

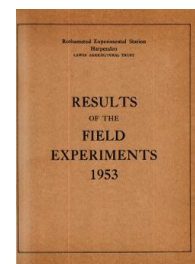
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## Yields of the Field Experiments 1953

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### 53/BA/2 Four-course Rotation - Rothamsted

#### Rothamsted Research

Rothamsted Research (1954) *53/BA/2 Four-course Rotation - Rothamsted* ; Yields Of The Field Experiments 1953, pp 20 - 22 - DOI: <https://doi.org/10.23637/ERADOC-1-173>

FOUR COURSE ROTATION EXPERIMENT

The 24th year

Direct and residual effects of organic manures and phosphatic fertilizers - Hoosfield 1953.

For details of treatments and rotation see "Results of the Field Experiments 1939-47" Vol. I, Section Ba/3.

Area of each plot: Potatoes (whole plot): 0.0242 acre. Barley and ryegrass: 0.0244 acre. Wheat: 0.0233 acre.

Manures (cwt per acre) applied 1952-53

| Treatment      | Organic manures and phosphates |        |                               |                  | Supplementary fertilizers |  |                                    |
|----------------|--------------------------------|--------|-------------------------------|------------------|---------------------------|--|------------------------------------|
|                | Organic matter                 | N      | P <sub>2</sub> O <sub>5</sub> | K <sub>2</sub> O | N as Sulph. of amm.       | P <sub>2</sub> O <sub>5</sub> as Super | K <sub>2</sub> O as Mur. of potash |
| Dung           | 50                             | 2.131* | 0.820                         | 1.066            | -                         | 0.380                                  | 1.934                              |
| Adco           | 50                             | 1.012  | 0.600                         | 0.750            | 0.788                     | 0.600                                  | 2.250                              |
| Straw          | 112                            | 0.496  | 0.108                         | 0.312            | 1.304†                    | 1.092                                  | 2.688                              |
| Super          |                                |        | 1.2                           |                  | 0.36†                     |  | 0.6†                               |
| Rock phosphate |                                |        | 1.2                           |                  | 0.36†                     |  | 0.6†                               |

\*In excess of the standard rate (1.800 cwt N).

†Yearly dressings totalling to the standard rate in the 5 year period.

Cultivations, etc.:

Potatoes.

Ploughed: Sept 1, 1952. Supplementary fertilizers to dung and adco plots applied: Jan 20, 1953. Dung and adco applied: Jan 21. Straw and first dressing to straw plots applied, all plots ploughed: Jan 26. Ridged: Mar 31. Spring fertilizers, including second and third dressing to straw plots, and sulphate of ammonia to half plots, applied: Apr 1. Potatoes planted: Apr 2. Earthed up: June 27. Sprayed with copper fungicide 5½ lb per acre: July 28 and again Aug 8. Sprayed with sulphuric acid, 20% B.O.V.: Sept 26. Lifted: Oct 1. Variety: Majestic.

Barley.

Dung, adco and supplementary fertilizers and first dressing to straw plots applied: Jan 20, 1953. Straw applied, all plots ploughed: Jan 21. 19 cwt ground chalk per acre applied: Feb 25. Spring fertilizers and second and third dressing to straw plots applied: Feb 27. Seed drilled at 3 bushels per acre: Feb 28. Harvested: Aug 11. Variety: Plumage Archer.

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Ryegrass.

Dung and adco applied: Sept 13, 1952. Straw applied, all plots ploughed: Sept 15. Supplementary fertilizers to dung and adco plots, first dressing to straw plots, autumn fertilizers applied and seed sown at 112 lb per acre: Sept 19. Second dressing to straw plots applied: Jan 23, 1953. Sulphate of ammonia and third dressing to straw plots applied: Apr 7. Harvested: June 25. Variety: Western Wolths.

Wheat.

Ploughed: Aug 7, 1952. Supplementary fertilizers to dung and adco plots and first dressing to straw plots applied: Sept 16. Dung, adco and straw applied, ploughed all plots: Sept 17. Autumn fertilizers applied: Oct 8. Seed drilled at 3 bushels per acre: Oct 27. Second dressing to straw plots applied: Jan 23, 1953. Sulphate of ammonia and third dressing to straw plots applied: Apr 22. Harvested: Aug 20. Variety: Squareheads Master 13/4.

Summary of Results

| Manure +             | Year of Cycle | Potatoes           |              |               |              |      | Percentage Ware   |                   | Barley (at 85% D.M.) Grain Straw cwt per acre | Ryegrass Dry Matter cwt per acre | Wheat Grain Straw cwt per acre |      |
|----------------------|---------------|--------------------|--------------|---------------|--------------|------|-------------------|-------------------|---|----------------------------------|--------------------------------|------|
|                      |               | Total tubers, tons | Additional N | tons per acre | Additional N | Mean | Resp. to Nitrogen | Resp. to Nitrogen |   |                                  |                                |      |
|                      |               | Without            | With         | Mean          | Without      | With | Without           | With              |   |                                  |                                |      |
| Dung                 | I             | 8.33               | 10.40        | 9.36          | 87.1         | 91.1 | 89.1              | +4.0              | 31.9  | 20.7                             | 20.7                           | 37.6 |
|                      | II            | 7.23               | 8.90         | 8.06          | 87.5         | 91.1 | 89.3              | +3.6              | 27.8  | 18.3                             | 21.4                           | 34.6 |
|                      | III           | 8.03               | 5.77         | 6.90          | 91.5         | 88.3 | 89.9              | -3.2              | 24.4  | 14.9                             | 17.5                           | 27.6 |
|                      | IV            | 6.04               | 8.68         | 7.36          | 87.6         | 88.7 | 88.2              | +1.1              | 21.9  | 12.3                             | 17.7                           | 28.6 |
|                      | V             | 5.45               | 8.05         | 6.75          | 81.2         | 82.6 | 81.9              | +1.4              | 23.7  | 11.9                             | 17.7                           | 26.1 |
| Adco (Straw compost) | I             | 10.09              | 12.04        | 11.06         | 81.1         | 93.1 | 87.1              | +12.0             | 28.1  | 34.1                             | 29.6                           | 52.0 |
|                      | II            | 7.23               | 8.91         | 8.07          | 84.4         | 83.4 | 83.9              | -1.0              | 26.4  | 15.7                             | 15.8                           | 22.6 |
|                      | III           | 5.31               | 6.40         | 5.86          | 84.2         | 86.2 | 85.2              | +2.0              | 21.7  | 12.5                             | 15.9                           | 21.8 |
|                      | IV            | 6.17               | 7.40         | 6.78          | 87.3         | 90.6 | 89.0              | +3.3              | 24.5  | 13.9                             | 16.9                           | 26.5 |
|                      | V             | 5.86               | 7.70         | 6.78          | 86.8         | 86.6 | 86.7              | -0.2              | 21.5  | 12.2                             | 18.5                           | 27.0 |
| Straw                | I             | 8.52               | 12.84        | 10.68         | 89.6         | 93.4 | 91.5              | +3.8              | 26.0  | 59.7                             | 28.7                           | 55.8 |
|                      | II            | 6.84               | 7.66         | 7.25          | 81.6         | 90.3 | 86.0              | +8.7              | 13.3  | 14.7                             | 17.6                           | 28.1 |
|                      | III           | 6.75               | 8.17         | 7.46          | 88.5         | 91.0 | 89.8              | +2.5              | 25.1  | 17.3                             | 18.7                           | 30.0 |
|                      | IV            | 7.19               | 8.80         | 8.00          | 88.4         | 89.2 | 88.8              | +0.8              | 27.1  | 12.2                             | 18.9                           | 31.9 |
|                      | V             | 6.99               | 8.41         | 7.70          | 89.5         | 90.6 | 90.0              | +1.1              | 22.0  | 12.2                             | 16.8                           | 26.5 |
| Super-phosphate      | I             | 9.07               | 9.18         | 9.12          | 87.2         | 87.3 | 87.5              | +0.6              | 30.9  | 32.7                             | 19.7                           | 31.9 |
|                      | II            | 7.58               | 9.46         | 8.52          | 86.2         | 85.4 | 85.8              | -0.8              | 25.1  | 30.2                             | 21.5                           | 37.4 |
|                      | III           | 8.41               | 8.84         | 8.62          | 89.0         | 89.9 | 89.4              | +0.9              | 26.9  | 26.7                             | 20.6                           | 30.8 |
|                      | IV            | 7.19               | 9.11         | 8.15          | 89.7         | 89.9 | 89.8              | +0.2              | 24.3  | 30.3                             | 22.3                           | 33.2 |
|                      | V             | 8.33               | 7.78         | 8.06          | 94.0         | 89.3 | 91.6              | -4.7              | 26.6  | 30.3                             | 22.5                           | 34.6 |
| Rock phosphate       | I             | 5.93               | 6.01         | 5.97          | 83.3         | 86.6 | 85.0              | +3.3              | 29.3  | 29.4                             | 21.5                           | 33.2 |
|                      | II            | 4.87               | 6.00         | 5.44          | 84.3         | 88.1 | 86.2              | +3.8              | 25.7  | 23.5                             | 19.9                           | 31.2 |
|                      | III           | 6.39               | 5.77         | 6.03          | 89.6         | 80.1 | 84.8              | -9.5              | 27.3  | 29.4                             | 20.8                           | 29.1 |
|                      | IV            | 6.43               | 7.23         | 6.86          | 89.5         | 91.7 | 90.6              | +2.2              | 22.9  | 28.0                             | 21.5                           | 33.5 |
|                      | V             | 5.10               | 6.48         | 5.79          | 88.2         | 90.1 | 89.2              | +1.9              | 29.0  | 26.9                             | 20.6                           | 29.7 |
| Mean Dry Matter %    |               | 84.5               |              |               |              |      |                   |                   |   |                                  |                                |      |

53/Ba/2.3

+Note. All manures are supplemented by fertilizers as shown in table on page 53/Ba/2.1