.89 | 0.95 | 0.68 | 0.64 | 0.79 |
| N1* | 17 | 0.27 | 0.26 | 0.45 | 0.60 | 0.39 |
| N2KNAMG0 | 18/1 | | | 0.27 | 0.00 | 0.14 |
| N2KNAMG2 | 18/2 | | | | | 0.65 |
| N2KNAMG1 | 18/3 | 0.37 | 0.58 | | | 0.47 |
| D0 | 19/1 | | | | | 0.82 |
| D2 | 19/2 | | | | | 0.85 |
| D1 | 19/3 | | | | | 0.58 |
| D/N*PK0 | 20/1 | | | | | 1.01 |
| D/N*PK2 | 20/2 | | | | | 1.22 |
| D/N*PK1 | 20/3 | | | | | 0.96 |

2ND CUT MEAN DM% 22.6

95/R/PG/5

TOTAL OF 2 CUTS DRY MATTER TONNES/HECTARE

***** Tables of means *****

| LIME | | A | B | C | D | MEAN |
|---------------|------|------|------|------|------|------|
| MANURE | | | | | | |
| N1 | 1 | 2.89 | 2.63 | 2.25 | 0.60 | 2.09 |
| O(D) | 2 | 2.06 | 2.44 | 1.94 | 1.88 | 2.08 |
| O | 3 | 2.17 | 2.05 | 1.45 | 1.57 | 1.81 |
| P | 4/1 | 2.70 | 3.44 | 2.66 | 2.51 | 2.83 |
| N2P | 4/2 | 2.96 | 3.45 | 2.25 | 1.16 | 2.46 |
| N1MN | 6 | 4.17 | 3.66 | | | 3.92 |
| MN | 7 | 4.12 | 4.59 | 4.22 | 2.39 | 3.83 |
| PNAMG | 8 | 2.33 | 2.93 | 2.48 | 2.30 | 2.51 |
| MN(N2) | 9/1 | 3.45 | 1.99 | 0.85 | 0.49 | 1.69 |
| N2MN | 9/2 | 4.93 | 4.18 | 2.38 | 1.71 | 3.30 |
| N2PNAMG | 10 | 3.25 | 3.43 | 2.22 | 1.64 | 2.64 |
| N3MN | 11/1 | 6.95 | 5.65 | 3.71 | 3.60 | 4.98 |
| N3MNSI | 11/2 | 7.19 | 5.62 | 4.28 | 3.55 | 5.16 |
| O | 12 | 1.50 | 1.62 | 1.43 | 1.41 | 1.49 |
| (D/F) | 13/1 | 3.51 | 4.03 | 2.77 | 3.10 | 3.35 |
| D/F | 13/2 | 4.05 | 5.39 | 5.00 | 4.46 | 4.73 |
| MN(N2*) | 14/1 | 4.25 | 4.03 | 3.10 | 2.93 | 3.58 |
| N2*MN | 14/2 | 7.00 | 6.38 | 6.85 | 7.11 | 6.84 |
| MN(N2*) | 15 | 4.21 | 5.28 | 3.16 | 2.66 | 3.83 |
| N1*MN | 16 | 4.89 | 5.32 | 4.68 | 4.07 | 4.74 |
| N1* | 17 | 2.56 | 2.75 | 3.10 | 3.28 | 2.92 |
| N2KNAMG0 | 18/1 | | | 2.25 | 0.10 | 1.17 |
| N2KNAMG2 | 18/2 | | | | | 3.24 |
| N2KNAMG1 | 18/3 | 2.78 | 3.06 | | | 2.92 |
| D0 | 19/1 | | | | | 3.95 |
| D2 | 19/2 | | | | | 4.67 |
| D1 | 19/3 | | | | | 3.98 |
| D/N*PK0 | 20/1 | | | | | 5.14 |
| D/N*PK2 | 20/2 | | | | | 5.89 |
| D/N*PK1 | 20/3 | | | | | 5.64 |

TOTAL OF 2 CUTS MEAN DM% 26.1