

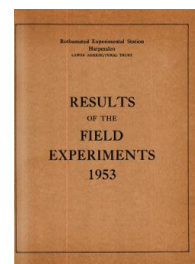
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# Yields of the Field Experiments 1953

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## Short-term Experiments

### Rothamsted Research

Rothamsted Research (1954) *Short-term Experiments* ; Yields Of The Field Experiments 1953, pp 68 - 106 - DOI: <https://doi.org/10.23637/ERADOC-1-173>

53/Ca/1.1

### WHEAT

The effects of various crop sequences on the incidence of Eyespot  
(Cercospora herpotrichoides) - Little Knott 1953, the 4th year.

Arrangement of previous treatment crops: 4 longitudinal and 8 cross  
strips.

Area of each sub plot, acres: In 3 longitudinal strips - 0.0498; in the  
other - 0.0348 acre. Area harvested: 0.0482 and 0.0335 respectively.

Preparatory crops 1950-52:-

1950 North and South, strips of Fallow, Ryegrass, Wheat, Potatoes

1951 East and West, strips of Ryegrass, Wheat, Fallow, Potatoes

1951 East and West, strips  $\frac{1}{2}$  width Ryegrass, Wheat, Oats, Beans  
Wheat, Oats, Barley, Wheat

giving 32 crop sequences in all.

In 1949 the field carried a crop of wheat heavily infested with Eyespot,  
Take-all (Ophiobolus graminis) and weeds.

Basal dressing:  $2\frac{1}{2}$  cwt sulphate of ammonia per acre in spring.

Cultivations, etc.: Ploughed: Aug 7, 1952. Seed drilled at  $2\frac{3}{4}$   
bushels per acre: Oct 29. Sulphate of ammonia applied:  
Apr 24, 1953. Harvested: Aug 28. Variety: Squareheads Master 13/4.



53/Ca/1.2

Summary of Results

| Previous crop |      |      | Grain (at 85% dry matter): cwt per acre |      | Straw (less cavings and chaff): cwt per acre |      |
|---------------|------|------|---|------|--|------|
| 1950          | 1951 | 1952 |   | Mean |  | Mean |
| W             | W    | W    | 15.5                                    | 15.5 | 54.0   | 54.0 |
| H             | W    | W    | 19.2                                    |      | 50.3   |      |
| P             | W    | W    | 23.7                                    | 19.3 | 56.8   | 53.0 |
| F             | W    | W    | 15.1                                    |      | 51.8   |      |
| W             | H    | W    | 24.4                                    |      | 56.4   |      |
| W             | P    | W    | 24.4                                    | 23.5 | 41.5   | 48.7 |
| W             | F    | B    | 21.5                                    |      | 48.2   |      |
| H             | H    | W    | 23.9                                    |      | 56.1   |      |
| P             | H    | W    | 30.7                                    |      | 57.4   |      |
| F             | H    | W    | 22.6                                    |      | 52.8   |      |
| H             | P    | W    | 29.9                                    |      | 44.2   |      |
| P             | P    | W    | 30.5                                    | 27.6 | 45.3   | 49.7 |
| F             | P    | W    | 27.3                                    |      | 41.8   |      |
| H             | F    | B    | 25.7                                    |      | 48.3   |      |
| P             | F    | B    | 30.6                                    |      | 51.4   |      |
| F             | F    | B    | 27.4                                    |      | 50.0   |      |
| W             | W    | O    | 32.9                                    | 32.9 | 58.8   | 58.8 |
| H             | W    | O    | 36.1                                    |      | 54.6   |      |
| P             | W    | O    | 38.6                                    | 35.8 | 57.7   | 57.2 |
| F             | W    | O    | 32.6                                    |      | 59.3   |      |
| W             | H    | H    | 34.6                                    |      | 70.3   |      |
| W             | F    | O    | 36.7                                    | 36.0 | 57.0   | 62.1 |
| W             | P    | Be   | 36.8                                    |      | 59.1   |      |
| H             | F    | O    | 38.6                                    |      | 57.9   |      |
| F             | F    | O    | 37.6                                    |      | 60.3   |      |
| P             | F    | O    | 39.2                                    |      | 54.8   |      |
| F             | H    | H    | 31.3                                    |      | 63.1   |      |
| F             | P    | Be   | 38.8                                    | 37.1 | 58.7   | 62.2 |
| H             | H    | H    | 32.8                                    |      | 63.1   |      |
| P             | H    | H    | 36.3                                    |      | 73.5   |      |
| H             | P    | Be   | 39.9                                    |      | 64.2   |      |
| P             | P    | Be   | 39.0                                    |      | 64.2   |      |
| Mean          |      |      |   | 30.4 |  | 55.7 |

Mean dry matter %: 82.1

Crop symbols: B - Barley. Be - Beans. F - Fallow. H - Ryegrass.  
O - Oats. P - Potatoes. W - Wheat.



53/Ca/2.1

## WHEAT

The effects of varieties, seed rates and time of applying N on the incidence of Eyespot - Great Field 1953, the 2nd year.

System of replication: 8 randomized blocks of 8 plots each, certain high order interactions and the effect of spraying being confounded with block differences. In addition each block contained two extra plots with no nitrogen, the variety  $\times$  seed rate interaction being confounded.

Area of each plot: 0.0197 acre. Area harvested: 0.0129 acre.

Treatments: All combinations of

Variety: Squareheads Master 13/4; Bersee ( $V_1$ ;  $V_2$ ).

Seedrate:  $1\frac{1}{2}$ ; 3 bushels per acre ( $R_1$ ;  $R_2$ ).

Nitrogen: 0.4; 0.8 cwt per acre applied as sulphate of ammonia ( $N_1$ ;  $N_2$ ).

Time of application of N: At time of autumn sowing; early March; mid-April; 3rd week May ( $T_1$ ;  $T_2$ ;  $T_3$ ;  $T_4$ ).

Spraying: 4 blocks sprayed with  $12\frac{1}{2}\%$  sulphuric acid at 100 gallons per acre.

Basal dressing: None.

Cultivations, etc.: Ploughed: Sept 2, 1952. Seed drilled:  $V_1$  - Oct 17,  $V_2$  - Oct 21.  $T_1$  applied: Oct 24. Sprayed 4 blocks with sulphuric acid: Mar 4, 1953.  $T_2$  applied: Mar 5.  $T_3$  applied: Apr 11.  $T_4$  applied: May 22. Combine harvested: Aug 22. Previous crop: Wheat.

Standard error per plot:

Grain (at 85% D.M.): 3.41 cwt per acre or 16.3% (24 d.f.)

N.B. (1) In the Summary of Results:-

(a) The standard errors given are not valid for testing the effects of spraying for any particular treatment level; the interactions of spraying with treatments may however be tested.

(b) The  $V \times R$  tables do not include the plots receiving no nitrogen

(2) Records of incidence of disease (Take-all and Eyespot) and counts of plant, shoot and straw numbers were made.

Estimates of % area lodged were also recorded.



Summary of Results

Grain (at 85% Dry Matter): cwt per acre

|                    | Unsprayed      |                |                |                | Mean            |
|--------------------|----------------|----------------|----------------|----------------|-----------------|
|                    | T <sub>1</sub> | T <sub>2</sub> | T <sub>3</sub> | T <sub>4</sub> |                 |
| Mean (±1.20)       | 20.6           | 21.8           | 21.4           | 23.5           | 21.8<br>(±0.85) |
| V <sub>1</sub>     | 17.1           | 18.9           | 18.6           | 23.4           | 19.5            |
| V <sub>2</sub>     | 24.1           | 24.8           | 24.1           | 23.7           | 24.2            |
| Difference (±2.41) | +7.0           | +5.9           | +5.5           | +0.3           | +4.7 (±1.20)    |
| R <sub>1</sub>     | 21.5           | 22.0           | 23.7           | 27.2           | 23.6            |
| R <sub>2</sub>     | 19.7           | 21.7           | 19.0           | 19.9           | 20.1            |
| Difference (±2.41) | -1.8           | -0.3           | -4.7           | -7.3           | -3.5 (±1.20)    |
| N <sub>1</sub>     | 17.5           | 23.1           | 18.8           | 22.0           | 20.3            |
| N <sub>2</sub>     | 23.7           | 20.6           | 24.0           | 25.0           | 23.3            |
| Difference (±2.41) | +6.2           | -2.5           | +5.2           | +3.0           | +3.0 (±1.20)    |

|                | R <sub>1</sub> | R <sub>2</sub> | Diff.   | N <sub>0</sub>      | N <sub>1</sub> | N <sub>2</sub> | Mean    |
|----------------|----------------|----------------|---------|---------------------|----------------|----------------|---------|
| Mean (±0.85)   |                |                |         | 15.1 <sup>(2)</sup> | 20.3           | 23.3           | 20.5    |
|                | (±1.20)        |                | (±1.70) | (±1.70)             | (±1.20)        |                | (±0.76) |
| V <sub>1</sub> | 22.1           | 16.9           | -5.2    | 11.7                | 19.1           | 19.9           | 17.9    |
| V <sub>2</sub> | 25.2           | 23.2           | -2.0    | 18.5                | 21.6           | 26.8           | 23.1    |
| Diff. (±1.70)  | +3.1           | +6.3           | +3.2    | +6.8 <sup>(1)</sup> | +2.5           | +6.9           | +5.2    |
|                |                |                |         | (±1.70)             | (±1.20)        |                | (±0.76) |
| R <sub>1</sub> |                |                |         | 16.2                | 22.2           | 25.1           | 22.1    |
| R <sub>2</sub> |                |                |         | 14.1                | 18.5           | 21.6           | 18.9    |
| Diff. (±1.70)  |                |                |         | -2.1 <sup>(1)</sup> | -3.7           | -3.5           | -3.2    |

(1) ±2.41 (2) ±1.70 Mean D.M. %: 87.3

Treatment symbols

V<sub>1</sub> Squareheads Master 13/4 R<sub>1</sub> 1½ bushels per acre N<sub>0</sub> No N  
 V<sub>2</sub> Bersee R<sub>2</sub> 3 bushels per acre N<sub>1</sub> 0.4 cwt N per acre  
 N<sub>2</sub> 0.8 cwt N per acre

T<sub>1</sub> Sulphate of ammonia at time of autumn sowing  
 T<sub>2</sub> Sulphate of ammonia in early March  
 T<sub>3</sub> Sulphate of ammonia mid-April  
 T<sub>4</sub> Sulphate of ammonia 3rd week May



53/Ca/2.3

Grain (at 85% Dry Matter): cwt per acre

|                    | Sprayed        |                |                |                | Mean            |
|--------------------|----------------|----------------|----------------|----------------|-----------------|
|                    | T <sub>1</sub> | T <sub>2</sub> | T <sub>3</sub> | T <sub>4</sub> |                 |
| Mean (±1.20)       | 22.6           | 22.9           | 21.0           | 21.0           | 21.9<br>(±0.85) |
|                    |                | (±1.70)        |                |                |                 |
| V <sub>1</sub>     | 20.0           | 21.8           | 18.3           | 19.3           | 19.8            |
| V <sub>2</sub>     | 25.2           | 24.1           | 23.7           | 22.7           | 23.9            |
| Difference (±2.41) | +5.2           | +2.3           | +5.4           | +3.4           | +4.1 (±1.20)    |
| R <sub>1</sub>     | 25.1           | 22.0           | 22.8           | 24.7           | 23.6            |
| R <sub>2</sub>     | 20.1           | 23.9           | 19.1           | 17.4           | 20.1            |
| Difference (±2.41) | -5.0           | +1.9           | -3.7           | -7.3           | -3.5 (±1.20)    |
| N <sub>1</sub>     | 21.2           | 25.1           | 18.8           | 23.2           | 22.1            |
| N <sub>2</sub>     | 24.0           | 20.8           | 23.1           | 18.9           | 21.7            |
| Difference (±2.41) | +2.8           | -4.3           | +4.3           | -4.3           | -0.4 (±1.20)    |

|                | R <sub>1</sub> | R <sub>2</sub> | Diff.   | N <sub>0</sub>       | N <sub>1</sub> | N <sub>2</sub> | Mean    |
|----------------|----------------|----------------|---------|----------------------|----------------|----------------|---------|
| Mean (±0.85)   |                |                |         | 18.7 <sup>(2)</sup>  | 22.1           | 21.7           | 21.2    |
|                | (±1.20)        |                | (±1.70) | (±1.70)              | (±1.20)        |                | (±0.76) |
| V <sub>1</sub> | 22.0           | 17.7           | -4.3    | 19.0                 | 19.7           | 19.9           | 19.7    |
| V <sub>2</sub> | 25.3           | 22.6           | -2.7    | 18.3                 | 24.4           | 23.5           | 22.8    |
| Diff. (±1.70)  | +3.3           | +4.9           | +1.6    | -0.7 <sup>(1)</sup>  | +4.7           | +3.6           | +3.1    |
|                |                |                |         | (±1.70)              | (±1.20)        |                | (±0.76) |
| R <sub>1</sub> |                |                |         | 24.7                 | 24.0           | 23.3           | 23.8    |
| R <sub>2</sub> |                |                |         | 12.6                 | 20.2           | 20.1           | 18.6    |
| Diff. (±1.70)  |                |                |         | -12.1 <sup>(1)</sup> | -3.8           | -3.2           | -5.2    |

(1) ±2.41 (2) ±1.20 Mean D.M. %: 85.3

Treatment symbols

V<sub>1</sub> Squareheads Master 13/4 R<sub>1</sub> 1½ bushels per acre N<sub>0</sub> No N  
 V<sub>2</sub> Bersee R<sub>2</sub> 3 bushels per acre N<sub>1</sub> 0.4 cwt N per acre  
 N<sub>2</sub> 0.8 cwt N per acre

T<sub>1</sub> Sulphate of ammonia at time of autumn sowing  
 T<sub>2</sub> Sulphate of ammonia in early March  
 T<sub>3</sub> Sulphate of ammonia mid-April  
 T<sub>4</sub> Sulphate of ammonia 3rd week May



53/Ca/3

WHEAT

The effect of varieties, seed rates and N on the incidence of Eyespot - Great Field I 1953.

System of replication: 4 randomized blocks of 8 plots each, certain high order interactions and the effect of spraying being confounded with block differences.

Area of each plot: 0.0197 acre. Area harvested: 0.0129 acre.

Treatments: All combinations of:

Varieties: Hybrid 46; Yeoman; Cappelle; Scandia.  
 Seed rates: 1½; 3 bushels per acre.  
 Nitrogen: 0.4; 0.8 cwt N per acre as sulphate of ammonia applied in spring.  
 Spraying (on blocks): None; 100 gallons of 12½% Sulphuric acid per acre.

Basal dressing: None

Cultivations, etc.: Ploughed: Sept 2, 1952. Seed drilled: Oct 24.  
 Sprayed with sulphuric acid: Mar 4, 1953. Sulphate of ammonia applied: Mar 5. Combine harvested: Sept 9. Previous crop: Wheat.

Standard error per plot:

Grain: 3.50 cwt per acre or 15.0% (11 d.f.)

Summary of Results

Grain: cwt per acre

|           | Variety     |        |          |         | Seed rate:   |      | N:           |      | Mean |
|-----------|-------------|--------|----------|---------|--------------|------|--------------|------|------|
|           | Hybrid 46   | Yeoman | Cappelle | Scandia | bu. per acre |      | cwt per acre |      |      |
|           | (±1.79)*    |        |          |         | (±1.27)*     |      |              |      |      |
| Unsprayed | 22.0        | 22.5   | 24.9     | 24.6    | 24.1         | 22.9 | 21.7         | 25.4 | 23.5 |
| Sprayed   | 26.9        | 22.2   | 24.7     | 24.1    | 25.5         | 23.4 | 23.7         | 25.2 | 24.5 |
| Mean      | 24.5        | 22.3   | 24.8     | 24.3    | 24.8         | 23.2 | 22.7         | 25.3 | 24.0 |
|           | (±1.27)     |        |          |         | (±0.90)      |      |              |      |      |
|           | Variety     |        |          |         | (±1.79)      |      |              |      |      |
|           | Hybrid 46   |        |          |         | 25.0         | 24.0 | 22.5         | 26.5 |      |
|           | Yeoman      |        |          |         | 24.2         | 20.5 | 20.5         | 24.2 |      |
|           | Cappelle    |        |          |         | 24.9         | 24.7 | 23.7         | 25.9 |      |
|           | Scandia     |        |          |         | 25.1         | 23.5 | 24.0         | 24.6 |      |
|           |             |        |          |         | (±1.27)      |      |              |      |      |
|           | Seed rate:  |        |          |         |              |      |              |      |      |
|           | bushels per |        |          |         | 1.5          |      | 23.0         | 26.6 |      |
|           | acre        |        |          |         | 3.0          |      | 22.3         | 24.0 |      |

\*For use in horizontal and interaction comparisons only

N.B. Records of incidence of disease (Eyespot and Take-all) and counts of plant shoot and straw numbers were made. Estimates of % area lodged were also recorded.



53/Ca/4

WHEAT

Residual effect of dung - West Barnfield II 1953.

System of replication: 4 randomized blocks of 12 plots each.

Area of each plot: 0.0318 acre. Area harvested: 0.0129 acre.

Treatments: All combinations of:-

Dung: None; 5; 10; 15 tons per acre applied to potatoes 1951-52.

Methods of application: Ploughed in, in winter (1951); ploughed in, in spring (1952); placed in ridges (1952).

Basal dressing: 3 cwt sulphate of ammonia per acre as top dressing in spring.

Cultivations, etc.: Cultivated: Oct 22 and again Oct 30 1952. Seed drilled at 3 bushels per acre: Nov 4. Sulphate of ammonia applied: April 24, 1953. Sprayed with M.C.P.A. low volume, 2 pints per acre: May 21. Combine harvested: Aug 21. Variety: Cappelle. Previous crop: Potatoes.

Standard error per plot:

Grain\* : 5.06 cwt per acre or 12.4% (35 d.f.)

Summary of Results

| Method of application  | Dung applied to potatoes 1951-52:<br>tons per acre |         |      |      | Mean    |
|------------------------|--|---------|------|------|---------|
|                        | None   | 5       | 10   | 15   |         |
|                        | Grain*: cwt per acre                               |         |      |      |         |
|                        |  | (±2.53) |      |      | (±1.46) |
| Ploughed in, in winter | 40.6   | 42.8    | 42.3 | 41.9 |         |
| Ploughed in, in spring | 41.9   | 39.3    | 45.4 | 42.2 |         |
| Placed in ridges       | 37.7   | 41.4    | 42.8 | 40.6 |         |
| Mean (±1.46)           | 38.6   | 40.1    | 41.2 | 43.5 | 40.8    |

\*Corrected to 85% D.M. Mean D.M.%:84.3.

N.B. For details of original experiment see "Results of the Field Experiments 1952", Section Cc/1.



53/Ca/5

WHEAT

The residual effect of insecticides on the control of wireworm - Geescroft 1953.

System of replication: 3 randomized blocks of 8 plots each.

Area of each plot: 0.0289 acre. Area harvested: 0.0178 acre.

Treatments (applied autumn 1951 to previous wheat):

|  |                 |                  |       |   |  |  |     |
|--|-----------------|------------------|-------|---|--|--|-----|
| None (triplicate plots)                  |                 |                  |       |   |  |  | (O) |
| Gammexane seed dressing, 2 oz per bushel |                 |                  |       |   |  |  | (S) |
| Gammexane combine drilled with seed at   | 56 lb per acre, | 3.5% dust        |       |   |  |  | (G) |
| Aldrin                                   | " " " "         | 200 lb per acre, | 1.78% | " |  |  | (A) |
| Chlordane                                | " " " "         | 100 lb per acre, | 5%    | " |  |  | (C) |
| D. D. T.                                 | " " " "         | 150 lb per acre, | 5%    | " |  |  | (D) |

Basal dressing: 3 cwt sulphate of ammonia per acre.

Cultivations, etc.: Ploughed: Sept 8, 1952. Seed drilled at 2¼ bushels per acre: Oct 27. Sulphate of ammonia applied: Apr 25, 1953. Combine harvested: Sept 26. Variety: Nord Desprez. Previous crop: Wheat.

Standard error per plot:

Grain: 2.76 cwt per acre or 10.4% (16 d.f.)

Note: Wireworm counts were made and are available.

For details of original experiment see "Results of the Field Experiments 1952", Section Ca/4.

Summary of Results

|                     | O                   | S    | G    | A    | C    | D    | Mean |
|---------------------|---------------------|------|------|------|------|------|------|
| Grain: cwt per acre |                     |      |      |      |      |      |      |
| Mean (±1.60)        | 21.6 <sup>(1)</sup> | 22.9 | 30.2 | 34.6 | 32.9 | 26.7 | 26.5 |
| Increase (±1.84)    |                     | 1.3  | 8.6  | 13.0 | 11.3 | 5.1  |      |

Standard error (1) ±0.92

53/Ca/6

WHEAT

Late application of nitrogen - Highfield 1953.

System of replication: 4 randomized blocks of 3 plots each.

Area of each plot: 0.0204 acre.

Treatments:

Nitrogen: None; 0.23; 0.46 cwt per acre applied as nitrochalk top dressing.

Basal dressing: 2 cwt sulphate of ammonia per acre.

Cultivations, etc.: Ploughed: Aug 23, 1952. Seed drilled at 3 bushels per acre: Oct 30. Sulphate of ammonia applied: Apr 29, 1953. Nitrochalk applied: June 26. Harvested: Aug 19. Variety: Nord Desprez. Previous crop: Wheat.

Standard error per plot:

Grain: 1.12 cwt per acre or 3.5% (6 d.f.)

Summary of Results

|                                     | Nitrogen (as nitrochalk top dressing): cwt per acre |       |       | Mean |
|-------------------------------------|---|-------|-------|------|
|                                     | None  | 0.23  | 0.46  |      |
| Yield: cwt per acre                 |   |       |       |      |
| Grain ( $\pm 0.56$ )                | 31.8  | 32.2  | 31.8  | 31.9 |
| Straw <sup>x</sup>                  | 44.6  | 43.3  | 43.3  | 43.7 |
| Crude protein: cwt per acre         |   |       |       |      |
| Grain                               | 3.79  | 3.91  | 3.88  |      |
| Increase                            |   | +0.12 | +0.09 |      |
| Straw                               | 1.78  | 1.73  | 1.82  |      |
| Increase                            |   | -0.05 | +0.04 |      |
| Percentage uptake of added nitrogen |   |       |       |      |
| Grain                               |   | +8    | +3    |      |
| Straw                               |   | -3    | +1    |      |

<sup>x</sup>Corrected to 85% dry matter. Mean dry matter %: 83.6.



53/Ca/7

### WHEAT

The effects of sowing date and N on the incidence of Powdery Mildew - Long Hoos I, II and III 1953.

System of replication: 4 randomized blocks of 4 plots each, arranged in 2 block pairs, the effect of sowing date being confounded with block differences.

Area of each plot: 0.0197 acre.

Treatments: All combinations of:-

Sowing date (on blocks): Early; Late - 3 weeks later than Early sown.

N in seed bed: None; 0.2 cwt N per acre applied as sulphate of ammonia.

N top dressing: 0.3; 0.6 cwt N per acre applied as sulphate of ammonia in spring.

Basal dressing: None.

Cultivations, etc.:

'Early' blocks. Harrowed after potatoes: Oct 17 and again Oct 29, 1952. Seed drilled at  $2\frac{3}{4}$  bushels per acre: Oct 29. Sulphate of ammonia applied: Oct 31.

'Late' blocks. Harrowed after potatoes: Oct 17 and again Nov 12. Seed drilled at  $2\frac{3}{4}$  bushels per acre, sulphate of ammonia applied: Nov 12. Crop failed, resown: Mar 13, 1953.

All blocks. Sulphate of ammonia top dressing applied: June 5.

Variety: Squareheads Master 13/4, the 'Late' blocks were resown with Fylgia. Previous crop: Potatoes.

Note: No yields were taken as owing to the resowing, the main object of the experiment could not be tested. In addition the crop was poor, particularly the 'Early' blocks which were sown under very wet conditions.



53/Ca/8

WHEAT

Methods of harvesting and levels of N - Sawyers III 1953.

System of replication: 4 randomized blocks of 9 plots each.

Area of each plot: 0.0200 acre. Area harvested: Binder - full area, combine - 0.0129 acre.

Treatments: All combinations of:-

N: None; 0.4; 0.8 cwt N per acre applied as nitrochalk.

Method of harvesting: Binder; Combine (Massey Harris 726).

Note: The experiment was originally designed to test also the N.I.A.E. combine (i.e. 3 methods in all) but this was not available. The 3 plots per block (1 at each level of N) which should have been harvested by the N.I.A.E. combine were harvested by Binder in 2 of the blocks, and by the Massey Harris 726 in the other 2 blocks: each treatment combination was therefore replicated 6 times.

Basal dressing: None.

Cultivations, etc.: Cultivated twice: Nov 7, 1952. Seed drilled at 3 bushels per acre: Nov 9. Nitrochalk applied: May 20, 1953. Sprayed with M.C.F.A.: May 21. Harvested: Binder plots - Sept 3. Combine plots - Sept 10. Variety: Cappelle. Previous crop: Potatoes.

Standard error per plot:

Grain: 2.67 cwt per acre or 8.9% (27 d.f.)

Summary of Results

Grain: cwt per acre

| Method of Harvesting      | N: cwt per acre |      |      | Mean                   |
|---------------------------|-----------------|------|------|------------------------|
|                           | None            | 0.4  | 0.8  |                        |
|                           | (1) and (2)     |      |      |                        |
| Binder                    | 26.3            | 30.4 | 33.4 | 30.0                   |
| Combine                   | 25.9            | 29.9 | 35.2 | 30.3                   |
| Mean ( $\pm 0.77$ )       | 26.1            | 30.2 | 34.3 | 30.2                   |
| Difference ( $\pm 1.57$ ) | -0.4            | -0.5 | +1.8 | +0.3<br>( $\pm 0.94$ ) |

(1)  $\pm 1.09$  for use in horizontal comparisons only.

(2)  $\pm 1.11$  for use in diagonal comparisons only.



BARLEY

Late application of nitrogen - Deacons. Field 1953.

System of replication: 4 randomized blocks of 3 plots each.

Area of each plot: 0.0204 acre.

Treatments:

Nitrogen: None; 0.23; 0.46 cwt per acre applied as nitrochalk top dressing.

Basal dressing per acre:  $2\frac{1}{4}$  cwt sulphate of ammonia, 1 cwt superphosphate.

Cultivations, etc.: Ploughed: Feb 5. Seed drilled at 3 bushels per acre with Superphosphate: Mar 7. Sulphate of ammonia applied: Mar 9. Nitrochalk applied: June 25. Harvested: Aug 13. Variety: Herta. Previous crop: Potatoes.

Standard error per plot:

Grain: 0.582 cwt per acre or 1.4% (6 d.f.)

Summary of Results

|                      | Nitrogen (as nitrochalk top dressing): cwt per acre |      |      | Mean |
|----------------------|---|------|------|------|
|                      | None  | 0.23 | 0.46 |      |
|                      | Yield: cwt per acre                                 |      |      |      |
| Grain ( $\pm 0.29$ ) | 38.6  | 40.3 | 42.0 | 40.3 |
| Straw <sup>✱</sup>   | 39.8  | 39.3 | 40.8 | 40.0 |
|                      | Crude protein: cwt per acre                         |      |      |      |
| Grain                | 3.74  | 4.26 | 4.63 |      |
| Increase             |   | 0.52 | 0.89 |      |
| Straw                | 0.80  | 0.96 | 1.22 |      |
| Increase             |   | 0.16 | 0.42 |      |
|                      | Percentage uptake of added nitrogen                 |      |      |      |
| Grain                |   | 36   | 31   |      |
| Straw                |   | 11   | 14   |      |

<sup>✱</sup>Corrected to 85% dry matter. Mean dry matter %:85.1.

53/Cb/2

BARLEY

Nitrophosphate and fertilizers broadcast or drilled - Highfield 5 1953.

System of replication: 4 randomized blocks of 8 plots each.

Area of each plot: 0.0194 acre.

Treatments:

Sulphate of ammonia broadcast; Nitrochalk broadcast; Nitrophosphate (British) broadcast or drilled; Compound fertilizer (9% N; 9% P<sub>2</sub>O<sub>5</sub>) broadcast or drilled; Nitrochalk and superphosphate mixture broadcast or drilled. All fertilizers were applied at rates to give 0.5 cwt N and 0.5 cwt. P<sub>2</sub>O<sub>5</sub> per acre.

Basal dressing: 94 lb sulphate of potash per acre.

Cultivations, etc.: Ploughed: Sept 24, 1952 and again Jan 20, 1953.

Seed drilled at 3 bushels per acre, fertilizers applied: Mar 9.

Combine harvested: Aug 19. Variety: Herta. Previous crop: Linseed.

Standard error per plot:

Grain (at 85% D.M.): 2.74 cwt per acre or 3.7% (20 d.f.)

Note: The yield of grain (at 85% D.M.) has been adjusted to allow for tractor damage to two plots.

Summary of Results

|  | Sulphate of ammonia |                       | Nitrophosphate (British) |         | National Compound No. 9 |         | Nitrochalk and Superphosphate |         | Mean |
|--|---------------------|-----------------------|--------------------------|---------|-------------------------|---------|-------------------------------|---------|------|
|  | Broadcast           | Nitro-chalk Broadcast | Broad-cast               | Drilled | Broad-cast              | Drilled | Broad-cast                    | Drilled |      |

Grain (at 85% Dry Matter): cwt per acre

|                 |      |      |      |      |      |      |      |      |      |
|-----------------|------|------|------|------|------|------|------|------|------|
| Mean<br>(±1.37) | 30.3 | 29.5 | 31.0 | 30.0 | 31.5 | 33.6 | 33.3 | 32.2 | 31.4 |
|-----------------|------|------|------|------|------|------|------|------|------|

Mean D.M. %: 79.8



53/Cb/3.1

BARLEY

Control of Powdery Mildew - Little Knott I 1953.

System of replication: 8 randomized blocks of 2 plots each, each plot being split into two for spraying, one group of 4 blocks being sown early, the other late.

Area of each sub plot: 0.0159 acre.

Treatments: All combinations of:

Blocks. Sowing date: Early, 12th March; Late, 15th April.

Whole plots. Varieties: Plumage Archer; Haisa II.

Sub plots. Spraying: None; 160 gals. per acre of 1 in 80 Lime sulphur.

Basal dressing per acre: 2 cwt sulphate of ammonia; 1 cwt superphosphate combine drilled.

Cultivations, etc.:

'Early' plots: Ploughed: Feb 23. Seed drilled at 3 bushels per acre with superphosphate, sulphate of ammonia applied: Mar 12. Harvested: Aug 17.

'Late' plots: Ploughed: Apr 11. Seed drilled at 3 bushels per acre with superphosphate, sulphate of ammonia applied: Apr 15. Harvested: Aug 18.

Whole experiment: Sprayed appropriate plots with lime sulphur: May 5 and again June 11. Previous crop: Kale.

Standard errors per plot. Grain:

Whole plot: 1.92 cwt per acre or 5.7% (6 d.f.)

Sub plot: 1.55 cwt per acre or 4.6% (12 d.f.)

Note: Counts of incidence of Powdery Mildew were made.

53/Cb/3.2

Summary of Results

| Lime sulphur | Early sowing 11th March |          |      | Late sowing 15th April |          |      |
|--------------|-------------------------|----------|------|------------------------|----------|------|
|              | Plumage Archer          | Haisa II | Mean | Plumage Archer         | Haisa II | Mean |

Grain: cwt per acre

|              | (a)  | (b)  | (±0.55) | (a)  | (b)  | (±0.55) |
|--------------|------|------|---------|------|------|---------|
| -            | 33.6 | 31.4 | 32.5    | 34.6 | 35.8 | 35.2    |
| Sprayed      | 33.3 | 31.6 | 32.4    | 35.9 | 35.0 | 35.5    |
| Mean (±0.96) | 33.4 | 31.5 | 32.5    | 35.3 | 35.4 | 35.3    |

Straw: cwt per acre

|         |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|
| -       | 42.2 | 42.4 | 42.3 | 41.9 | 41.9 | 41.9 |
| Sprayed | 45.3 | 40.5 | 42.9 | 46.5 | 43.3 | 44.9 |
| Mean    | 43.7 | 41.5 | 42.6 | 44.2 | 42.6 | 43.4 |

- (a) ±0.77 for use in vertical comparisons only.  
 (b) ±1.11 for use in all others.

N.B. The standard errors given are not valid for testing the effect of sowing date for any particular treatment; the interactions of sowing date with treatments may, however, be tested.



53/Cb/4

BARLEY

Methods of harvesting - Deacons Field 1953.

System of replication: 12 randomized blocks of 2 plots each.

Area of each plot: 0.0200 acre. Area harvested: Binder - full area;  
Combine harvester - 0.0129 acre.

Treatments:

Methods of harvesting: Binder; Combine harvester (Massey Harris 726  
8'6" cut).

Basal dressing per acre: 1 cwt superphosphate;  $2\frac{1}{2}$  cwt sulphate of  
ammonia.

Cultivations, etc.: Ploughed: Feb 5. Seed drilled with superphosphate:  
Mar 7. Sulphate of ammonia applied: Mar 9. Harvested: Combine  
plots - Aug 22, Binder - Aug 25. Variety: Herta. Previous crop:  
Potatoes.

Standard error per plot:

Grain: 2.41 cwt per acre or 6.1% (11 d.f.)

Summary of Results

|                      | Methods of Harvesting |                   | Mean | Difference         |
|----------------------|-----------------------|-------------------|------|--------------------|
|                      | Binder                | Combine Harvester |      |                    |
| Yields: cwt per acre |                       |                   |      |                    |
| Grain                | 36.8                  | 41.6              | 39.2 | 4.8 ( $\pm 0.98$ ) |
| Straw                | 39.4                  | -                 |      |                    |

Mean Dry Matter %: Combine plots - 84.2, Binder plots - no value  
available.



53/Cc/1

SPRING OATS

Late application of nitrogen - Great Field II 1953.

System of replication: 4 randomized blocks of 3 plots each.

Area of each plot: 0.0204 acre. Area harvested: 0.0103 acre.

Treatments:

Nitrogen: None; 0.23; 0.46 cwt per acre applied as nitrochalk top dressing.

Basal dressing: 2 cwt nitrochalk per acre.

Cultivations, etc.: Ploughed: Sept 26, 1952. Seed drilled at 3 bushels per acre with basal nitrochalk: Feb 26, 1953. Nitrochalk applied: June 26. Combine harvested: Sept 10. Variety: Marne. Previous crop: Barley.

Standard error per plot:

Grain: 2.50 cwt per acre or 6.0% (6 d.f.)

Summary of Results

|                                     | Nitrogen (as nitrochalk top dressing): cwt per acre |      |      | Mean |
|-------------------------------------|---|------|------|------|
|                                     | None  | 0.23 | 0.46 |      |
| Yield: cwt per acre                 |   |      |      |      |
| Grain ( $\pm 1.25$ )                | 42.1  | 41.5 | 40.9 | 41.5 |
| Straw <sup>*</sup>                  | 42.4  | 43.7 | 42.0 | 42.7 |
| Crude protein: cwt per acre         |   |      |      |      |
| Grain                               | 5.05  | 5.16 | 5.21 |      |
| Increase                            |   | 0.11 | 0.16 |      |
| Straw                               | 1.62  | 1.85 | 1.90 |      |
| Increase                            |   | 0.23 | 0.28 |      |
| Percentage uptake of added nitrogen |   |      |      |      |
| Grain                               |   | 8    | 5    |      |
| Straw                               |   | 16   | 9    |      |

<sup>\*</sup>Corrected to 85% dry matter. Mean dry matter %: 78.2.



53/Cd/1.1

WINTER BEANS

Effect of cultivations on ploughed in beans - Long Hoos V 1953.

System of replication: 6 randomized blocks of 6 plots each, in 3 block pairs, the effect of spraying being confounded with block differences.

Area of each plot: 0.0145 acre.

Treatments: All combinations of:

Cultivations on furrows: Work down furrows in autumn (A); work down furrows in spring (B); A and B.

Cultivations by weeding: None; mechanical weeder cultivation in spring (W).

Spraying (on blocks): None; DNBP medium volume.

Basal dressing: None.

Cultivations, etc.: Beans ploughed in at 3 cwt per acre: Nov 4, 1952. Heavy harrowed 'A' and 'AB' plots: Nov 7. Medium harrowed 'A' and 'AB' plots twice: Nov 8. Sprayed appropriate blocks with DNBP: Apr 28, 1953. Harrowed 'B' plots: May 5. Weeded 'W' plots: May 12. Horse hoed all plots: May 12 and again June 6. Hand weeded: June 17, June 29, July 27. Harvested: Sept 5. Variety: Deneb (own seed). Previous crop: Potatoes.

Standard errors per plot:

Unsprayed blocks: 4.25 cwt per acre or 17.2% (10 d.f.).

Sprayed blocks: 1.50 cwt per acre or 6.1% (9 d.f.)\*

\* 1 missing value.

53/cd/1.2

Summary of Results

| Weeding    | Grain: cwt per acre            |              |                               |              |         |                              |                               |      |         |
|------------|--------------------------------|--------------|-------------------------------|--------------|---------|------------------------------|-------------------------------|------|---------|
|            | Unsprayed<br>Work down furrows |              |                               |              | Mean    | Sprayed<br>Work down furrows |                               |      | Mean    |
|            | In<br>Autumn                   | In<br>Spring | In<br>Autumn<br>and<br>Spring | In<br>Autumn |         | In<br>Spring                 | In<br>Autumn<br>and<br>Spring |      |         |
|            | (±2.46)                        |              |                               |              |         | (±0.87)                      |                               |      |         |
| None       | 25.6                           | 26.4         | 24.4                          | 25.5         | 21.6    | 23.7                         | 25.9                          | 23.8 |         |
| Mechanical | 24.3                           | 24.8         | 23.1                          | 24.1         | 26.6    | 25.4                         | 23.6                          | 25.2 |         |
| Mean       | 24.9                           | 25.6         | 23.8                          | 24.8         | 24.1    | 24.6                         | 24.8                          | 24.5 |         |
|            | (±1.74)                        |              |                               |              |         | (±0.61)                      |                               |      |         |
| Difference | -1.3                           | -1.6         | -1.3                          | -1.4         | +5.0    | +1.7                         | -2.3                          | +1.4 |         |
|            | (±3.47)                        |              |                               |              | (±2.01) | (±1.23)                      |                               |      | (±0.71) |

| Straw: cwt per acre |      |      |      |      |      |      |      |      |
|---------------------|------|------|------|------|------|------|------|------|
| None                | 40.3 | 35.2 | 41.5 | 39.0 | 40.4 | 27.5 | 37.2 | 35.0 |
| Mechanical          | 38.5 | 35.4 | 36.4 | 36.8 | 37.7 | 30.2 | 33.7 | 33.8 |
| Mean                | 39.4 | 35.3 | 39.0 | 37.9 | 39.0 | 28.8 | 35.4 | 34.4 |
| Difference          | -1.8 | +0.2 | -5.1 | -2.2 | -2.7 | +2.7 | -3.5 | -1.2 |

| Weeding    | Responses to spraying |              |                               |      | Mean    |
|------------|-----------------------|--------------|-------------------------------|------|---------|
|            | In<br>Autumn          | In<br>Spring | In<br>Autumn<br>and<br>Spring |      |         |
|            | (±2.66)*              |              |                               |      |         |
| None       | -4.0                  | -2.7         | +1.5                          | -1.7 |         |
| Mechanical | +2.3                  | +0.6         | +0.5                          | +1.1 |         |
| Mean       | -0.8                  | -1.0         | +1.0                          | -0.3 |         |
|            | (±1.88)*              |              |                               |      |         |
| Difference | +6.3                  | +3.3         | -1.0                          | +2.8 |         |
|            | (±3.76)               |              |                               |      | (±2.17) |

\*for use in testing the differences of 2 responses to spraying.



53/Oa/2

#### WINTER BEANS

Fertilizer placement - Sawyers I 1953.

System of replication: 8 randomized blocks of 9 plots each.

Area of each plot: 0.0152 acre.

Treatments: All combinations of:-

Superphosphate, cwt. per acre: None; 3.2 broadcast on seed bed;  
3.2 drilled in band 2" to side of seed.

Sulphate of potash, cwt per acre: None; 2.3 broadcast on seed bed;  
2.3 drilled in band 2" to side of seed.

Basal manuring: None.

Cultivations, etc.: Ploughed: Sept 22, 1952. Seed drilled at 3  
bushels per acre, fertilizers applied: Nov 13. Variety: S. Q. Giant.  
Previous crop: Wheat.

Note: Owing to the heavy bird damage and infestation with weeds, the  
crop was not harvested and therefore no yields are available.

53/cd/3

SPRING BEANS

Phosphate placement - Sawyers I 1953.

System of replication: 6 randomized blocks of 6 plots each.

Area of each plot: 0.0092 acre.

Treatments: No phosphate (two plots per block) and all combinations of:-

Phosphate: Dicalcium phosphate; Superphosphate, each providing 0.5 cwt  $P_2O_5$  per acre.

Method of placement: Broadcast; Drilled in band beneath seed.

Basal dressing: None.

Cultivations, etc.: Ploughed: Sept 22, 1952. Seed drilled at 3 bushels per acre, fertilizers applied: Mar 2, 1953. Harvested: Sept 8. Variety: Ashwells Selection. Previous crop: Wheat.

Standard error per plot:

Grain (at 85% Dry Matter): 1.60 cwt per acre or 13.9% (25 d.f.)

Note: The yield of grain has been adjusted to allow for the fact that several plots were drilled at the wrong seed rate.

Summary of Results

|   | Phosphate           |                        |                  |                               | Mean |      |
|---|---------------------|------------------------|------------------|-------------------------------|------|------|
|   | None                | Dicalcium<br>Broadcast | Super<br>Drilled | Dicalcium<br>Super<br>Drilled |      |      |
| Grain (at 85% Dry Matter): cwt per acre |                     |                        |                  |                               |      |      |
| Mean ( $\pm 0.65$ )                     | 11.8 <sup>(1)</sup> | 9.7                    | 9.7              | 12.9                          | 13.1 | 11.5 |
| Increase ( $\pm 0.80$ )                 |                     | -2.1                   | -2.1             | +1.1                          | +1.3 |      |

(1)  $\pm 0.46$

Mean Dry Matter %: 83.1



53/oa/4

SPRING BEANS

Control of Black Aphis by insecticides - Woburn, Stackyard and Warren Field.

System of replication: 4 randomized blocks of 5 plots each.

Area of each plot: 0.000735 acre. Area harvested: 0.000367 acre.

Treatments:

- No insecticide (two plots per block).
- Seed soaked 4 hours in 2% emulsion Systox active ingredient.
- Seed dressing, 0.012 grams active ingredient of Systox per seed.
- Soil dressing, 0.75 grams active ingredient of Systox per foot of drill.

Basal dressing: None.

Cultivations, etc.:

Stackyard

Ploughed: Sept 10, 1952. Seed drilled at 100 lb per acre: Mar 10, 1953. Harvested: Aug 28. Variety: Spring Tick. Previous crop: Fallow.

Warren Field

Ploughed: Sept 12, 1952. Seed drilled at 100 lb per acre: Mar 14, 1953. Variety: Spring Tick. Previous crop: Barley. No yields were recorded.

Standard error per plot. Stackyard.

Grain: 2.51 cwt per acre or 14.1% (13 d.f.)

Note. Counts of Black Aphis, Pea and Bean Weevil were made on both fields.

Summary of Results

Grain: cwt per acre

Stackyard

|                         | Systox              |             |               | Mean |
|-------------------------|---------------------|-------------|---------------|------|
|                         | None                | Seed soaked | Seed dressing |      |
| Mean ( $\pm 1.25$ )     | 16.0 <sup>(1)</sup> | 17.4        | 19.1          | 17.8 |
| Increase ( $\pm 1.54$ ) |                     | 1.4         | 3.1           | 4.4  |

(1)  $\pm 0.89$



53/ca/5

BEANS

Control of Black Aphis - Long Hoos V 1953.

System of replication: 8 randomized blocks of 2 plots each, arranged in 4 block pairs, the effect of sowing date being confounded with block differences.

Area of each plot: 0.0339 acre.

Treatments: All combinations of:

Sowing date (by blocks): Winter; Spring.

Insecticidal spray: None; Systox 0.1% active ingredient at 100 gallons per acre.

N.B. The experiment was originally designed to test a control and 4 sprays, but owing to the lack of aphids, it was decided to test Systox only.

Basal dressing: None.

Cultivations, etc.: Ploughed in winter beans at 340 lb per acre: Nov 13, 1952. Ploughed in spring beans at 320 lb per acre: Feb 23, 1953. Sprayed with Systox: June 8. Harvested: Sept 5. Variety: Winter - S.Q.Giant; Spring - Garton's Tick. Previous crop: Potatoes.

Standard error per plot:

Grain: 2.81 cwt per acre or 9.4% (6 d.f.)

Summary of Results

| Spray                     | Sown   |        | Mean                |
|---------------------------|--------|--------|---------------------|
|                           | Winter | Spring |                     |
| Grain: cwt per acre       |        |        |                     |
| None                      | 26.4   | 28.8   | 27.6                |
| Systox                    | 31.3   | 33.1   | 32.2                |
| Mean                      | 28.8   | 30.9   | 29.9                |
| Difference ( $\pm 1.99$ ) | +4.9   | +4.3   | +4.6 ( $\pm 1.41$ ) |
| Straw: cwt per acre       |        |        |                     |
| None                      | 35.3   | 31.7   | 33.5                |
| Systox                    | 32.4   | 33.8   | 33.1                |
| Mean                      | 33.8   | 32.8   | 33.3                |
| Difference                | -2.9   | +2.1   | -0.4                |



53/ca/6.

BROAD BEANS

Fertilizer placement - Sawyers I 1953.

System of replication: 4 randomized blocks of 6 plots each.

Area of each plot: 0.00379 acre. Area harvested: 0.00318 acre.

Treatments: No fertilizer (duplicate plots) and all combinations of:-

Compound granular NPK fertilizer (8% N, 6% P<sub>2</sub>O<sub>5</sub>, 10½% K<sub>2</sub>O):  
3; 6 cwt per acre.

Method of placement: Broadcast on seed bed; drilled in band beside seed.

Basal dressing: None.

Cultivations, etc.: Ploughed: Sept 22, 1952. Beans sown at 2 cwt per acre fertilizers applied: Feb 6, 1953. Harvested: 1st picking - July 15, 2nd - July 27. Variety: Prolific Longpod. Previous crop: Wheat.

Standard errors per plot. Yield of green beans in pod:

1st picking: 7.31 cwt per acre or 16.6% (16 d.f.)

2nd picking: 5.08 cwt per acre or 16.0% (16 d.f.)

Total of 2 pickings: 9.77 cwt per acre or 12.9% (16 d.f.)

Summary of Results

Yield of green beans in pod: cwt per acre

|                       |         | Compound PK fertilizer: cwt per acre |                |         |                |         |      |
|-----------------------|---------|--------------------------------------|----------------|---------|----------------|---------|------|
|                       |         | 3                                    |                | 6       |                |         |      |
|                       |         | None                                 | Broad-<br>cast | Drilled | Broad-<br>cast | Drilled | Mean |
| 1st Picking           |         |                                      |                |         |                |         |      |
| Mean                  | (±3.66) | 38.0 <sup>(1)</sup>                  | 36.4           | 54.4    | 47.7           | 50.7    | 44.2 |
| Increase              | (±4.48) |                                      | -1.6           | +16.4   | +9.7           | +12.7   |      |
| 2nd Picking           |         |                                      |                |         |                |         |      |
| Mean                  | (±2.54) | 29.7 <sup>(2)</sup>                  | 25.7           | 33.8    | 26.7           | 45.5    | 31.9 |
| Increase              | (±3.11) |                                      | -4.0           | +4.1    | -3.0           | +15.8   |      |
| Total of two pickings |         |                                      |                |         |                |         |      |
| Mean                  | (±4.89) | 67.7 <sup>(3)</sup>                  | 62.2           | 88.2    | 74.4           | 96.1    | 76.0 |
| Increase              | (±5.98) |                                      | -5.5           | +20.5   | +6.7           | +28.4   |      |

(1) ±2.59

(2) ±1.80

(3) ±3.46



POTATOES

Dung, N, P and K - West Barnfield I 1953.

System of replication: 4 randomized blocks of 8 plots each, the interaction DNPk being confounded with block differences.

Area of each plot: 0.0210 acre. Area harvested: 0.0140 acre.

Treatments: All combinations of:-

- Dung: None; 10 tons per acre.
- N: None; 0.6 cwt per acre applied as sulphate of ammonia.
- P<sub>2</sub>O<sub>5</sub>: None; 0.6 cwt per acre applied as superphosphate.
- K<sub>2</sub>O: None; 1.0 cwt per acre applied as muriate of potash.

Basal dressing: None.

Cultivations, etc.: Ploughed: Sept 18, 1952. Dung applied and ploughed in: Feb 26, 1953. Ridged and fertilizers applied in ridges: Apr 10. Potatoes planted: Apr 11. Earthed up: June 25. Sprayed with copper fungicide: Aug 5. Sprayed with 20% sulphuric acid: Sept 25. Lifted: Oct 2. Variety: Majestic. Previous crop: Wheat.

Standard error per plot:

Total tubers: 1.44 tons per acre or 12.6% (18 d.f.)

Summary of Results

Responses to Treatments

| Response to | Mean | Dung: tons per acre |    | N   |     | P <sub>2</sub> O <sub>5</sub> cwt per acre |     | K <sub>2</sub> O |     |
|-------------|------|---------------------|----|-----|-----|--|-----|------------------|-----|
|             |      | 0.0                 | 10 | 0.0 | 0.6 | 0.0  | 0.6 | 0.0              | 1.0 |

Total tubers: Mean yield 11.45 tons per acre  
(±0.510) (±0.721)

|                               |       |       |       |       |       |       |       |       |       |
|-------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Dung                          | +3.70 | -     | -     | +3.72 | +3.68 | +2.68 | +4.72 | +4.65 | +2.75 |
| N                             | +1.67 | +1.69 | +1.65 | -     | -     | +1.78 | +1.56 | +1.51 | +1.83 |
| P <sub>2</sub> O <sub>5</sub> | -0.05 | -1.07 | +0.97 | +0.06 | -0.16 | -     | -     | -1.25 | +1.15 |
| K <sub>2</sub> O              | +2.12 | +3.07 | +1.17 | +1.96 | +2.28 | +0.92 | +3.32 | -     | -     |

Percentage ware (1½" riddle): Mean 87.6

|                               |      |      |      |      |      |      |      |      |      |
|-------------------------------|------|------|------|------|------|------|------|------|------|
| Dung                          | +4.8 | -    | -    | +4.5 | +5.1 | +2.8 | +6.8 | +7.7 | +1.9 |
| N                             | 0.0  | -0.3 | +0.3 | -    | -    | +0.8 | -0.8 | +1.2 | -1.2 |
| P <sub>2</sub> O <sub>5</sub> | -2.3 | -4.3 | -0.3 | -1.5 | -3.1 | -    | -    | -4.9 | +0.3 |
| K <sub>2</sub> O              | +4.1 | +7.0 | +1.2 | +5.3 | +2.9 | +1.5 | +6.7 | -    | -    |



53/Ce/2.1

## POTATOES

Methods of planting and fertilizer application - Deacons Field 1953.

System of replication: 4 randomized blocks of 12 plots each, plots being split into 2 for the application of N and K with the NK interaction confounded with whole plot differences, and certain high order interactions confounded with block differences.

Area of each sub-plot: 0.0140 acre. Area harvested: 0.0105 acre.

### Treatments:

Whole plots: All combinations of:-

Compound granular fertilizer (7% N, 7% P<sub>2</sub>O<sub>5</sub>, 10.5% K<sub>2</sub>O):  
None; 7½; 15 cwt per acre.

Methods of planting and fertilizer application: Ridge, broadcast fertilizer, hand plant and split back at once (A); Ridge, expose ridges for 7 days, broadcast fertilizer over ridges, hand plant same time as A and split back ridges (B); Broadcast fertilizer on flat, plant from flat with dropper (C); plant from flat with dropper, fertilizers placed 2" to side of seed (D).

Sub plots: All combinations of:-

N: None; 0.53 cwt per acre applied as Sulphate of ammonia.

K<sub>2</sub>O: None; 0.79 cwt per acre applied as Muriate of potash.

Both N and K<sub>2</sub>O were applied as top dressings before the final earthing up.

Basal dressing: None.

Cultivations, etc.: Ploughed: Sept 15, 1952. Ridged 'B' plots: Apr 9, 1953. Ridged 'A' plots, fertilizers applied and potatoes planted on 'A' and 'B' plots: Apr 16. Fertilizers applied, potatoes planted on 'C' and 'D' plots: Apr 17. Top dressings applied, earthed up: June 30. Sprayed with copper fungicide, 5 lb per acre: Aug 1. Sprayed with sulphuric acid, 15% B.O.V: Sept 23. Lifted: Oct 5. Variety: Majestic. Previous crop: Barley.

Standard errors per plot, Total tubers:

Whole plot: 1.02 tons per acre or 8.6% (33 d.f.)

Sub plot: 0.550 tons per acre or 4.6% (26 d.f.)



53/Ce/2.2

Summary of Results

|                                | Compound fertilizer: cwt per acre |                              |                              |                              | Total tubers: tons per acre |       |       |       | Mean  |
|--------------------------------|-----------------------------------|------------------------------|------------------------------|------------------------------|-----------------------------|-------|-------|-------|-------|
|                                | A                                 | B                            | C                            | D                            | A                           | B     | C     | D     |       |
| N: cwt per acre                | None                              |                              |                              |                              | 7.5                         |       |       |       | 15.0  |
| None                           |                                   |                              |                              |                              |                             |       |       |       |       |
| 0.53                           |                                   |                              |                              |                              |                             |       |       |       |       |
| Difference ( $\pm 0.389$ )     |                                   |                              |                              |                              |                             |       |       |       |       |
|                                | ( $\pm 0.548$ ) <sup>#</sup>      | ( $\pm 0.387$ ) <sup>#</sup> | ( $\pm 0.548$ ) <sup>#</sup> | ( $\pm 0.548$ ) <sup>#</sup> |                             |       |       |       |       |
| K <sub>2</sub> O: cwt per acre |                                   |                              |                              |                              |                             |       |       |       |       |
| None                           |                                   |                              |                              |                              |                             |       |       |       |       |
| 0.79                           |                                   |                              |                              |                              |                             |       |       |       |       |
| Difference ( $\pm 0.369$ )     |                                   |                              |                              |                              |                             |       |       |       |       |
|                                | ( $\pm 0.548$ ) <sup>#</sup>      | ( $\pm 0.387$ ) <sup>#</sup> | ( $\pm 0.548$ ) <sup>#</sup> | ( $\pm 0.548$ ) <sup>#</sup> |                             |       |       |       |       |
| Mean                           | 9.05                              | 8.23                         | 8.88                         | 8.88                         | 12.59                       | 12.77 | 11.47 | 11.59 | 15.07 |
|                                | ( $\pm 0.512$ )                   | (1) $\pm 0.275$              | (2) $\pm 0.362$              | (2) $\pm 0.362$              |                             |       |       |       |       |

N: cwt per acre  
None 0.53

K<sub>2</sub>O: cwt per acre  
None 0.79

( $\pm 0.296$ )  
11.84 11.83  
11.97 11.74

# for use in comparisons other than vertical.

Treatments A. Ridge, broadcast fertilizer, hand plant and split back ridges at once.  
B Ridge, expose ridges for 7 days, broadcast fertilizer over ridges, hand plant, same time as A, split back ridges.  
C Broadcast fertilizer on flat, plant from flat with dropper  
D Plant from flat with dropper, fertilizer placement 2" to side of seed.



|                                | Compound fertilizer: cwt per acre |      |       |      |      |      |      |      |      |      | Mean |      |
|--------------------------------|-----------------------------------|------|-------|------|------|------|------|------|------|------|------|------|
|                                | None                              |      | 7.5   |      | 15.0 |      | A    |      | B    |      |      | C    |
|                                | A                                 | B    | C & D | A    | B    | C    | D    | A    | B    | C    | D    |      |
| N: cwt per acre                | 87.4                              | 88.4 | 87.0  | 87.9 | 90.5 | 88.5 | 85.7 | 91.4 | 87.0 | 91.7 | 89.9 | 88.5 |
| None                           | 90.9                              | 87.8 | 87.3  | 88.4 | 88.2 | 90.5 | 83.6 | 89.4 | 86.8 | 86.4 | 88.8 | 87.9 |
| Difference                     | +3.5                              | -0.6 | +0.3  | +0.5 | -2.3 | +2.0 | -2.1 | -2.0 | -0.2 | -5.3 | -1.1 | -0.6 |
| K <sub>2</sub> O: cwt per acre | 88.4                              | 87.2 | 86.7  | 88.1 | 89.3 | 89.1 | 82.6 | 91.0 | 88.2 | 89.4 | 87.9 | 87.9 |
| None                           | 89.8                              | 89.0 | 87.6  | 88.2 | 89.4 | 89.9 | 86.8 | 89.8 | 85.6 | 88.7 | 90.8 | 88.6 |
| Difference                     | +1.4                              | +1.8 | +0.9  | +0.1 | +0.1 | +0.8 | +4.2 | -1.2 | -2.6 | -0.7 | +2.9 | +0.7 |
| Mean                           | 89.2                              | 88.1 | 87.1  | 88.1 | 89.3 | 89.5 | 84.7 | 90.4 | 86.9 | 89.1 | 89.3 | 88.2 |

Percentage ware

| Treatments  | N: cwt per acre |      | K <sub>2</sub> O: cwt per acre |      |
|---|-----------------|------|--------------------------------|------|
|   | A               | B    | None                           | 0.53 |
| Ridge, broadcast fertilizer, hand plant and split back ridges at once.  | 88.1            | 89.3 | 86.9                           | 89.1 |
| Ridge, expose ridges for 7 days, broadcast fertilizer over ridges, hand plant, same time as A, and split back ridges. | 88.1            | 89.3 | 86.9                           | 89.1 |
| Broadcast fertilizers on flat, plant from flat with dropper.  | 88.1            | 89.3 | 86.9                           | 89.1 |
| Plant from flat with dropper, fertilizer placement 2" to side of seed.  | 88.1            | 89.3 | 86.9                           | 89.1 |

53/0e/3.1

## POTATOES

Control of Blight - Deacons Field 1953.

System of replication: 4 x 4 Latin Square, plots being split into 2 for determination of tractor damage.

Area of each sub plot: 0.0175 acre.

### Treatments:

Whole plots: No spray; Copper fungicide 5 lb in 40 gallons per acre sprayed twice; 100 gallons Sulphuric acid, 15% B.O.V. sprayed to destroy haulms; Copper fungicide and sulphuric acid sprayed as above. The tractor used for spraying was driven over all the plots on each occasion.

Sub plots: The 4 inner rows damaged by three passages of the tractor were compared with the 4 outer and undamaged rows.

Basal dressing: 15 cwt compound granular fertilizer (7% N; 7% P<sub>2</sub>O<sub>5</sub>; 10 $\frac{1}{2}$ % K<sub>2</sub>O) per acre.

Cultivations, etc.: Ploughed: Sept 15, 1952. Cultivated twice: Mar 17, 1953. Ridged: Mar 26. Potatoes planted: Apr 16. Earthed up: June 26. Sprayed appropriate plots with copper fungicide: Aug 1 and again Aug 13. Sprayed appropriate plots with sulphuric acid: Sept 14. Lifted: Oct 6. Variety: Majestic. Previous crop: Barley.

Standard errors per plot: Total tubers.

Whole plot: 0.361 tons per acre or 2.7% (6 d.f.)

Sub plot: 0.454 tons per acre or 3.4% (12 d.f.)

Blight counts were made and are available. The mean level of infection was only 0.3%.



53/Ce/3.2

Summary of Results

|   | Spray |                  |                |                                     | Mean                     |
|---|-------|------------------|----------------|-------------------------------------|--------------------------|
|   | None  | Copper fungicide | Sulphuric Acid | Copper fungicide and sulphuric Acid |                          |
| Total tubers: tons per acre<br>( $\pm 0.242$ ) <sup>†</sup> |       |                  |                |                                     |                          |
| Undamaged rows  | 13.45 | 13.87            | 13.28          | 14.66                               | 13.82                    |
| Damaged rows  | 12.49 | 13.67            | 12.71          | 13.52                               | 13.10                    |
| Mean ( $\pm 0.181$ )  | 12.97 | 13.77            | 13.00          | 14.09                               | 13.46                    |
| Difference<br>( $\pm 0.321$ )                               | -0.96 | -0.20            | -0.57          | -1.14                               | -0.72<br>( $\pm 0.161$ ) |

Percentage Ware

|                |      |      |      |      |      |
|----------------|------|------|------|------|------|
| Undamaged rows | 91.4 | 88.4 | 91.8 | 89.7 | 90.3 |
| Damaged rows   | 90.6 | 89.6 | 90.7 | 92.5 | 90.9 |
| Mean           | 91.0 | 89.0 | 91.2 | 91.1 | 90.6 |
| Difference     | -0.8 | +1.2 | -1.1 | +2.8 | +0.6 |

<sup>†</sup> for use in comparisons other than vertical.

53/Cf/1.1

SUGAR BEET

Control of Virus Yellows - Long Hoos VII 1953.

System of replication: 4 randomized blocks of 9 plots each.

Area of each plot: 0.0300 acre.

Treatments: All combinations of:-

Sowing date: 1 - As early as possible; 2 - As soon as first sowing above ground; 3 - As soon as second sowing above ground.

Singling date: A - Early (Cotyledons and first leaf less than 1");  
B - Normal (Cotyledons and 4 leaves); C - Late (8-12 leaves).

Basal manuring per acre: 3 cwt nitrate of soda; 4 cwt superphosphate;  
2 cwt muriate of potash; 5 cwt salt.

Cultivations, etc.: Ploughed: Jan 21. Basal fertilizers except nitrate of soda applied: Mar 17. Seed drilled at 18 lb per acre, nitrate of soda applied: '1' plots - Mar 17, '2' - Apr 9, '3' - May 4. Sprayed with D.D.T. emulsion: May 11. Singled: '1A' plots - May 18; '1B', '2A' - May 26; '2B', '2C' - May 29; '3A', '2B', '1C' - June 1; '2C', '2B' - June 10; '3C' - June 24. Lifted: Nov 30. Variety: Klein E. Previous crop: Cauliflower.

Standard errors per plot:

Total sugar: 3.55 cwt per acre or 6.3% (24 d.f.)

Percentage Virus Yellows (transformed values): 6.53 or 66.1% (24 d.f.)

Note. The analysis of the incidence of Virus Yellows has been carried out on percentages transformed to degrees, and all tests of significance should be carried out on the transformed values.

Summary of Results

| Sowing Date | Singling Date                 |        |       | Mean  |
|-------------|-------------------------------|--------|-------|-------|
|             | Early                         | Normal | Late  |       |
|             | Roots (washed): tons per acre |        |       |       |
| 17th March  | 16.80                         | 16.46  | 16.36 | 16.54 |
| 9th April   | 16.40                         | 15.81  | 16.31 | 16.17 |
| 4th May     | 13.66                         | 13.91  | 13.23 | 13.60 |
| Mean        | 15.62                         | 15.39  | 15.30 | 15.44 |



53/cf/1.2

| Sowing Date                      | Singling Date |        |       | Mean    |
|----------------------------------|---------------|--------|-------|---------|
|                                  | Early         | Normal | Late  |         |
| Sugar Percentage                 |               |        |       |         |
| 17th March                       | 17.95         | 18.27  | 18.06 | 18.09   |
| 9th April                        | 18.25         | 18.62  | 18.22 | 18.36   |
| 4th May                          | 18.32         | 18.18  | 18.38 | 18.29   |
| Mean                             | 18.17         | 18.35  | 18.22 | 18.25   |
| Total Sugar: cwt per acre        |               |        |       |         |
|                                  | (±1.78)       |        |       | (±1.03) |
| 17th March                       | 60.4          | 60.2   | 59.2  | 59.9    |
| 9th April                        | 59.8          | 58.9   | 59.6  | 59.4    |
| 4th May                          | 50.1          | 50.7   | 48.7  | 49.8    |
| Mean (±1.03)                     | 56.8          | 56.6   | 55.8  | 56.4    |
| Plant Number: thousands per acre |               |        |       |         |
| 17th March                       | 31.2          | 29.0   | 26.8  | 29.0    |
| 9th April                        | 29.4          | 27.2   | 27.9  | 28.2    |
| 4th May                          | 26.0          | 26.6   | 25.0  | 25.9    |
| Mean                             | 28.9          | 27.6   | 26.6  | 27.7    |
| Noxious Nitrogen: mg per 100 g.  |               |        |       |         |
| 17th March                       | 17.5          | 16.2   | 16.2  | 16.7    |
| 9th April                        | 22.5          | 18.8   | 20.0  | 20.4    |
| 4th May                          | 22.5          | 21.2   | 23.8  | 22.5    |
| Mean                             | 20.8          | 18.7   | 20.0  | 19.9    |

53/Cf/1.3

| Sowing Date  | Singling Date |        |      | Mean |
|--|---------------|--------|------|------|
|  | Early         | Normal | Late |      |
| Percentage Virus Yellows<br>(means calculated from transformed values) |               |        |      |      |
| 17th March   | 3.5           | 2.2    | 1.7  | 2.4  |
| 9th April  | 0.9           | 2.9    | 4.6  | 2.6  |
| 4th May  | 1.0           | 8.2    | 4.2  | 3.9  |
| Mean   | 1.6           | 4.1    | 3.4  | 3.0  |

| Percentage Virus Yellows<br>(transformed values) |                |      |      |                |
|--|----------------|------|------|----------------|
|  | ( $\pm 3.27$ ) |      |      | ( $\pm 1.89$ ) |
| 17th March                                       | 10.8           | 8.6  | 7.6  | 9.0            |
| 9th April  | 5.4            | 9.8  | 12.4 | 9.2            |
| 4th May  | 5.7            | 16.6 | 11.8 | 11.4           |
| Mean ( $\pm 1.89$ )                              | 7.3            | 11.7 | 10.6 | 9.9            |



LUCERNE

Fertilizer placement - Highfield 5 1953 - the 2nd year.

System of replication: 8 randomized blocks of 8 plots each, a high order interaction being confounded with block differences.

Area of each plot: 0.0136 acre.

Treatments, applied 1952: All combinations of:-

P<sub>2</sub>O<sub>5</sub>: None; 1.0 cwt per acre applied as superphosphate.

K<sub>2</sub>O: None; 1.0 cwt per acre applied as muriate of potash.

Method of placement: Broadcast on seed bed; Ploughed in 10".

Starter: None; 2 cwt granular superphosphate per acre placed beneath seed.

Basal dressing: None.

Cultivations, etc.: Cut and weighed green: three times - June 30, Aug 11 and Oct 20. Variety: Du Puits.

Standard errors per plot. Dry Matter:

1st cut: 3.89 cwt per acre or 6.8% (42 d.f.)

2nd cut: 2.52 cwt per acre or 12.9% (42 d.f.)

3rd cut: 1.21 cwt per acre or 10.5% (42 d.f.)

Total of 3 cuts: 5.20 cwt per acre or 5.9% (42 d.f.)

Note: For the 1st year's results see "Results of the Field Experiments 1952", Section Cf/1.

Summary of Results

Dry Matter: cwt per acre  
Treatments applied 1952

| Starter            | No fertilizer       | Superphosphate |             | Muriate of Potash       |             | Superphosphate and Muriate of Potash |             | Mean                |  |
|--------------------|---------------------|----------------|-------------|-------------------------|-------------|--------------------------------------|-------------|---------------------|--|
|                    |                     | Broad-cast     | Ploughed in | Broad-cast              | Ploughed in | Broad-cast                           | Ploughed in |                     |  |
| 1st cut            |                     |                |             |                         |             |                                      |             |                     |  |
| None               | 55.0 <sup>(1)</sup> | 55.8           | 57.3        | 57.9                    | 60.1        | 57.7                                 | 56.1.       | 56.9                |  |
| Granular Super     | 56.1 <sup>(1)</sup> | 55.5           | 57.1        | 60.3                    | 59.1        | 58.6                                 | 58.3        | 57.6                |  |
| Mean (±1.37)       | 55.5 <sup>(2)</sup> | 55.6           | 57.2        | 59.1                    | 59.6        | 58.1                                 | 57.2        | 57.2                |  |
| Difference (±2.75) | +1.1 <sup>(3)</sup> | -0.3           | -0.2        | +2.4                    | -1.0        | +0.9                                 | +2.2        | +0.7 <sup>(2)</sup> |  |
|                    |                     | (1) ±1.37      |             | Mean Dry Matter %: 23.0 |             |                                      |             |                     |  |
|                    |                     | (2) ±0.97      |             |                         |             |                                      |             |                     |  |
|                    |                     | (3) ±1.94      |             |                         |             |                                      |             |                     |  |



53/Cg/1.2

| Starter               | Dry Matter: cwt per acre<br>Treatments applied 1952 |                                  |                         |  |                |  |                |      | Mean |                     |  |
|-----------------------|---|----------------------------------|-------------------------|--|----------------|--|----------------|------|------|---------------------|--|
|                       | No<br>ferti-<br>lizer                               | Superphosphate<br>Broad-<br>cast | Ploughed<br>in          | Muriate of<br>Potash<br>Broad-<br>cast | Ploughed<br>in | Superphosphate<br>and Muriate of<br>Potash<br>Broad-<br>cast | Ploughed<br>in |      |      |                     |  |
| 2nd cut               |   |                                  |                         |  |                |  |                |      |      |                     |  |
| None                  | 16.5 <sup>(1)</sup>                                 | 19.0                             | 18.2                    | (±1.26)                                |                | 18.3   | 20.7           | 22.5 | 21.0 | 19.1                |  |
| Granular              |   |                                  |                         |  |                |  |                |      |      |                     |  |
| Super                 | 19.4 <sup>(1)</sup>                                 | 18.6                             | 20.8                    | 20.6                                   | 19.9           | 20.8   | 21.0           | 20.8 | 21.0 | 20.1                |  |
| Mean<br>(±0.89)       | 17.9 <sup>(2)</sup>                                 | 18.8                             | 19.5                    | 19.5                                   | 20.3           | 21.6   | 21.0           | 21.6 | 21.0 | 19.6                |  |
| Difference<br>(±1.78) | +2.9 <sup>(3)</sup>                                 | -0.4                             | +2.6                    | +2.3                                   | -0.8           | -1.7   | 0.0            | -1.7 | 0.0  | +1.0 <sup>(2)</sup> |  |
|                       |   | (1) ±0.89                        | Mean Dry Matter %: 37.5 |  |                |  |                |      |      |                     |  |
|                       |   | (2) ±0.63                        |                         |  |                |  |                |      |      |                     |  |
|                       |   | (3) ±1.26                        |                         |  |                |  |                |      |      |                     |  |
| 3rd cut               |   |                                  |                         |  |                |  |                |      |      |                     |  |
| None                  | 10.6 <sup>(1)</sup>                                 | 11.1                             | 9.5                     | (±0.60)                                |                | 12.6   | 11.3           | 12.4 | 12.0 | 11.3                |  |
| Granular              |   |                                  |                         |  |                |  |                |      |      |                     |  |
| Super                 | 10.9 <sup>(1)</sup>                                 | 10.7                             | 12.1                    | 11.5                                   | 13.1           | 12.7   | 11.6           | 12.7 | 11.6 | 11.7                |  |
| Mean<br>(±0.43)       | 10.8 <sup>(2)</sup>                                 | 10.9                             | 10.8                    | 12.1                                   | 12.2           | 12.6   | 11.8           | 12.6 | 11.8 | 11.5                |  |
| Difference<br>(±0.85) | +0.3 <sup>(3)</sup>                                 | -0.4                             | +2.6                    | -1.1                                   | +1.8           | +0.3   | -0.4           | +0.3 | -0.4 | +0.4 <sup>(2)</sup> |  |
|                       |   | (1) ±0.43                        | Mean Dry Matter %: 26.2 |  |                |  |                |      |      |                     |  |
|                       |   | (2) ±0.30                        |                         |  |                |  |                |      |      |                     |  |
|                       |   | (3) ±0.60                        |                         |  |                |  |                |      |      |                     |  |
| Total of 3 cuts       |   |                                  |                         |  |                |  |                |      |      |                     |  |
| None                  | 82.1 <sup>(1)</sup>                                 | 85.8                             | 85.1                    | (±2.60)                                |                | 88.9   | 92.1           | 92.6 | 89.1 | 87.2                |  |
| Granular              |   |                                  |                         |  |                |  |                |      |      |                     |  |
| Super                 | 86.4 <sup>(1)</sup>                                 | 84.7                             | 89.9                    | 92.4                                   | 92.1           | 92.0   | 90.9           | 92.0 | 90.9 | 89.4                |  |
| Mean<br>(±1.84)       | 84.3 <sup>(2)</sup>                                 | 85.3                             | 87.5                    | 90.6                                   | 92.1           | 92.3   | 90.0           | 92.3 | 90.0 | 88.3                |  |
| Difference<br>(±3.67) | +4.3 <sup>(3)</sup>                                 | -1.1                             | +4.8                    | +3.5                                   | 0.0            | -0.6   | +1.8           | -0.6 | +1.8 | +2.2 <sup>(2)</sup> |  |
|                       |   | (1) ±1.84                        | Mean Dry Matter %: 28.9 |  |                |  |                |      |      |                     |  |
|                       |   | (2) ±1.30                        |                         |  |                |  |                |      |      |                     |  |
|                       |   | (3) ±2.60                        |                         |  |                |  |                |      |      |                     |  |



CARROTS

Residual effects of Krilium - Rothamsted, Fosters and Barnfield;  
Woburn, Stackyard and Warren Field.

System of replication: 4 x 4 Latin Square.

Area of each plot: 0.00207 acre. Area harvested: 0.00138 acre.

Treatments, applied 1952:

Krilium per acre: None; 3 cwt broadcast and twice rotary cultivated  
in; 6 cwt broadcast and twice rotary cultivated in;  
3 cwt broadcast and raked into seed bed.

Basal dressing: 5 cwt compound fertilizer (7% N, 7% P<sub>2</sub>O<sub>5</sub>, 10.5% K<sub>2</sub>O).

Cultivations, etc.:

Fosters: Ploughed: Mar 13. Roto tilled: Mar 13. Basal dressing  
applied, seed drilled: Apr 22. Lifted: Sept 24 and Oct 23.

Barnfield: Ploughed: Jan 28. Basal dressing applied, seed  
drilled: Apr 21. Lifted: Oct 20 and 26.

Stackyard: Hand dug: Jan 23. Seed sown: May 5. Basal dressing  
applied: May 14. Lifted: Sept 22.

Warren Field: Hand dug: Jan 27. Seed sown: May 6. Basal  
dressing applied: May 15. Singled: June 26. Lifted: Oct 5.

All fields, Variety: James' Scarlet Intermediate. Previous crop:  
Clover, Carrots, Ryegrass and Red Beet in strips on all plots.

Standard errors per plot. Roots tons per acre:

|               |       |               |    |      |                |
|---------------|-------|---------------|----|------|----------------|
| Fosters:      | 0.995 | tons per acre | or | 4.5% | (6 d.f.)       |
| Barnfield:    | 1.41  | "             | "  | "    | 11.1% (6 d.f.) |
| Stackyard:    | 1.46  | "             | "  | "    | 17.2% (6 d.f.) |
| Warren Field: | 0.573 | "             | "  | "    | 7.7% (6 d.f.)  |

53/Ch/1.2

Summary of Results

| Krilium: cwt per acre (applied 1952) |       |                              |       |                             |       |
|--------------------------------------|-------|------------------------------|-------|-----------------------------|-------|
|                                      | None  | Rotary<br>Cultivated in<br>3 | 6     | Raked into<br>seed bed<br>3 | Mean  |
| Roots: tons per acre                 |       |                              |       |                             |       |
| <u>Fosters</u>                       |       |                              |       |                             |       |
| Mean ( $\pm 0.497$ )                 | 22.80 | 21.82                        | 21.43 | 21.58                       | 21.91 |
| Increase ( $\pm 0.704$ )             |       | -0.98                        | -1.37 | -1.22                       |       |
| <u>Barnfield</u>                     |       |                              |       |                             |       |
| Mean ( $\pm 0.71$ )                  | 13.76 | 11.20                        | 13.50 | 12.38                       | 12.71 |
| Increase ( $\pm 1.00$ )              |       | -2.56                        | -0.26 | -1.38                       |       |
| <u>Stackyard</u>                     |       |                              |       |                             |       |
| Mean ( $\pm 0.73$ )                  | 7.70  | 9.02                         | 9.02  | 8.22                        | 8.49  |
| Increase ( $\pm 1.03$ )              |       | 1.32                         | 1.32  | 0.52                        |       |
| <u>Warren Field</u>                  |       |                              |       |                             |       |
| Mean ( $\pm 0.286$ )                 | 8.25  | 7.35                         | 7.92  | 6.35                        | 7.47  |
| Increase ( $\pm 0.405$ )             |       | -0.90                        | -0.33 | -1.90                       |       |

|                          | Plant no.<br>thousands<br>per acre | Percentage over<br>$1\frac{1}{2}$ " diameter |
|--------------------------|------------------------------------|--|
| General means: Stackyard | 173                                | 43.8   |
| Warren Field             | 161                                | 29.2   |



53/Ch/2.1

### CARROTS

Soil conditioners - Rothamsted, Long Hoos VI and Stackyard; Woburn, Stackyard and Warren Field.

System of replication: 4 x 4 Latin square.

Area of each plot: 0.00207 acre. Area harvested: 0.00138 acre.

#### Treatments:

None and 3 proprietary soil conditioners A, B and C each at 10 cwt per acre active material, rotary cultivated in to 6".

Basal dressing: 5 cwt compound fertilizer (7% N; 7% P<sub>2</sub>O<sub>5</sub>; 10.5% K<sub>2</sub>O) per acre.

#### Cultivations, etc.:

Long Hoos VI (R). Ploughed: Jan 22. Roto tilled, soil conditioners and basal dressing applied, rotor tilled: Mar 20. Seed drilled: Apr 20. Lifted: Sept 25 and Oct 28. Previous crop: Sugar beet.

Stackyard (R). Ploughed: Oct 20, 1952 and again Mar 9, 1953. Roto tilled, soil conditioners and basal dressing applied, roto tilled: Mar 21. Seed drilled: Apr 20. Lifted: Oct 19 and 24. Previous crop: Wheat.

Stackyard (W). Hand dug: Jan 23. Soil conditioners applied: Mar 25 and Apr 23. Seed drilled: May 5. Basal dressing applied: May 15. Singled: July 2. Lifted: Oct 12. Previous crop: Fallow.

Warren Field (W). Hand dug: Jan 27. Soil conditioners applied: Mar 25 and Apr 23. Seed sown: May 6. Basal dressing applied: May 15. Singled: June 23. Lifted: Aug 27-Sept 22. Previous crop: Barley.

All fields, Variety: James' Scarlet Intermediate.

Standard errors per plot: Roots: tons per acre

|                   |   |
|-------------------|---|
| Long Hoos VI (R): | 1.21 tons per acre or 4.3% (6 d.f.)               |
| Stackyard (R):    | 1.51 tons per acre or 6.5% (6 d.f.)               |
| Stackyard (W):    | 1.24 tons per acre or 13.3% (3 d.f.) <sup>‡</sup> |
| Warren Field (W): | 0.82 tons per acre or 6.4% (6 d.f.)               |

<sup>‡</sup>1 row of the Latin square received incorrect treatments.



53/Ch/2.2

Summary of Results

| Soil conditioners 10 cent per acre<br>active material |       |       |       |       |       |
|---|-------|-------|-------|-------|-------|
|   | None  | A     | B     | C     | Mean  |
| Roots: tons per acre                                  |       |       |       |       |       |
| <u>Rothamsted, Long Hoos VI</u>                       |       |       |       |       |       |
| Mean ( $\pm 0.606$ )                                  | 28.26 | 28.91 | 27.13 | 29.08 | 28.35 |
| Increase ( $\pm 0.858$ )                              |       | +0.65 | -1.13 | +0.82 |       |
| <u>Rothamsted, Stackyard</u>                          |       |       |       |       |       |
| Mean ( $\pm 0.756$ )                                  | 23.80 | 24.93 | 21.65 | 23.06 | 23.36 |
| Increase ( $\pm 1.069$ )                              |       | +1.13 | -2.15 | -0.74 |       |
| <u>Woburn, Stackyard</u>                              |       |       |       |       |       |
| Mean ( $\pm 0.761$ )                                  | 8.74  | 9.66  | 9.38  | 9.62  | 9.35  |
| Increase ( $\pm 1.077$ )                              |       | +0.92 | +0.64 | +0.88 |       |
| <u>Woburn, Warren Field</u>                           |       |       |       |       |       |
| Mean ( $\pm 0.410$ )                                  | 11.75 | 12.30 | 13.75 | 13.35 | 12.79 |
| Increase ( $\pm 0.579$ )                              |       | +0.55 | +2.00 | +1.60 |       |

| General means:       | Plant no.<br>thousands<br>per acre | Percentage over<br>$1\frac{1}{2}$ " diameter |
|----------------------|------------------------------------|--|
| Woburn, Stackyard    | 167                                | 50.9   |
| Woburn, Warren Field | 174                                | 56.6   |