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Guide to the Experimental Plots - 1913



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Little Hoos Field - Residual Value of Manures

Rothamsted Research

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HOOS FIELD

WHEAT AFTER FALLOW

The two half-acre plots in Hoos field are never manured, but every year one carries a wheat crop and the other is given a bare summer fallow, the treatment alternating, so that every year one plot is carrying a wheat crop following a bare fallow. By comparing the results obtained with the yield of the unmanured plot growing wheat continuously, the benefit of the bare fallow can be estimated. (See Table XXI.)

LITTLE HOOS FIELD

RESIDUAL VALUE OF MANURES

The object of the experiments in this field is to test the residual value of certain typical manures, *i.e.*, the value of the residues left in the soil after one or more crops have been grown since the time of their application. To eliminate the effect of season, the result yielded by the residue is in all cases compared with that of a new application of the same manure, as well as with a continuously unmanured check plot.

The ordinary dung is made by feeding beasts with hay and roots only, the beasts making the cake-fed dung alongside receive also an ordinary allowance of linseed and cotton cake. The two lots of dung are then laid up in heaps for a short time, and weighed out immediately before applying.

Table XXII.—General Dressings of Mineral Manure on Series A to E, and of Nitrogenous Dressings on Series F to H.

(Quantities)	per acre.
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	Series A to E.		Series F, G, H.
1904	3 cwt. Superphosphate.	1904	1 cwt. Sulphate Ammonia.
1905	•••	1905	1 cwt. Sulphate Ammonia.
1906	3 cwt. Sulphate Potash.	1906	2 cwt. Sulphate Ammonia. 3 cwt. Sulphate Potash.
1907	3 cwt. Superphosphate.	1907	1 cwt. Sulphate Ammonia.
1908	3 cwt. Superphosphate.	1908	1 cwt. Sulphate Ammonia.
1909	3 cwt. Superphosphate.	1909	1 cwt. Sulphate Ammonia.
1910	***	1910	1 cwt. Sulphate Ammonia.
1911	3 cwt. Superphosphate. 200 lb. Sulphate Potash.	1911	1 cwt. Sulphate Ammonia. 200 lb. Sulphate Potash.
1912		1912	1 cwt. Nitrate Soda.

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H.—Little Hoos Field. Plan of Rotation Plots arranged to test the Residual Value of various Manures—one, two, three, and four years after their application.

A	Dung (ordinary) 16 tons per acre 1907, 11, 115	4 Dung (ordinary) 16 tons per acre 1906, 10,14	Jung Oung (ordinary) 16 tons per acre 1905, '09,'13	2 (1) Dung (ordinary) 16 tons per acre 1904, '08, '12	1	hate
В	Dung (Cake-fed) 16 tons per acre 1907, '11, '15	Dung (Cake-fed) 16 tons per acre 1906, '10, '14	Dung (Cake fed) 16 tons per acre 1905, '09, '13	2	(1) Dung (Cake-fed) 16 tons per acre 1904, '08, '12	Superphospl
C (2)	5 Shoddy Iton per acre 1907, 11, 15	4 Shoddy I ton per acre 1906, '10, '14	Ē	2 Shoddy I ton per acre 1905, '09, '13	Shoddy Iton per acre 1904, 08, 12	has received
D (2)	5 Guano 8 cwt per acre 1907, 'II, 'I5	4	3 Guano 8 cwt per acre 1906, 70, 74	2 Guano 8 cwt per acre 1905, '09, '13	l Guano 8cwt per acre 1904, '08, '12	Each Plot
E (2)	5	Rape-cake 10 cwt per acre 1907, 11, 115	3 Rape-cake 10 cwt peracre 1906, '10, '14	2 Rape-cake 10 cwt per acre 1905, '09, '13	Rape-cake 10 cwt peracre 1904, '08, '12	
F	5 Superphosphate 600 lb. peracre 1907, '11, '15	4 Superphosphate 6001b per acre 1906, 70, 74	3 Superphosphate 600 lb per acre 1905, '09, '13	2 Superphosphate 600 lb: per acre 1904, '08, '12	-	Nitrogenous
G	5 Bone Meal 430 lb. per acre 1907, '11, '15	4 Bone Meal 430 lb. per acre 1906, '10, '14	3	2 Bone Meal 430 lb peracre 1905, '09, '13	Bone Meal 430 lb.per acre 1904, '08, '12	received both
н	5	4 Basic Slag 600 lb. per acre 1907, 'll, '15	3 Basic Slag 600 lb. per acre 1906, '10, '14	2 Basic Slag 600 lb. per acre 1905, '09, '13	Basic Slag 600 lb. per acre 1904, '08, '12	Each Plot has received both
	B C(2) D(2) E(2) F G	A (ordinary) 16 tons per acre 1907, '11, '15 5 Dung (Cake-fed) 16 tons per acre 1907, '11, '15 5 Shoddy ton per acre 1907, '11, '15 5 Superphosphate 600 15 per acre 1907, '11, '15 5 Superphosphate 600 15 per acre 1907, '11, '15 5 Sone Meal 430 15 per acre 1907, '11, '15 5 5 5 5 5 5 5 5 5	C Cake-fed Cake-	Cordinary (ordinary) (fordinary) (fo	C Cake-fed Cake-	Cordinary 16 tons per acre 1906, '10, '14 16 tons per acre 1907, '11, '15 1906, '10, '14 1906,

Adjoins Broadbalk Field.

Area of each plot, 1th acre.

```
Series A deals with the residual effects of Ordinary Dung.
                                                Cake-fed Dung.
       C
                                                Shoddy.
                                        22
       \mathbf{D}
                                                Guano.
       E
                                                Rape Cake.
  ,,
              ,,
                                                Superphosphate. Bone-Meal.
  ,,
                             ,,
                                       99
       G
                                       ,,
      H
                                                Basic Slag.
              ,,
```

In each series the manure is applied to one plot in 1904 and each successive fourth year, to another plot in 1905 and each successive fourth year, to a third plot in 1906 and each successive fourth year, and to a fourth plot in 1907 and each successive fourth year. All the plots in the Series A to E, which deal with Nitrogenous Manures, receive, as necessary, equal amounts of Phosphates and Potash. Similarly, all the plots in the Series F, G, H, dealing with Phosphatic Manures, receive equal dressings of Nitrogenous or Potassic Manures as required.

(1) In 1912 only 10 tons 8 cwt. per acre of ordinary and cake-fed Dung respectively

was applied, instead of 16 tons as in previous years.

(2) In 1908 and since, the Nitrogenous Manures applied to the plots of Series C, D, and E have been as follows-

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Series C. Shoddy, 957 lb. = 50 lb. N. Peruvian Guano, 777 lb. = 50 lb. N.
                                              = 50 lb. N. per acrc.
       E. Rape Cake, 1036 lb.
                                              = 50 \text{ lb. N.}
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Check plots receiving in Series A to E no Nitrogen throughout, Series F to H, no Phosphates throughout.

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RESIDUAL VALUE OF VARIOUS MANURES

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TABLE XXIII.—Total Produce, Grain and Straw, or Roots and Leaves, per acre.

Series and Plot.	Manuring.	Swedes, 1904.	Barley, 1905.	Mangolds, 1906.	Spring Wheat, 1907.	Swedes, 1908.	Barley, 1909.	Wheat, 1910.	Mangolds, 1911.	Wheat, 1912.*
A 1 2 3 4 5	Unmanured	Tons. 10·3 13·1 8·8 8·8 9·8	Lb. 2323 4649 3501 2269 2402	Tons. 17·1 18·2 17·5 18·2 14·9	Lb. 3650 4673 5393 5471 6908	Tons. 14.0 19.1 14.5 15.5 17.3	Lb. 3792 5128 5544 4057 4581	Lb. 2270 2572 2681 2406 2358	Tons. 11.6 13.9 14.1 12.5 15.8	Bush. 19.4 34.3 26.9 29.2 26.8
B 1 2 3 4 5	Dung, cake-fed (1904, '8, '12). Unmanured Dung, cake-fed (1905 & '9) . ,, ,, (1906 & '10) ,, ,, (1907 & '11)	15·7 10·0 9·5 11·4 9·4	4177 2417 5530 2772 2649	19.4 16.2 18.5 25.6 14.4	4319 4025 5497 6489 9407	22 4 14·3 14·2 16·9 19·0	5362 3862 6641 4400 4298	2386 2261 2921 3502 2369	14·1 12·0 14·2 14·4 17·1	35·6 21·8 29·4 26·5 31·4
C 1 2 3 4 5	Shoddy (1904, '8, & '12) , (1905 & '9) Unmanured Shoddy (1906 & '10) , (1907 & '11)	14·7 11·1 10·6 10·7 10·3	3656 4363 2588 2512 2615	21·0 23·6 17·7 24·2 16·9	4667 4550 4334 6231 7495	19·7 16·3 15·1 19·1 22·2	3969 4558 3850 4466 5448	2295 2387 2561 3461 2560	11·4 11·6 11·7 14·0 14·7	28·4 26·1 24·2 30·4 29·8
D 1 2 3 4 5	Guano (1904, '8, & '12) , (1905 & '9) , (1906 & '10) Unmanured Guano (1907 & '11)	14.6 11.0 10.9 10.6 10.6	2550 5176 2857 2985 2680	20·1 19·7 25·6 18·7 17·4	4056 4165 4846 4618 7876	20·9 15·3 15·9 17·4 15·7	3608 6834 4053 4510 4014	1742 2114 3392 2739 2374	10.5 11.5 11.1 11.8 14.2	28.8 24.1 22.5 26.9 26.3
E 1 2 3 4 5	Rape Cake (1904, '8, & '12). ,,, (1905 & '9). ,, (1906 & '10) ,, (1907 & '11) Unmanured	14·1 11·2 9·5 10·5 10·8	2674 4185 2645 2734 2769	17·8 17·9 22·7 19·4 19·5	3887 4326 4584 6619 4527	19·7 15·1 14·5 15·2 14·7	3750 5203 3866 4661 4155	2180 2242 3486 2516 2784		27·7 22·3 22·2 25·1 21·1
F 1 2 3 4 5	Unmanured	11·7 12·2 10·2 9·7 9·7	3132 3025 3949 3913 4221	22·9 23·2 23·6 24·1 23·6	4749 5064 4956 5419 5698	14·1 16·9 14·6 16·0 16·4	4814 4726 4973 5280 5641	3166 3223 2922 2682 3190	8·7 10·9 11·7 12·8 14·2	31.6 83.4 31.9 34.9 35.4
G 1 2 3 4 5	Bone-Meal (1904, '8, & '12). ,, (1905 & '9) Unmanured	9.9	3176 3636 3495 3450 3525	23·1 22·1 20·6 22·6 22·1	5203 5821 5491 6043 6276	16.7 14.3 12.7 14.2 19.9	4445 4922 4247 4711 5285	3345 3657 3701 3263 3512	9.2	32·8 32·7 29·0 31·8 34·4
H 1 2 3 4 5	Basic Slag (1904, '8, '12) . , (1905 & '9) , (1906 & '10) . , (1907 & '11) . Unmanured	11.8 10.4 9.4 9.1 8.6	4400 4002 3662 3624 3293	20·5 21·3 21·4 17·0 17·4	6285 5930 5860 5816 5933	13.8 13.6 13.6 14.4 11.4	4182 4530 4431 3860 4511	3564 3596 3943 3804 4005	12.0 12.5 12.0	29.1

The yields on the plots to which the manure was applied in any given year are printed in heavier type.

* Dressed Grain only.

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