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Numerical Results of the Field Experiments 1970

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70/W/RN/4 Market Garden - Sugar Beet, Barley

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MARKET GARDEN

(70/W/RN/4)

Residues of organic manures, P and K and effect of fresh P -
Lansome I 1970.

First year of revised scheme testing fresh P on two phases per annum
of a three course rotation - Sugar beet, barley, potatoes - crops
in 1970 sugar beet and barley.

For history, past treatments, etc., see 'Details' 1967 and 'Results'
68/B/4 and 69/W/RN/4.

Area of each plot for sugar beet: 0.0109. Area harvested:
Roots (washed): 0.0040.
Tops: 0.0016.
sub-plot for barley: 0.0055. Area harvested: 0.0018.

Superphosphate treatments (applied to whole plots with confounding
of certain two and three factor interactions):-
Series A: Sugar beet: None (0), 1.0 cwt P2O5 (P)
Series B: Barley: None (0), 0.5 cwt P2O5 (P).

Standard applications:-

Series A: Sugar beet: Manures: 20 cwt ground chalk. 480 lb muriate
of potash (60% K2O), 550 lb Epsom salts (16% MgO).
810 lb 'Nitro-Chalk' 21. Weedkiller: Phenmedipham
('Betanal' at 5 pints in 20 gals). Insecticide:
Demeton-s-methyl at 3.5 fl oz in 25 gals.
Series B: Barley: Manures: 20 cwt ground chalk, 95 lb muriate of
potash (60% K2O), 265 lb 'Nitro-Chalk' 21.
Weedkiller: Ioxynil at 7.5 oz and mecoprop at
22.5 oz in 25 gals.

Cultivations, etc.:

Series A: Sugar beet: Ground chalk applied: 29 Sept, 1969. Ploughed:
13 Oct. K, Mg and N applied: 4 Apr, 1970. P applied: 7 Apr.
Power harrowed, seed drilled at 5 lb: 20 Apr. Weedkiller applied:
15 May. Singled: 27 May. Insecticide applied: 22 June. Lifted:
22 Oct. Variety: Klein E.
Series B: Barley: Ground chalk applied: 29 Sept, 1969. Ploughed:
13 Oct. K, N and P applied, power harrowed, seed drilled at
135 lb: 26 Mar, 1970. Weedkiller applied: 16 May. Combine
harvested: 13 Aug. Variety: Julia.

NOTE: Soil samples were taken in early spring, before applying fresh P.

70/W/RV/4

SUMMARY OF RESULTS

SERIES A

SUGAR BEET

| Organic | | POKO | | PK1 | | P2K2 | |
|----------------------|---------|-------|-------|-------|-------|---------|---------|
| 1942-61* | 1962-67 | O | P | O | P | O | P |
| ROOTS (WASHED): TONS | | | | | | | |
| O | O | | | 17.81 | 16.28 | 10.89 | 18.12 |
| S1 | O | | | | | 17.35** | 17.82** |
| S2 | O | | | | | 18.60** | 17.32** |
| T1 | O | | | | | 17.50** | 18.56** |
| T2 | O | | | | | 17.39** | 18.06** |
| D1 | D1 | 17.32 | 18.28 | 17.14 | 17.50 | | |
| D2 | D2 | 19.28 | 19.53 | 19.28 | 20.10 | | |
| C1 | D1 | 17.50 | 20.15 | 17.83 | 19.64 | | |
| C2 | D2 | 19.75 | 21.44 | 18.48 | 21.00 | | |
| SUGAR % | | | | | | | |
| O | O | | | 17.1 | 17.1 | 16.7 | 17.4 |
| S1 | O | | | | | 17.7** | 16.6** |
| S2 | O | | | | | 16.8** | 17.4** |
| T1 | O | | | | | 17.4** | 17.5** |
| T2 | O | | | | | 16.8** | 17.3** |
| D1 | D1 | 17.3 | 17.1 | 17.9 | 17.3 | | |
| D2 | D2 | 17.5 | 17.4 | 18.0 | 17.1 | | |
| C1 | D1 | 17.5 | 17.6 | 17.7 | 17.3 | | |
| C2 | D2 | 17.1 | 17.3 | 17.8 | 17.2 | | |

General mean: Roots (washed): 17.89
 Sugar %: 17.3

* Last applied to Leeks 1961/62

** PK1 1962-65

70/W/RN/4

SERIES A

SUGAR BEET

| Organic | | POKO | | PK1 | | P2K2 | |
|------------------|---------|------|------|------|------|--------|--------|
| 1942-61* | 1962-67 | O | P | O | P | O | P |
| TOTAL SUGAR: CWT | | | | | | | |
| O | O | | | 61.0 | 55.8 | 36.4 | 63.3 |
| S1 | O | | | | | 61.3** | 59.3** |
| S2 | O | | | | | 62.4** | 60.2** |
| T1 | O | | | | | 61.2** | 64.8** |
| T2 | O | | | | | 58.6** | 62.6** |
| D1 | D1 | 59.8 | 62.4 | 61.5 | 60.4 | | |
| D2 | D2 | 67.4 | 68.1 | 69.3 | 68.8 | | |
| C1 | D1 | 61.3 | 70.9 | 62.9 | 67.9 | | |
| C2 | D2 | 67.5 | 74.4 | 65.6 | 72.0 | | |

| | | | | | | | |
|------------|----|-------|-------|-------|-------|---------|---------|
| TOPS: TONS | | | | | | | |
| O | O | | | 13.80 | 12.31 | 9.39 | 10.75 |
| S1 | O | | | | | 15.61** | 17.31** |
| S2 | O | | | | | 18.70** | 15.75** |
| T1 | O | | | | | 15.24** | 17.12** |
| T2 | O | | | | | 17.26** | 16.22** |
| D1 | D1 | 11.04 | 15.42 | 12.29 | 13.47 | | |
| D2 | D2 | 12.64 | 12.57 | 12.64 | 14.38 | | |
| C1 | D1 | 13.47 | 15.49 | 13.47 | 14.24 | | |
| C2 | D2 | 15.35 | 14.86 | 13.54 | 12.92 | | |

General mean: Total sugar: 61.8
 Tops: 14.41

* Last applied to Leeks 1961/62
 ** PK1 1962-65

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SERIES B

BARLEY

| 1942-61 | Organic 1962-64 | 1966-67 | POKO | P1K1 | P2K2 |
|---------|--------------------|---------|------|-------|------|
| | | | O | P O O | P O |

GRAIN: CWT

| | | | | | | | |
|----|----|----|-------|-------|------|------|------|
| O | O | O | | 37.0 | 37.1 | 40.0 | 37.6 |
| O | O | PT | | | 34.3 | 30.8 | 37.3 |
| S1 | O | O | 36.3* | 37.1* | | | |
| S2 | O | O | 32.1* | 37.5* | | | |
| T1 | O | O | 42.2* | 39.8* | | | |
| T2 | O | O | 30.0* | 38.1* | | | |
| D1 | D1 | D1 | | 35.0 | 36.9 | 41.3 | 31.0 |
| D1 | D1 | O | 36.0 | 36.7 | 38.3 | 37.3 | |
| D2 | D2 | D2 | | 40.2 | 38.0 | 41.1 | 41.0 |
| D2 | D2 | O | 45.5 | 36.4 | 39.3 | 42.1 | |
| C1 | D1 | D1 | | 38.3 | 42.3 | 43.1 | 44.8 |
| C2 | D2 | D2 | | 35.0 | 36.6 | 37.4 | 41.4 |

STRAW: CWT

| | | | | | | | |
|----|----|----|-------|-------|------|------|------|
| O | O | O | | 20.2 | 16.1 | 20.7 | 18.2 |
| O | O | PT | | | 18.4 | 20.2 | 19.5 |
| S1 | O | O | 20.4* | 17.1* | | | |
| S2 | O | O | 15.2* | 18.3* | | | |
| T1 | O | O | 22.9* | 18.6* | | | |
| T2 | O | O | 18.0* | 20.1* | | | |
| D1 | D1 | D1 | | 18.7 | 17.7 | 18.9 | 16.3 |
| D1 | D1 | O | 14.3 | 16.7 | 25.5 | 16.3 | |
| D2 | D2 | D2 | | 13.1 | 15.7 | 18.8 | 18.8 |
| D2 | D2 | O | 27.2 | 12.7 | 19.7 | 21.0 | |
| C1 | D1 | D1 | | 18.6 | 20.5 | 23.1 | 22.7 |
| C2 | D2 | D2 | | 18.2 | 17.9 | 20.4 | 22.3 |

General mean: Grain: 37.9
 Straw: 19.1
 Mean D.M. %: Grain: 84.0
 Straw: 78.4

* P1K1 1962-64