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RESEARCH

Yields of the Field Experiments 1987

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87/R/BN/7 Barnfield - Leys

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87/R/BN/7

BARNFIELD

Object: The experiment was designed to study the effects of organic and inorganic manures on continuous root crops. It has been progressively modified to study effects on other crops.

Sections 1 and 2 the fourth year of grass/clover. The 13th year of grass on the rest of the experiment.

For previous years see 'Details' 1967 and 1973 and 74-86/R/BN/7.

Plot dimensions: 10.7 x 55.9.

Treatments to grass: All combinations of:-

Whole plots

1. MANURE Fertilizers and organic manures:

| | |
|------|-------------|
| D | D |
| DPK | D P K |
| PKMG | P K (Na) Mg |
| P | P |
| PK | P K |
| PMG | P (Na) Mg |
| O | O |

P: 35 kg P as single superphosphate (triple superphosphate in 1974)

K: 225 kg K as sulphate of potash

(Na): 90 kg Na as sodium chloride until 1973

Mg: 90 kg Mg as kieserite every fourth year since 1974 (sulphate of magnesia until 1973)

D: Farmyard manure at 35 tonnes (until 1975).

Quarter plots

2. N PERCUT Nitrogen fertilizer in 1987 (kg N per cut) as 'Nitram' and residues of forms of N previously each supplying 96 kg N per annum:

| | |
|-----|--|
| 75 | 75, previously nitrate of soda, section 3 |
| 100 | 100, previously sulphate of ammonia, section 4 |
| 125 | 125, previously sulphate of ammonia + castor meal, section 5 |
| 150 | 150, previously castor meal, section 6 |

Castor meal last applied 1961, nitrate of soda and sulphate of ammonia until 1959.

plus one plot MANURE KMG 100

Treatments to grass/clover, sections 1 and 2 (not given nitrogen fertilizer):

| | |
|--------|--|
| MANURE | Fertilizers and organic manures as for grass above, excluding KMG. |
|--------|--|

87/R/BN/7

NOTES: (1) P K and D treatments were applied to Sections 1 and 2 until 1980. None were applied subsequently until the resumption of P and K treatments, only, from 1985.
 (2) Yields were not taken from section 2.

Cultivations, etc.:-

All sections: P applied: 27 Nov, 1986. K applied: 28 Nov. Cut: 2 June, 1987, 26 Aug, 2 Dec.

Grass (Sections 3, 4, 5 and 6) only: N applied: 11 June, 28 Aug.

GRASS

1ST CUT (2/6/87) DRY MATTER TONNES/HECTARE

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

| N PERCUT MANURE | 75 | 100 | 125 | 150 | Mean |
|-----------------|------|------|------|------|------|
| D | 4.40 | 5.49 | 5.89 | 5.83 | 5.40 |
| DPK | 5.47 | 6.18 | 6.46 | 6.27 | 6.09 |
| PKMG | 3.59 | 4.40 | 5.84 | 6.37 | 5.05 |
| P | 2.33 | 2.34 | 2.25 | 1.79 | 2.18 |
| PK | 4.11 | 5.52 | 5.53 | 5.34 | 5.13 |
| PMG | 3.06 | 2.33 | 2.21 | 1.95 | 2.39 |
| 0 | 2.49 | 2.12 | 1.88 | 1.88 | 2.09 |
| Mean | 3.64 | 4.06 | 4.29 | 4.21 | 4.05 |

MANURE KMG 100 4.98

Grand mean 4.08

1ST CUT MEAN DM% 20.2

2ND CUT (26/8/87) DRY MATTER TONNES/HECTARE

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

| N PERCUT MANURE | 75 | 100 | 125 | 150 | Mean |
|-----------------|------|------|------|------|------|
| D | 4.44 | 5.46 | 5.57 | 5.73 | 5.30 |
| DPK | 5.14 | 5.50 | 6.17 | 5.44 | 5.56 |
| PKMG | 4.15 | 4.89 | 4.87 | 5.03 | 4.73 |
| P | 2.96 | 1.55 | 0.94 | 0.95 | 1.60 |
| PK | 4.26 | 4.69 | 5.13 | 4.98 | 4.76 |
| PMG | 2.98 | 1.94 | 1.47 | 1.12 | 1.88 |
| 0 | 2.22 | 1.69 | 1.07 | 1.20 | 1.55 |
| Mean | 3.74 | 3.67 | 3.60 | 3.49 | 3.63 |

MANURE KMG 100 4.96

Grand mean 3.67

2ND CUT MEAN DM% 26.9

87/R/BN/7

GRASS

3RD CUT (2/12/87) DRY MATTER TONNES/HECTARE

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

| N PERCUT MANURE | 75 | 100 | 125 | 150 | Mean |
|--------------------|------|------|------|------|------|
| D | 1.60 | 2.08 | 2.40 | 2.16 | 2.06 |
| DPK | 1.80 | 2.50 | 2.59 | 2.44 | 2.33 |
| PKMG | 1.38 | 1.50 | 1.85 | 1.78 | 1.63 |
| P | 0.94 | 0.73 | 0.33 | 0.64 | 0.66 |
| PK | 1.49 | 1.90 | 2.24 | 2.01 | 1.91 |
| PMG | 0.70 | 0.48 | 0.34 | 0.48 | 0.50 |
| 0 | 0.28 | 0.27 | 0.30 | 0.31 | 0.29 |
| Mean | 1.17 | 1.35 | 1.43 | 1.40 | 1.34 |

MANURE KMG 100 1.88

Grand mean 1.36

3RD CUT MEAN DM% 22.9

TOTAL OF 3 CUTS DRY MATTER TONNES/HECTARE

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

| N PERCUT MANURE | 75 | 100 | 125 | 150 | Mean |
|--------------------|-------|-------|-------|-------|-------|
| D | 10.45 | 13.03 | 13.86 | 13.72 | 12.76 |
| DPK | 12.42 | 14.18 | 15.22 | 14.14 | 13.99 |
| PKMG | 9.13 | 10.79 | 12.56 | 13.18 | 11.41 |
| P | 6.23 | 4.62 | 3.51 | 3.38 | 4.44 |
| PK | 9.86 | 12.11 | 12.90 | 12.33 | 11.80 |
| PMG | 6.74 | 4.76 | 4.02 | 3.56 | 4.77 |
| 0 | 4.99 | 4.09 | 3.25 | 3.40 | 3.93 |
| Mean | 8.54 | 9.08 | 9.33 | 9.10 | 9.01 |

MANURE KMG 100 11.82

Grand mean 9.11

TOTAL OF 3 CUTS MEAN DM% 23.3

PLOT AREA HARVESTED 0.00568

87/R/BN/7

GRASS/CLOVER

1ST CUT (2/6/87) DRY MATTER TONNES/HECTARE

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

| MANURE | D | DPK | PKMG | P | PK | PMG | 0 | Mean |
|--------|------|------|------|------|------|------|------|------|
| | 3.16 | 3.12 | 2.48 | 1.54 | 1.90 | 2.05 | 1.56 | 2.26 |

1ST CUT MEAN DM% 19.8

2ND CUT (26/8/87) DRY MATTER TONNES/HECTARE

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

| MANURE | D | DPK | PKMG | P | PK | PMG | 0 | Mean |
|--------|------|------|------|------|------|------|------|------|
| | 2.51 | 2.80 | 2.27 | 2.18 | 2.48 | 2.91 | 1.85 | 2.43 |

2ND CUT MEAN DM% 18.2

3RD CUT (2/12/87) DRY MATTER TONNES/HECTARE

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

| MANURE | D | DPK | PKMG | P | PK | PMG | 0 | Mean |
|--------|------|------|------|------|------|------|------|------|
| | 0.64 | 0.54 | 0.39 | 0.19 | 0.23 | 0.17 | 0.20 | 0.34 |

3RD CUT MEAN DM% 24.5

TOTAL OF 3 CUTS DRY MATTER TONNES/HECTARE

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

| MANURE | D | DPK | PKMG | P | PK | PMG | 0 | Mean |
|--------|------|------|------|------|------|------|------|------|
| | 6.31 | 6.46 | 5.13 | 3.92 | 4.61 | 5.13 | 3.61 | 5.02 |

TOTAL OF 3 CUTS MEAN DM% 20.8

PLOT AREA HARVESTED 0.00568