

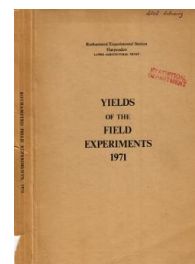
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## Yields of the Field Experiments 1971

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### 71/R/CS/76 and 71/W/CS/76 Rates of N P K Fertiliser - Potatoes

#### Rothamsted Research

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## 71/R/CS/76 and 71/W/CS/76

### RATES OF NPK FERTILISER

Object: To study the effects of a range of rates of compound NPK fertiliser on the yields of potatoes - Rothamsted (R) Long Hoos III and Woburn (W) Lansome II.

The first year, potatoes.

#### Design:

Long Hoos III (R): 3 randomised blocks of 8 plots split into 2.  
Lansome II (W): 2 randomised blocks of 8 plots split into 2.

#### Whole plot dimensions:-

Long Hoos III (R): 4.27 x 21.0. Sub plot area harvested: 0.00143.  
Lansome II (W): 4.27 x 21.0. Sub plot area harvested: 0.00143.

#### Treatments:-

Whole plots: All combinations of:-

1. Rates of compound fertiliser (13:13:20): 1255, 1882, 2510, 3137 kg.
2. Spacing: Seed potatoes 30.5 cm (12 inches) (S1), 45.7 cm (18 inches) (S2) apart within the row.

Sub plots: 3. Varieties:-

Long Hoos III (R): King Edward (KE), Pentland Crown (PC).

Lansome II (W): Pentland Crown (PC), Record (R).

All rows were planted 71.1 cm (27 inches) apart. Seed of King Edward and Pentland Crown was chitted but Record was not.

#### Basal applications:-

Long Hoos III (R): Manures: None: Weedkiller: Linuron at 0.84 kg in 427 l. Fungicide: Mancozeb at 1.34 kg in 438 l on 2 occasions. Insecticide: Demeton-s-methyl at 245 g applied with the fungicide on the first occasion.

Lansome II (W): Manures: None. Weedkiller: Linuron at 1.12 kg in 371 l. Fungicide with insecticide: Mancozeb at 1.34 kg with demeton-s-methyl at 245 g in 416 l. Fungicide: Mancozeb at 1.34 kg in 371 l.

#### Cultivations, etc.:-

Long Hoos III (R): Ploughed: 30 Sept, 1970. NPK applied and rotary cultivated in, potatoes machine planted: 6 Apr, 1971. Weedkiller applied: 10 May. Grubbed: 3 June. Earthed up: 4 June. Fungicide and insecticide applied: 24 June. Fungicide applied: 13 Aug. Sprayed with undiluted BOV at 168 l: 16 Sept. Previous crops: Barley 1969, fallow 1970.

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Lansome II (W): Ploughed: 4 Sept, 1970. Deep-tine cultivated: 21 Oct. NPK applied: 29 Mar, 1971. Rotary cultivated 1st stroke: 30 Mar, 2nd stroke: 31 Mar. Potatoes planted: 2 Apr. Weed-killer applied: 5 May. Rotary ridged: 2 June. Fungicide with insecticide applied: 29 June. Fungicide applied: 13 Aug. Haulm destroyed mechanically: 17 Sept.. Sprayed with undiluted BOV at 225 l: 20 Sept. Lifted: 24 Sept. Previous crops: Barley 1969, beans 1970.

NOTE: The percentages of N, P and K in the tubers and of K and Mg in the leaves, were determined.

Standard errors per plot. Total tubers: tonnes/hectare:

Long Hoos III (R): Whole plot: 2.59 or 5.2% (14 d.f.)  
Sub plot: 2.89 or 5.8% (16 d.f.)

Lansome II (W): Whole plot: 3.00 or 10.9% (7 d.f.)  
Sub plot: 4.67 or 16.9% (8 d.f.)

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SUMMARY OF RESULTS

LONG HDOS III (R)

COMPOUND FERTILISER (13:13:20) KG/HA

|              | 1255                         | 1882 | 2510 | 3137 | Mean    |
|--------------|------------------------------|------|------|------|---------|
|              | TOTAL TUBERS: TONNES/HECTARE |      |      |      |         |
|              | (±1.49)                      |      |      |      | (±0.75) |
| S1           | 42.5                         | 48.3 | 54.3 | 60.2 | 51.3    |
| S2           | 40.9                         | 43.9 | 53.0 | 52.0 | 47.5    |
|              | (1) and (2)                  |      |      |      | (±0.59) |
| KE           | 38.2                         | 41.8 | 51.6 | 54.0 | 46.4    |
| PC           | 45.1                         | 50.4 | 55.8 | 58.1 | 52.4    |
| Mean (±1.06) | 41.7                         | 46.1 | 53.7 | 56.1 | 49.4    |

(1) (±1.18) For use in horizontal and diagonal comparisons only

(2) (±1.35) For use in vertical and interaction comparisons only

% WARE: 4.44 CM (1.75 INCH) RIDDLE

|      |      |      |      |      |      |
|------|------|------|------|------|------|
| S1   | 69.5 | 73.3 | 78.3 | 81.7 | 75.7 |
| S2   | 76.8 | 77.9 | 81.7 | 81.1 | 79.4 |
| KE   | 65.3 | 69.1 | 73.2 | 76.7 | 71.1 |
| PC   | 81.0 | 82.1 | 86.8 | 86.2 | 84.0 |
| Mean | 73.1 | 75.6 | 80.0 | 81.4 | 77.5 |



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LANSOME II (W)

COMPOUND FERTILISER (13:13:20) HG/HA

|              | 1255                         | 1882 | 2510 | 3137 | Mean    |
|--------------|------------------------------|------|------|------|---------|
|              | TOTAL TUBERS: TONNES/HECTARE |      |      |      |         |
|              | (±2.12)                      |      |      |      | (±1.06) |
| S1           | 20.4                         | 25.7 | 33.6 | 32.8 | 28.1    |
| S2           | 18.9                         | 23.8 | 27.9 | 37.5 | 27.0    |
|              | (1) and (2)                  |      |      |      | (±1.17) |
| PC           | 27.2                         | 31.2 | 38.4 | 45.4 | 35.5    |
| R            | 12.0                         | 18.4 | 23.2 | 24.9 | 19.6    |
| Mean (±1.50) | 19.6                         | 24.8 | 30.8 | 35.1 | 27.6    |

(1) (±2.34) For use in horizontal and diagonal comparisons only

(2) (±2.23) For use in vertical and interaction comparisons only

% WARE: 4.44 CM (1.75 INCH) RIDDLE

|      |      |      |      |      |      |
|------|------|------|------|------|------|
| S1   | 48.1 | 57.0 | 68.4 | 72.7 | 61.6 |
| S2   | 51.5 | 63.6 | 68.3 | 79.6 | 65.7 |
| PC   | 71.0 | 70.1 | 77.3 | 86.7 | 76.3 |
| R    | 28.6 | 50.4 | 59.5 | 65.6 | 51.0 |
| Mean | 49.8 | 60.3 | 68.4 | 76.2 | 63.7 |