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# Yields of the Field Experiments 1971

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## 71/W/RN/4 Market Garden - Barley, Potatoes

### Rothamsted Research

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71/W/RN/4

MARKET GARDEN

Object: To study direct and residual effects of phosphate, applied either as fertiliser or in organic manures in the period 1942 - 67, on yields of three crops grown in rotation - Woburn Lansome I.

The second year of revised scheme, barley and potatoes.

For previous years see 'Details' 1967, 68/B/4(t), 69/W/RN/4 and 70/W/RN/4(t).

Whole plot dimensions: 8.53 x 5.18. Area harvested: 0.00074.

Superphosphate treatments (applied to whole plots with confounding of certain two and three factor interactions):-

Series A: Barley: None (0), 63 kg P2O5 (P)

Series B: Potatoes: None (0), 188 kg P2O5 (P)

Basal applications:-

Series A: Barley: Manures: 2510 kg ground chalk. 100 kg muriate of potash (60% K2O), 290 kg 'Nitro-Chalk' 21. Weedkiller: Ioxynil at 0.53 kg and mecoprop at 1.58 kg in 281 l.

Series B: Potatoes: Manures: 2510 kg ground chalk. 417 kg muriate of potash (60% K2O), 1345 kg 'Nitro-Chalk' 21, 605 kg Epsom salts (16% MgO). Weedkiller: Linuron at 1.12 kg in 371 l. Fungicide with insecticide: Mancozeb at 1.34 kg plus demeton-s-methyl at 245 g in 416 l. Fungicide: Mancozeb at 1.34 kg in 371 l.

Cultivations, etc.:

Series A: Barley: Ground chalk applied: 13 Nov, 1970. Ploughed: 14 Nov. N and K applied: 1 Mar, 1971. P treatments applied: 3 Mar. Seed drilled at 157 kg: 17 Mar. Weedkiller applied: 30 Apr. Combine harvested: 16 Aug. Variety: Julia.

Series B: Potatoes: Ground chalk applied, ploughed: 11 Sept, 1970. Deep-tine cultivated: 21 Oct. N, K and Mg applied: 30 Mar, 1971. P treatments applied, rotary cultivated, potatoes planted: 31 Mar. Weedkiller applied: 5 May. Rotary ridged: 1 June. Fungicide with insecticide applied: 28 June. Fungicide applied: 12 Aug. Haulm mechanically destroyed: 17 Sept. Sprayed with undiluted BOV at 225 l: 20 Sept. Lifted: 28 - 30 Sept. Variety: Pentland Crown.

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SUMMARY OF RESULTS

SERIES A

BARLEY

| Organic               |         | POKO |      | PK1  |      | P2K2   |        |
|-----------------------|---------|------|------|------|------|--------|--------|
| 1942-61*              | 1962-67 | O    | P    | O    | P    | O      | P      |
| GRAIN: TONNES/HECTARE |         |      |      |      |      |        |        |
| O                     | O       |      |      | 5.70 | 5.50 | 4.33   | 6.05   |
| S1                    | O       |      |      |      |      | 5.58** | 6.18** |
| S2                    | O       |      |      |      |      | 5.38** | 5.77** |
| T1                    | O       |      |      |      |      | 5.68** | 5.76** |
| T2                    | O       |      |      |      |      | 5.61** | 5.77** |
| D1                    | D1      | 4.78 | 5.64 | 5.65 | 5.46 |        |        |
| D2                    | D2      | 5.81 | 5.99 | 6.21 | 5.82 |        |        |
| C1                    | D1      | 5.84 | 5.77 | 4.60 | 6.22 |        |        |
| C2                    | D2      | 6.08 | 6.18 | 5.84 | 6.16 |        |        |

|                       |    |      |      |      |      |        |        |
|-----------------------|----|------|------|------|------|--------|--------|
| STRAW: TONNES/HECTARE |    |      |      |      |      |        |        |
| O                     | O  |      |      | 3.62 | 3.79 | 2.98   | 4.25   |
| S1                    | O  |      |      |      |      | 3.95** | 4.50** |
| S2                    | O  |      |      |      |      | 3.90** | 3.89** |
| T1                    | O  |      |      |      |      | 3.56** | 4.38** |
| T2                    | O  |      |      |      |      | 4.24** | 3.96** |
| D1                    | D1 | 3.62 | 4.59 | 4.31 | 2.66 |        |        |
| D2                    | D2 | 4.26 | 4.57 | 4.25 | 3.96 |        |        |
| C1                    | D1 | 4.27 | 3.87 | 2.85 | 4.82 |        |        |
| C2                    | D2 | 4.70 | 4.54 | 3.91 | 4.54 |        |        |

General mean: Grain: 5.67

Straw: 3.99

Mean D.M. %: Grain: 76.1

Straw: 67.2

\* Last applied to Leeks 1961/62

\*\* PK1 1962-65

| 71/W/RN/4                         |         |         |       |       |      |      |      |      |  |
|-----------------------------------|---------|---------|-------|-------|------|------|------|------|--|
| SERIES B                          |         |         |       |       |      |      |      |      |  |
| POTATOES                          |         |         |       |       |      |      |      |      |  |
| Organic                           |         |         | POKO  |       | P1K1 |      | P2K2 |      |  |
| 1942-61                           | 1962-64 | 1966-67 | O     | P     | O    | P    | O    | P    |  |
| TOTAL TUBERS: TONNES/HECTARE      |         |         |       |       |      |      |      |      |  |
| O                                 | O       | O       |       |       | 51.7 | 50.5 | 55.6 | 59.1 |  |
| O                                 | O       | PT      |       |       | 50.8 | 58.2 | 59.0 | 61.7 |  |
| S1                                | O       | O       | 56.1* | 57.9* |      |      |      |      |  |
| S2                                | O       | O       | 57.8* | 60.6* |      |      |      |      |  |
| T1                                | O       | O       | 57.0* | 58.0* |      |      |      |      |  |
| T2                                | O       | O       | 60.7* | 62.7* |      |      |      |      |  |
| D1                                | D1      | D1      | 46.5  | 60.6  | 58.8 | 59.9 |      |      |  |
| D1                                | D1      | O       | 49.5  | 58.3  | 58.8 | 56.3 |      |      |  |
| D2                                | D2      | D2      | 53.2  | 62.0  | 63.5 | 65.4 |      |      |  |
| D2                                | D2      | O       | 52.8  | 54.3  | 57.9 | 56.6 |      |      |  |
| C1                                | D1      | D1      | 56.9  | 59.8  | 64.3 | 58.1 |      |      |  |
| C2                                | D2      | D2      | 61.4  | 55.2  | 59.6 | 62.5 |      |      |  |
| % WARE: 3.81 CM (1.5 INCH) RIDDLE |         |         |       |       |      |      |      |      |  |
| O                                 | O       | O       |       |       | 97.2 | 96.5 | 96.9 | 97.1 |  |
| O                                 | O       | PT      |       |       | 97.5 | 97.8 | 97.7 | 97.2 |  |
| S1                                | O       | O       | 98.0* | 97.9* |      |      |      |      |  |
| S2                                | O       | O       | 97.7* | 97.2* |      |      |      |      |  |
| T1                                | O       | O       | 97.1* | 97.0* |      |      |      |      |  |
| T2                                | O       | O       | 97.9* | 97.5* |      |      |      |      |  |
| D1                                | D1      | D1      | 97.4  | 98.7  | 96.9 | 96.4 |      |      |  |
| D1                                | D1      | O       | 97.5  | 97.9  | 97.6 | 97.3 |      |      |  |
| D2                                | D2      | D2      | 97.1  | 97.3  | 96.9 | 98.4 |      |      |  |
| D2                                | D2      | O       | 97.1  | 98.0  | 97.6 | 97.8 |      |      |  |
| C1                                | D1      | D1      | 97.2  | 97.5  | 97.6 | 97.1 |      |      |  |
| C2                                | D2      | D2      | 97.5  | 97.1  | 97.2 | 97.5 |      |      |  |

General mean: Total tubers: 58.1  
 % ware: 97.4

\* P1K1 1962-64

70/W/RN/4. Replacement for page 81.

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SERIES B

BARLEY

| Organic    |         |         | POKO  |       | P1K1 |      | P2K2 |      |
|------------|---------|---------|-------|-------|------|------|------|------|
| 1942-61    | 1962-64 | 1966-67 | O     | P     | O    | P    | O    | P    |
| GRAIN: CWT |         |         |       |       |      |      |      |      |
| O          | O       | O       |       |       | 37.0 | 37.1 | 40.0 | 37.6 |
| O          | O       | PT      |       |       | 34.3 | 30.8 | 37.3 | 36.3 |
| 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 | 19.7 |
| 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