

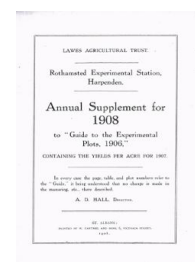
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ROTHAMSTED
RESEARCH

Yields of the Field Experiments 1907

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Annual Supplement for 1907

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LAWES AGRICULTURAL TRUST.

Rothamsted Experimental Station,
Harpenden.

Annual Supplement for
1908

to "Guide to the Experimental
Plots, 1906,"

CONTAINING THE YIELDS PER ACRE FOR 1907.

In every case the page, table, and plot numbers refer to the "Guide," it being understood that no change is made in the manuring, etc., there described.

A. D. HALL, DIRECTOR.

ST. ALBANS :

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1908.

METEOROLOGICAL RECORDS, 1907.

(See "Guide," page 16, Table IX.)

| | Rain. | | | Drainage through soil. | | | Bright Sunshine. | Temperature. | |
|------------------|----------------------|--------------------|--------------------|------------------------|---------------|---------------|------------------|--------------|------|
| | Total Fall. | | No. of Rainy Days. | 20 ins. deep. | 40 ins. deep. | 60 ins. deep. | | Max. | Min. |
| | 5-inch Funnel Gauge. | 1000th Acre Gauge. | | | | | | | |
| | Inches. | Inches. | No. | Inches. | Inches. | Inches. | | Hours. | °F. |
| January | 1.236 | 1.254 | 10 | 0.863 | 0.956 | 0.966 | 66.5 | 41.9 | 32.0 |
| February | 1.452 | 1.476 | 15 | 0.958 | 1.047 | 1.025 | 85.2 | 41.8 | 30.7 |
| March | 1.285 | 1.312 | 13 | 0.057 | 0.155 | 0.107 | 206.4 | 52.9 | 32.2 |
| April | 2.855 | 2.846 | 17 | 0.567 | 0.539 | 0.509 | 143.2 | 53.9 | 37.7 |
| May | 2.377 | 2.396 | 18 | 0.288 | 0.384 | 0.356 | 164.4 | 59.5 | 42.9 |
| June | 2.484 | 2.600 | 20 | 0.358 | 0.391 | 0.366 | 160.1 | 62.5 | 48.4 |
| July | 2.165 | 2.209 | 16 | 0.276 | 0.259 | 0.236 | 170.6 | 65.1 | 48.9 |
| August | 1.682 | 1.802 | 14 | 0.003 | 0.016 | 0.013 | 174.5 | 66.6 | 50.2 |
| September | 0.721 | 0.778 | 8 | ... | ... | ... | 185.1 | 65.9 | 46.8 |
| October | 4.876 | 4.890 | 23 | 2.943 | 2.830 | 2.713 | 97.3 | 56.1 | 42.2 |
| November | 2.424 | 2.439 | 18 | 1.910 | 1.982 | 1.940 | 58.0 | 49.4 | 37.8 |
| December | 3.435 | 3.396 | 20 | 3.064 | 3.201 | 3.165 | 45.8 | 45.0 | 34.9 |
| Total or Mean | 26.992 | 27.407 | 192 | 11.287 | 11.760 | 11.396 | 1557.1 | 55.1 | 40.4 |

MANGEL WURZEL. BARN FIELD, 1907.

(See "Guide," page 11, Table VI.)

| Strip. | Strip Manures. | Cross-dressings. | | | | |
|--------|---------------------------------------|----------------------|---------------------------------|-----------------|-----------------------------|----------------|
| | | O. | N. | A. | A. C. | C. |
| | | None. | Nitrate of Soda. | Ammonium Salts. | Rape-cake & Ammonium Salts. | Rape Cake. |
| | | Tons. | Tons. | Tons. | Tons. | Tons. |
| 1 | Dung only | {R. 26.00 L. 3.64 | {41.42 4.64 | {33.52 5.27 | {34.29 4.90 | {35.02 5.17 |
| 2 | Dung, Super., Potash | {R. 26.52 L. 3.33 | {42.13 4.61 | {41.68 6.64 | {43.52 7.08 | {40.74 5.34 |
| 4 | Complete Minerals | {R. 5.95 L. 1.09 | {30.46 35.15 4.00 4.94 | {26.68 3.42 | {40.97 5.25 | {33.09 4.11 |
| 5 | Superphosphate only | {R. 6.21 L. 1.17 | {24.62 3.42 | {10.88 2.86 | {11.26 2.18 | {15.43 2.18 |
| 6 | Super. and Potash | {R. 5.78 L. 1.05 | {25.05 3.14 | {25.22 3.44 | {35.88 5.68 | {28.15 2.84 |
| 7 | Super., Sulph. Mag. & Chloride Sodium | {R. 6.59 L. 1.27 | {26.54 3.75 | {26.52 3.44 | {34.38 5.29 | {30.59 3.76 |
| 8 | None | {R. 5.15 L. 1.06 | {18.60 3.84 | {9.87 3.03 | {10.90 2.26 | {13.24 2.40 |

HAY. THE PARK GRASS PLOTS, 1907.

(See "Guide," page 19, Table XI.)

| Plot. | Manuring. | Yield of Hay per acre. | | |
|-------|---|------------------------|-----------|--------|
| | | 1st Crop. | 2nd Crop. | Total. |
| | | Cwt. | Cwt. | Cwt. |
| 3 | Unmanured | 21.3 | 1.8 | 23.1 |
| 12 | | 25.3 | 4.3 | 29.6 |
| 2 | Unmanured (1) | 26.1 | 2.2 | 28.3 |
| 1 | Ammonium salts alone (1) | 34.4 | 5.3 | 39.7 |
| 4-1 | Superphosphate of Lime | 25.0 | 2.0 | 27.0 |
| 8 | Mineral Manure without Potash | 36.3 | 5.9 | 42.2 |
| 7 | Complete Mineral Manure | 57.2 | 13.2 | 70.4 |
| 6 | As 7, 1869 and since (2) | 49.6 | 13.0 | 62.6 |
| 15 | As 7, 1876 and since (3) | 46.0 | 11.7 | 57.7 |
| 5 | Superphosphate and Potash, 1898 and since | 24.5 | 2.1 | 26.6 |
| 17 | Nitrate of Soda alone | 38.8 | 7.9 | 46.7 |
| 4-2 | Superphosphate and Amm.-salts | 40.6 | 1.9 | 42.5 |
| 10 | Mineral Manure (without Potash) and Amm.-salts | 50.0 | 4.7 | 54.7 |
| 9 | Complete Mineral Manure and Amm.- salts | 65.0 | 7.9 | 72.9 |
| 13 | Dung and Fish Guano, once in 4 yrs. | 52.2 | 15.5 | 67.7 |
| 11-1 | Complete Mineral Manure and extra Amm.-salts | 46.7 | 24.0 | 70.7 |
| 11-2 | As 11-1, and Silicate Soda | 68.3 | 29.2 | 97.5 |
| 16 | Complete Mineral Manure and Nit. Soda=43 lb. N. | 50.4 | 12.2 | 62.6 |
| 14 | Do. do. do. and Nit. Soda=86 lb. N. | 51.2 | 13.3 | 64.5 |

Quick Lime (ground), at the rate of 2000 lb. per acre, applied to the South half of plots 1 to 4-2, 7 to 11-2, 13 and 16, in January, 1907.

- (1) Received Farmyard Dung, 8 yrs., 1856-63. (3) Nitrate of Soda alone previously.
 (2) Ammonium salts alone, previous to 1869.

BOTANICAL COMPOSITION, PER CENT.

First Crop, 1907.

(See "Guide," page 20, Table XII.)

| Plot. | Manuring. | Gramineæ. | Leguminosæ. | Other Orders. |
|-------|--------------------------------------|-----------|-------------|---------------|
| | | Per cent. | Per cent. | Per cent. |
| 3 | Unmanured | 51.6 | 6.2 | 42.2 |
| 4-1 | Superphosphate of Lime | 54.4 | 5.2 | 40.4 |
| 8 | Mineral Manure without Potash | 44.8 | 15.2 | 40.0 |
| 7 | Complete Mineral Manure | 53.3 | 29.3 | 17.4 |
| 6 | As 7, 1869 and since (2) | 44.9 | 38.7 | 16.4 |
| 15 | As 7, 1876 and since (3) | 37.8 | 49.9 | 12.3 |

WHEAT. BROADBALK FIELD, 1907.

(See "Guide," page 26, Table XIV.)

| Plot. | Manuring. | Dressed Grain. | | Straw. |
|-------|--|----------------|--------------------|--------|
| | | Yield. | Weight per Bushel. | |
| | | Bushels. | lbs. | Cwt. |
| 2 | Farmyard Manure | 33.7 | 60.5 | 56.6 |
| 3 | Unmanured | 9.1 | 60.7 | 9.8 |
| 5 | Complete Mineral Manure | 11.5 | 60.6 | 15.1 |
| 6 | As 5, and single Amm.-salts | 23.9 | 60.4 | 31.4 |
| 7 | As 5, and double do. | 33.6 | 60.5 | 55.8 |
| 8 | As 5, and treble do. | 34.7 | 59.4 | 71.6 |
| 9 | As 5, and single Nitrate Soda | 30.2 | 60.5 | 46.0 |
| 10 | Double Amm.-salts alone | 27.6 | 60.2 | 33.1 |
| 11 | As 10, and Superphosphate | 32.1 | 60.7 | 40.5 |
| 12 | " and Super and Sulph. Soda | 41.6 | 60.9 | 51.3 |
| 13 | " and Super and Sulph. Potash | 34.7 | 60.2 | 57.3 |
| 14 | " and Super and Sulph. Mag. | 36.6 | 60.9 | 46.9 |
| 15 | Double Amm.-salts in Autumn, and Minerals | 33.1 | 61.6 | 48.6 |
| 16 | Double Nitrate and Minerals | 34.7 | 60.4 | 65.7 |
| 17 | } Minerals alone, or Double Amm.-salts alone, in alternate years } | *10.9 | 61.3 | 13.0 |
| 18 | | †31.0 | 60.7 | 44.3 |
| 19 | Rape Cake alone | 29.0 | 60.3 | 39.3 |

* Produce by Minerals. † Produce by Ammonium-salts.

BARLEY. HOOS FIELD, 1907.

(See "Guide," page 33, Table XVI.)

| Plot. | Manuring. | Dressed Grain. | | Straw. |
|-------|---|----------------|--------------------|--------|
| | | Yield. | Weight per Bushel. | |
| | | Bushels. | lbs. | Cwt. |
| 1 O | No Minerals, and no Nitrogen | 7.7 | 53.5 | 6.8 |
| 2 O | Superphosphate only | 13.0 | 56.5 | 9.2 |
| 3 O | Alkali salts only | 8.1 | 54.3 | 14.8 |
| 4 O | Complete Minerals | 13.2 | 55.0 | 24.3 |
| 1 A | Amm.-salts only | 19.9 | 53.6 | 14.2 |
| 2 A | Superphos. and Amm.-salts | 28.4 | 55.2 | 20.0 |
| 3 A | Alkali salts and Amm.-salts | 20.1 | 54.4 | 15.8 |
| 4 A | Complete Minerals and Amm.-salts | 32.7 | 55.4 | 25.5 |
| 1 N | Nitrate of Soda alone | 22.3 | 54.0 | 17.2 |
| 2 N | Superphos. and Nitrate Soda | 29.0 | 56.1 | 25.4 |
| 3 N | Alkali salts and Nitrate Soda | 21.2 | 55.0 | 15.9 |
| 4 N | Complete Minerals and Nitrate Soda | 31.7 | 56.1 | 27.2 |
| 1 C | Rape Cake alone | 29.1 | 55.3 | 21.2 |
| 2 C | Superphos. and Rape Cake | 28.8 | 56.1 | 21.6 |
| 3 C | Alkali salts and Rape Cake | 26.3 | 55.9 | 19.9 |
| 4 C | Complete Minerals and Rape Cake | 31.1 | 56.7 | 23.4 |
| 7-1 | Unmanured (after Dung, 1852-71)... .. | 15.5 | 55.3 | 18.4 |
| 7-2 | Farmyard Dung | 42.1 | 57.1 | 38.0 |

BARLEY. HOOS FIELD, 1907.

(Previous cropping: Potatoes, 1876-1901; Barley, 1902 and 1903; Oats, 1904; Barley, 1905 and 1906).

(See "Guide," page 40, Table XIX.)

| Plot. | Manures applied to the Potatoes, 1876-1901. Unmanured since. | Dressed Grain. | | Straw. | Total Produce. |
|-------|--|----------------|--------------------|--------|----------------|
| | | Yield. | Weight per Bushel. | | |
| | | Bushels. | lbs. | Cwt. | lbs. |
| 1 | Unmanured | 6.2 | 56.0 | 4.2 | 838 |
| 2 | Unmanured 1882 and since, previously Dung alone ... | 10.3 | 57.3 | 7.0 | 1400 |
| 3 | Dung 1883-1901 | 18.9 | 56.7 | 15.4 | 2855 |
| 4 | Dung 1883-1901 | 19.1 | 56.8 | 14.9 | 2818 |

WHEAT AFTER FALLOW (without manure 1851 and since).

HOOS FIELD, 1907.

(See "Guide," page 41, Table 20).

| | | | |
|---------------|--------|---|-----------------------------|
| Dressed Grain | | } | Yield—14.3 bushels. |
| | | | Weight per bushel—58.6 lbs. |
| Straw | | | 19.5 cwt. |
| Total Produce | | | 3094 lbs. |

INOCULATION OF LEGUMINOUS PLANTS.
HOOS FIELD.

(See "Guide" page 40, and plan page 37).

PRODUCE OF RED CLOVER (HAY) IN 1907.

1. EFFECT OF INOCULATING THE SOIL.

| Plot. | Soil inoculated with-- | Mean of Plots 6, 8, and 10 1st and 2nd Crops. |
|-------|--|---|
| A ... | Hiltner's Preparation from Munich | Cwt. 66.1 |
| B ... | Moore's Preparation from the United States ... | 57.4 |
| C ... | Soil from a field which had carried Red Clover in 1904 | 59.0 |
| D ... | Left uninoculated | 56.6 |

2. EFFECT OF PAST MANURING.

| Plot. | | Mean of Plots, A, B, C, D, 1st and 2nd Crops. |
|-------|---|---|
| 6 | Nitrate of Soda 1876-1901, since unmanured ... | Cwt. 58.7 |
| 8 | Nitrate of Soda and Mixed Minerals 1876-1901, since unmanured | 64.5 |
| 10 | Mixed Minerals only 1876-1901. since unmanued ... | 56.2 |

3. DETAILS OF THE ABOVE.

| Plot. | 1st Crop. | 2nd Crop. | Total. |
|-------|-----------|-----------|--------|
| | Cwt. | Cwt. | Cwt. |
| 6 A | 42.0 | 20.6 | 62.6 |
| 6 B | 40.5 | 18.4 | 58.9 |
| 6 C | 40.5 | 18.1 | 58.6 |
| 6 D | 36.0 | 18.9 | 54.9 |
| 8 A | 45.0 | 27.0 | 72.0 |
| 8 B | 39.0 | 21.5 | 60.5 |
| 8 C | 40.5 | 23.1 | 63.6 |
| 8 D | 40.5 | 21.3 | 61.8 |
| 10 A | 37.5 | 26.1 | 63.6 |
| 10 B | 33.0 | 19.8 | 52.8 |
| 10 C | 34.5 | 20.5 | 55.0 |
| 10 D | 33.0 | 20.3 | 53.3 |

LITTLE HOOS FIELD, 1904-07.

RESIDUAL VALUE OF VARIOUS MANURES.

(See "Guide," pages 41 and 42).

TOTAL PRODUCE—Grain and Straw or Roots and Leaves, per acre.

| Series and Plot. | Manuring. | Swedes 1904. | Barley 1905. | Mangels 1906. | Spring Wheat 1907. |
|------------------|-----------------------------------|--------------|--------------|---------------|--------------------|
| | | Tons. | lbs. | Tons. | lbs. |
| A 1 | Unmanured | 10·3 | 2323 | 17·1 | 3650 |
| 2 | Dung (ordinary), 1904 only | 13·1 | 4649 | 18·2 | 4673 |
| 3 | " " 1905 " | 8·8 | 3501 | 17·5 | 5393 |
| 4 | " " 1906 " | 8·8 | 2269 | 18·2 | 5471 |
| 5 | " " 1907 " | 9·8 | 2402 | 14·9 | 6903 |
| B 1 | Dung (cake-fed), 1904 only | 15·7 | 4177 | 19·4 | 4319 |
| 2 | Unmanured | 10·0 | 2417 | 16·2 | 4025 |
| 3 | Dung (cake-fed), 1905 only | 9·5 | 5530 | 18·5 | 5497 |
| 4 | " " 1906 " | 11·4 | 2772 | 25·6 | 6489 |
| 5 | " " 1907 " | 9·4 | 2649 | 14·4 | 9407 |
| C 1 | Shoddy, 1904 only | 14·7 | 3656 | 21·0 | 4667 |
| 2 | " " 1905 " | 11·1 | 4363 | 23·6 | 4550 |
| 3 | Unmanured | 10·6 | 2588 | 17·7 | 4334 |
| 4 | Shoddy, 1906 only | 10·7 | 2512 | 24·2 | 6231 |
| 5 | " " 1907 " | 10·3 | 2615 | 16·9 | 7495 |
| D 1 | Guano, 1904 only | 14·6 | 2550 | 20·1 | 4056 |
| 2 | " " 1905 " | 11·0 | 5176 | 19·7 | 4165 |
| 3 | " " 1906 " | 10·9 | 2857 | 25·6 | 4846 |
| 4 | Unmanured | 10·6 | 2985 | 18·7 | 4618 |
| 5 | Guano, 1907 only... .. | 10·6 | 2680 | 17·4 | 7375 |
| E 1 | Rape-cake, 1904 only | 14·1 | 2674 | 17·8 | 3887 |
| 2 | " " 1905 " | 11·2 | 4185 | 17·9 | 4326 |
| 3 | " " 1906 " | 9·5 | 2645 | 22·7 | 4584 |
| 4 | " " 1907 " | 10·5 | 2734 | 19·4 | 6619 |
| 5 | Unmanured | 10·8 | 2769 | 19·5 | 4527 |
| F 1 | Unmanured | 11·7 | 3132 | 22·9 | 4749 |
| 2 | Superphosphate, 1904 only | 12·2 | 3025 | 23·2 | 5064 |
| 3 | " " 1905 " | 10·2 | 3949 | 23·6 | 4956 |
| 4 | " " 1906 " | 9·7 | 3913 | 24·1 | 5419 |
| 5 | " " 1907 " | 9·7 | 4221 | 23·6 | 5698 |
| G 1 | Bone Meal, 1904 only | 12·9 | 3176 | 23·1 | 5203 |
| 2 | " " 1905 " | 10·1 | 3636 | 22·1 | 5821 |
| 3 | Unmanured | 10·2 | 3495 | 20·6 | 5491 |
| 4 | Bone Meal, 1906 only | 9·9 | 3450 | 22·6 | 6043 |
| 5 | " " 1907 " | 9·2 | 3525 | 22·1 | 6276 |
| H 1 | Basic Slag, 1904 only | 11·8 | 4400 | 20·5 | 6285 |
| 2 | " " 1905 " | 10·4 | 4002 | 21·3 | 5930 |
| 3 | " " 1906 " | 9·4 | 3662 | 21·4 | 5860 |
| 4 | " " 1907 " | 9·1 | 3624 | 17·0 | 5816 |
| 5 | Unmanured | 8·6 | 3293 | 17·4 | 5933 |