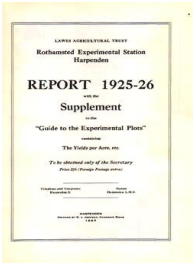
Report 1925-26 With the Supplement to the Guide to the Experimental Plots



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Yields of Experimental Plots 1925, 1926

Rothamsted Research

Rothamsted Research (1926) *Yields of Experimental Plots 1925, 1926 ;* Report 1925-26 With The Supplement To The Guide To The Experimental Plots, pp 122 - 137 **- DOI: https://doi.org/10.23637/ERADOC-1-84**

THE USE OF THE STANDARD ERROR IN FIELD EXPERIMENTS.

With the present report the departure is made of giving in the summaries of the results of replicated experiments a standard error by which the precision of the results may be judged; a practice which, originating in astronomy, has for several years been applied in various ways in scientific agriculture, but not hitherto in the Rothamsted reports. This caution has in fact been justified by recent investigations in statistical theory, which show that only when special precautions are taken in the design of the experiment can we be certain that the estimate of error made represents with validity the actual errors to which the results are exposed. Systematic methods of arrangement, into which no element of chance is admitted, are in fact liable to components of real error which find no place in the estimate, and it is only where the relative position of the individual treatments are deliberately assigned by appropriate chance operations, that the standard error as estimated can claim to represent the experimental errors actually present. All the replicated experiments of 1926 and all but a few in 1925 conform to this condition; for the sake of comparison estimates have been made for some of the 1925 experiments which do not admit of strictly valid estimation, the uncertainty arising from this cause being noted in each case.

The statistical procedure by which the standard errors have been obtained is in all cases that known as the Analysis of Variance. In this method the whole of the variation exhibited by the experimental yields is divided into the parts appropriate to the different components of which it is composed; in consequence it is possible to be sure that differences in yield due to causes, such as the different fertility of different blocks of land, which have no influence on the experimental comparisons, have been completely separated from that portion of the variation which is ascribable solely to experimental error.

Of the two measures of error in common use, the " probable error " and the " standard error," the latter has been adopted, as the more readily calculated and in other ways the more conformable to modern practice. The probable error is in fact obtained from the standard error merely by multiplying by a constant factor, 0.6745, or approximately 2/3. The standard error is therefore the larger measure, but in respect of all considerations arising out of the theory of estimation the two measures are on precisely the same footing.

The practical use of the standard error is to discriminate between cases in which a particular difference in yield can be reasonably set aside as accidental, and cases in which such an explanation requires that an improbable coincidence should be postulated, and in which therefore we have a sound basis for interpreting the difference as a real response to the treatments applied. As a working rule differences between treatments exceeding three times the standard error may be accepted as significant. Full and precise tests of significance have, however, been applied to all tables.

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DATES OF SOWING AND HARVESTING (Harvest 1925).

Field.	Crop.	Variety.	Sowing began.	Sowing finished.	Cutting began.	*Carting began.	*Carting finished.	Yield per Acre.
Great Knott, east ...	Forage Mixture	Beans, Peas, Vetches, Oats, Wheat	Mar. 12, '25	Mar. 16, '25	June 29	July 5	July 6	21 cwt.
,, west ...	Fallow	—	—	—	—	—	—	—
Little Knott	Grass	Mixture‡	May 19, '25	May 20, '25	—	—	—	— §
Foster's, east ...	Barley	Plumage Archer	Mar. 19, '25	Mar. 20, '25	Aug. 18	Aug. 28	Aug. 31	48 bush.
,, west ...								
West Barnfield ...	Swedes	Webb's Purple	June 3, '25	June 8, '25	—	Nov. 11	Nov. 16	11 tons
	Potatoes	Kerr's Pink, King Edward, Great Scott	April 29, '25	May 4, '25	—	Oct. 6	Oct. 29	see p. 139
	Mangolds ...	Red Intermediate	May 11, '25	May 11, '25	—	Oct. 16	Oct. 24	see p. 144
Long Hoos, east ...	Oats	Grey Winter	Oct. 3, '24	Oct. 4, '24	July 20	Aug. 8	Aug. 17	68 bush.
,, west ...	Wheat	Red Standard	Oct. 17, '24	Oct. 17, '24	Aug. 11	Aug. 17	Aug. 18	40 bush.
New Zealand ...	Mangolds ...	Sutton's Prizewinner, Red Intermediate	May 14, '25	May 15, '25	—	Sept. 17	Oct. 15	25 tons
	Turnips ...	Mammoth Green Top	June 2, '25	June 2, '25	—	July 16	July 20	17 tons
Stackyard	Oats	Giant Eliza	Mar. 6, '25	Mar. 6, '25	Aug. 1	Aug. 15	Aug. 15	40 bush.
Great Harpenden ...	Clover	Broad Red	Mar. 18. '24	Mar. 21, '24	Aug. 15	Aug. 28	Oct. 15	Failed
	Beans	Spring	Feb. 19, '25	Feb. 21, '25	June 23	June 24	June 26	2 tons†
Sawpit	Clover	Broad Red ... {1st Crop / 2nd Crop}	April 4, '24	April 5, '24	June 15 / Sept. 26	June 19 / Oct. 10	June 20 / Oct. 15	30 cwt.
Sawyers	Wheat	Red Standard	Nov. 10, '24	Nov. 11, '24	Aug. 14	Aug. 31	Sept. 2	32 bush.
	Oats ...	Grey Winter	Nov. 24, '24	Nov. 26, '24	July 20	Aug. 6	Aug. 8	48 bush.
		Svalof Victory	Mar. 30, '25	Mar. 30, '25	Aug. 26	Sept. 7	Sept. 8	40 bush.
Broadbalk	Wheat	Red Standard	Oct. 24, '24	Oct. 24, '24	Aug. 17	Aug. 29	Aug. 29	see p. 132
Little Hoos	Fallow	—	—	—	—	---	—	~~see p.~~
Great Hoos	Barley	Plumage Archer	Mar. 19, '25	Mar. 19, '25	Aug. 29	Sept. 7	Sept. 8	see p. 135
Barnfield	Mangolds ...	Sutton's Prizewinner	May 15, '25	May 15, '25	Oct. 27	Oct. 27	Nov. 21	see p. 127
Agdell	Barley	Plumage Archer	April 3, '25	April 3, '25	Sept. 3	Sept. 22	Sept. 22	see p. 125
Great Field	Hay	—	—	—	June 18	June 22	June 23	25 cwt.
Park	Grass	—	—	—	June 12	June 17	June 18	see p. 128

* In the case of roots, the dates given are those on which lifting began and finished.
† Crop cut green for silage.
‡ The mixture consisted of Broad Red Clover; Wild White Clover: Indigenous Cocksfoot; Meadow Fescue; Timothy; Perennial Rye; Wild Perennial Rye; Rough-stalked Meadow Grass.
§ No yield. First year of permanent grass.

DATES OF SOWING AND HARVESTING (Harvest 1926).

Field.	Crop.	Variety.	Sowing began.	Sowing finished.	Cutting began.	*Carting began.	*Carting finished.	†Yield per acre.
Great Knott, west ...	Wheat	Red Standard Cambridge, Browick, Little Joss, Midlothian III	Oct. 26, '25	Oct. 29, '25	Aug. 20	Aug. 26	—	—
,, east	Fallow							
	Oats	Svalof Victory	—	—	—	—	—	—
Little Knott... ...	Grass	Permanent Grass	—	—	June 21	June 29	July 1	40 cwt.
Foster's, east ...	Clover	Broad Red, late flowering ...	—	—	June 22	July 1	July 2	37 cwt.
,, west ...	Clover	—	—	—	—	—	—	—
West Barnfield ...	Barley	Plumage Archer	Mar. 17, '26	Mar. 18, '26	Aug. 30	Sept. 11	—	—
Long Hoos, east ...	Winter Oats ...	Grey Winter	Oct. 9, '25	Oct. 10, '25	July 28	Aug. 16	Aug. 18	8 qrs.
,, west ...	Forage Crop ...	Beans, Peas, Vetches and Cereals	Oct. 14, '25	Oct. 15, '25	Sept. 9	Sept. 13	—	4 qrs.
Stackyard	Potatoes	Kerr's Pink	April 23, '26	—	Sept. 21	—	—	Av. 10 tn.
	Mangolds	Cannells QQ	April 14, '26	April 24, '26	Oct. 6	Oct. 13	Oct. 19	Av. 22 tn.
New Zealand ...	Barley	Plumage Archer	Mar. 16, '26	Mar. 16, '26	Aug. 23	Aug. 31	Sept. 10	—
Great Harpenden ...	Rye	Swedish	Oct. 29, '25	—	Aug. 11	Aug. 19	Aug. 20	5 qrs.
	Wheat	Red Standard	Oct. 30, '25	Nov. 11, '25	Aug. 16	Aug. 26	—	2½ qrs.
Sawpit	Grass	Permanent seeding	April 17, '25	April 19, '25	June 30	July 8	July 9	15 cwt.
Sawyers	Swedes	Dreadnought	June 14, '26	—	Dec. 1	Dec. 1	Dec. 20	19 tons
	Fallow	(White Mustard ploughed down)	July 2, '26	Ploughed down Sept. 2 to Sept. 20				
Broadbalk	Wheat	Red Standard	Nov. 25, '25	—	—	Sept. 1	Sept. 2	—
	Fallow							
Little Hoos ...	Swedes	Purple King	June 3, '26	—	Oct. 20	—	—	—
	Barley	Plumage Archer	April 7, '26	April 8, '26	Aug. 25	Sept. 10	Sept. 11	—
Hoos	Oats	Svalof Victory	—	—	Aug. 16	Aug. 30	—	6 qrs.
	Wheat and Fallow	Red Standard	—	—	—	—	—	—
Agdell	Clover (failed) ...	Broad Red	—	—	June 28	July 6	—	10 cwt.
	Mixed Legumes ...	Vetches, Oats, Italian Clover, etc.	April 16, '26	—	Ploughed down after math.			—
Great Field ...	Grazing Plots							
	Hay	—	—	—	June 21	June 28	July 7	33 cwt.
Park	Hay	—	—	—	June 15	June 31	July 5	—
					,, 22			
					,, 24			

* In the case of roots, the dates given are those on which lifting began and finished. † Estimates of standing crops.

CROP YIELDS ON THE EXPERIMENTAL PLOTS.

NOTES.—In each case the year refers to the harvest, *e.g.*, Wheat harvested in 1926.
In the tables, total straw includes straw, cavings and chaff.

CONVERSION TABLE.

1 acre	=	0.405	Hectare	0.963	Feddan.
1 bushel (Imperial)	=	0.364	Hectolitre (36.364 litres) ...	0.184	Ardeb.
1 lb. (pound avoirdupois)	=	0.453	Kilogramme	1.009	Rotls.
1 cwt. (hundredweight)	=	50.8	Kilogrammes	113.0 1.366	Rotls. Maunds.
1 metric quintal ...	=	100.0 220.46	Kilogrammes ... ... lb.		
1 bushel per acre	=	0.9	Hectolitre per Hectare ...	0.191	Ardeb per Feddan.
1 lb. per acre ...	=	1.12	Kilogramme per Hectare ...	1.049	Rotls per Feddan.
1 cwt. per acre ...	=	125.60 1.256	Kilogrammes per Hectare or metric Quintals per Hectare	117.4	Rotls per Feddan.

In America the Winchester bushel is used=35.236 litres. 1 English bushel=1.032 American bushels.

CROPS GROWN IN ROTATION. AGDELL FIELD.

PRODUCE PER ACRE.

Year.	CROP.	O. Unmanured.		M. Mineral Manure.		C. Complete Mineral & Nitrogenous M'nure	
		5. Fallow.	6. Clover or Beans.	3. Fallow.	4. Clover or Beans.	1. Fallow.	2. Clover or Beans.
AVERAGE OF THE FIRST NINETEEN COURSES, 1848–1923.							
	Roots (Swedes) cwt.*	32.7	11.2	175.7	195.9	355.3	302.0
	Barley—						
	Dressed Grain bush.	22.7	20.9	23.8	27.9	32.2	36.8
	Total Straw ... cwt.	13.9	13.7	14.0	16.0	19.5	22.6
	Beans—						
	Dressed Grain bush.	—	13.1	—	18.2	—	22.3
	Total Straw ... cwt.	—	9.2	—	13.2	—	15.3
	Clover Hay ... cwt.	—	28.3	—	54.1	—	55.0
	Wheat—						
	Dressed Grain bush.	24.2	22.8	28.5	31.2	29.5	31.2
	Total Straw ... cwt.	23.7	21.7	29.0	30.3	31.4	30.4
PRESENT COURSE (20th), 1924, 1925 and 1926.							
1924	Roots (Turnips) ... cwt.	2.9	0.7	42.8	31.5	127.4	104.7
1925	Barley—						
	Dressed Grain bush.	10 86	7.35	10.09	16.70	10.35	8.60
	Offal Grain ... lb.	42.0	49.0	94.0	38.0	53.0	59.0
	Straw ... ... lb.	633.0	678.0	602.0	866 0	626.0	541.0
	Total Straw ... cwt.	7.2	7.5	7.4	9.3	7.0	6.5
	Wt. of Dressed Grain per bush. lb.	52.7	51.6	52.5	53.6	53.3	54.3
	Proportion of Total Grain to 100 of Total Straw	76.3	50.7	75.5	89.2	77.0	72.4
1926	Clover Hay ... cwt.	—	14.2	—	32.2	—	26.3

* Plots 1, 3 and 5 based upon 18 years. Plots 2, 4 and 6 based upon 17 years.

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METEOROLOGICAL RECORDS, 1925 and 1926.

	Rain.		Drainage through soil.			Bright Sunshine.	Temperature (Mean).				
	Total Fall. 1/1000 Acre Gauge.	No. of Rainy Days. (0.01 inch or more) 1/1000 Acre Gauge.	20 ins. deep.	40 ins. deep.	60 ins. deep.		Max.	Min.	1 ft. in ground.	Solar Max.	Grass Min.
1925	Inches.	No.	Inches.	Inches.	Inches.	Hours.	°F.	°F.	°F.	°F.	°F.
Jan. ...	2.053	18	1.804	1.870	1.845	52.7	44.6	34.6	39.6	64.2	32.2
Feb. ...	3.940	16	3.413	3.452	3.457	68.3	45.3	35.7	40.0	83.4	31.7
Mar. ...	1.219	12	0.340	0.442	0.426	89.3	45.0	34.5	39.2	91.8	30.2
April ...	1.703	16	0.149	0.183	0.169	139.6	52.1	37.1	44.3	106.8	32.7
May ...	2.480	18	0.391	0.534	0.486	204.7	60.8	44.7	52.4	121.2	40.7
June ...	0.121	2	0.002	0.033	0.043	259.5	68.0	48.2	59.6	119.4	43.1
July ...	4.428	15	1.573	1.343	1.284	183.6	70.9	53.4	62.4	125.5	48.4
Aug. ...	2.972	15	1.048	1.180	1.095	133.1	65.8	52.8	60.1	116.9	49.1
Sept. ...	3.287	18	1.528	1.605	1.501	124.3	58.6	46.0	53.7	112.0	40.9
Oct. ...	3.013	14	2.078	2.203	2.037	102.9	56.5	44.2	51.0	97.7	39.9
Nov. ...	2.241	15	1.481	1.706	1.616	90.6	43.4	34.1	42.2	76.6	29.8
Dec. ...	2.127	16	1.900	2.052	1.903	57.8	41.3	31.3	36.3	60.6	27.6
Total or Mean	29·584	175	15.707	16.603	15.862	1506.4	54.4	41.4	48.4	98.0	37.2
1926											
Jan. ...	3·511	19	3.169	3.387	3.260	45.7	43.9	32.5	38.4	66.2	29.6
Feb. ...	2·494	17	2.112	2.431	2.298	40.6	48.4	39.5	42.1	72.5	35.4
Mar. ...	0·215	5	0.003	0.049	0.041	119.9	49.4	36.9	42.3	99.3	30.5
April ...	2·963	16	0.861	0.938	0.862	108.2	55.3	40.7	46.4	105.9	35.3
May ...	1·945	18	0.369	0.653	0.581	153.6	57.4	42.9	50.5	117.1	38.3
June ...	3·014	13	0.943	1.258	1.157	180.7	63.3	47.9	57.8	123.9	42.9
July ...	2·787	11	0.291	0.442	0.384	151.5	68.6	54.5	61.5	123.9	50.5
Aug. ...	1·190	9	—	0.035	0.033	195.2	69.0	52.8	60.9	122.8	47.4
Sept. ...	1·788	11	0.576	0.659	0.600	133.2	65.8	51.3	59.3	112.8	46.3
Oct. ...	2·672	14	1.149	1.230	1.135	98.5	52.4	40.3	48.9	95.9	35.7
Nov. ...	5·321	24	4.520	4.840	4.644	45.0	47.7	37.4	43.3	75.8	33.0
Dec. ...	0·477	6	0.329	0.525	0.467	64.5	42.3	33.8	38.8	67.8	29.9
Total or Mean	28.377	163	14.322	16.447	15.462	1336.6	55.3	42.5	49.2	98.7	37.9

RAIN AND DRAINAGE.

MONTHLY MEAN FOR 56 HARVEST YEARS, 1870-1—1925-6.

	Rainfall.	Drainage.			Drainage % of Rainfall.			Evaporation.		
		20-in. Gauge	40-in. Gauge	60-in. Gauge	20-in. Gauge	40-in. Gauge	60-in. Gauge	20-in. Gauge	40-in. Gauge	60-in. Gauge
	Ins.	Ins.	Ins.	Ins.	%	%	%	Ins.	Ins.	Ins.
September	2.384	0.785	0.753	0.689	32.9	31.6	28.9	1.599	1.631	1.695
October ...	3.161	1.830	1.789	1.662	57.9	56.6	52.6	1.331	1.372	1.499
November	2.725	2.055	2.091	1.971	75.4	76.7	72.3	0.670	0.634	0.754
December	2.857	2.439	2.525	2.411	85.4	88.4	84.4	0.418	0.332	0.446
January ...	2.389	1.942	2.123	2.043	81.3	88.9	85.5	0.447	0.266	0.346
February	2.039	1.515	1.618	1.545	74.3	79.4	75.8	0.524	0.421	0.494
March ...	2.027	1.091	1.221	1.154	53.8	60.2	56.9	0.936	0.806	0.873
April ...	2.053	0.660	0.730	0.696	32.1	35.6	33.9	1.393	1.323	1.357
May ...	2.054	0.484	0.550	0.516	23.6	26.8	25.1	1.570	1.504	1.538
June ...	2.245	0.560	0.588	0.567	24.9	26.2	25.3	1.685	1.657	1.678
July ...	2.746	0.726	0.748	0.696	26.4	27.2	25.3	2.020	1.998	2.050
August ...	2.662	0.699	0.704	0.660	26.3	26.4	24.8	1.963	1.958	2.002
Year ...	29.342	14.786	15.440	14.610	50.4	52.6	49.8	14.556	13.902	14.732

Area of each gauge $\frac{1}{1000}$th acre.

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MANGOLDS, BARN FIELD, 1925 and 1926.

Roots since 1856. Mangolds since 1876.

Produce per Acre.

Strip.	Strip Manures.	Cross Dressings. O. None.	N. Nitrate of Soda.	A. Ammon. Salts.	A.C. Ammon. Salts and Rape Cake.	C. Rape Cake.
	1925.	Tons	Tons	Tons	Tons	Tons
1	Dung only	R. **14.28**	**25.55**	**19.14**	**18.99**	**18.20**
		L. 2.77	5.98	6.35	6.74	5.77
2	Dung, Super., Potash ...	R. **16.19**	**27.13**	**25.21**	**23.22**	**23.25**
		L. 2.98	6.41	6.26	7.28	6.49
4	Complete Minerals ...	R. **3.25**	*a* R.**16.84*** L. 4.98	**14.27**	**22.43**	**16.07**
		L. 0.93	*b* R.**16.90** L. 5.65	3.68	6.05	3.98
5	Superphosphate only ...	R. **3.64**	**14.01**	**6.10**	**6.30**	**6.63**
		L. 1.12	4.32	3.69	4.51	4.26
6	Super. and Potash ...	R. **4.16**	**14.31**	**13.91**	**18.18**	**13.46**
		L. 1.11	4.36	3.59	5.90	3.66
7	Super., Sulphate of Mag., and Sodium Chloride	R. **3.49**	**14.81**	**14.21**	**13.37**	**12.09**
		L. 1.00	3.23	3.05	5.25	3.38
8	None	R. **2.32**	**4.94**	**2.81**	**5.25**	**4.03**
		L. 1.01	3.37	2.23	3.39	2.32
9	Sodium Chloride, Nit. Soda, Sulph. Potash, and Sulph. Mag. ...	R. **17.08**	—	—	—	—
		L. 3.83	—	—	—	—
	1926.					
1	Dung only	R. **21.16**	**31.39**	**21.77**	**18.35**	**19.39**
		L. 3.39	4.58	4.24	3.81	4.88
2	Dung, Super., Potash ...	R. **23.80**	**34.72**	**30.84**	**30.08**	**27.90**
		L. 3.25	4.83	5.22	6.07	5.47
4	Complete Minerals ...	R. **4.75**	*a* R.**24.07*** L. 3.93	**19.52**	**25.77**	**16.39**
		L. 0.85	*b* R.**23.75** L. 4.51	2.92	4.12	2.52
5	Superphosphate only ...	R. **4.81**	**18.39**	**9.25**	**8.29**	**10.28**
		L. 0.86	2.67	2.17	2.25	2.39
6	Super. and Potash ...	R. **5.41**	**20.80**	**17.86**	**21.05**	**13.29**
		L. 0.89	3.02	2.58	4.12	1.94
7	Super., Sulphate of Mag., and Sodium Chloride	R. **5.28**	**21.27**	**18.86**	**20.00**	**11.66**
		L. 0.96	3.24	3.08	3.94	2.36
8	None	R. **3.36**	**13.97**	**7.83**	**7.73**	**8.04**
		L. 0.81	3.72	3.02	2.41	2.57
9	Sodium Chloride, Nit. Soda, Sulph. Potash and Sulph. Mag. ...	R. **25.09**	—	—	—	—
		L. 3.11	—	—	—	—

R.=roots. L.=leaves.

* From 1904 onwards plot 4 N has been divided, 4*a* receiving Sulphate of Potash, Sulphate of Magnesia, Sodium Chloride and Nitrate of Soda; 4*b* receiving Calcium Chloride, Potassium Nitrate and Calcium Nitrate.

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HAY. THE PARK GRASS PLOTS. 1925, 1926.

Plot	Manuring per acre		1925 Yield of Hay per acre 1st Crop	1925 Yield of Hay per acre 2nd Crop	1925 Yield of Hay per acre Total	1925 Dry Matter per acre 1st Crop	1925 Dry Matter per acre 2nd Crop	1925 Dry Matter per acre Total	1926 Yield of Hay per acre 1st Crop	1926 Yield of Hay per acre 2nd Crop§	1926 Yield of Hay per acre Total	1926 Dry Matter per acre 1st Crop	1926 Dry Matter per acre 2nd Crop	1926 Dry Matter per acre Total	Plot
			cwt.	cwt.	cwt.	lb.	lb.	lb.	cwt.	cwt.	cwt.	lb.	lb.	lb.	
1	Single dressing Amm. Salts (=43 lb. N.); (with Dung also 8 years, 1856-63) ...	not limed	15.1	16.1	31.2	1418	1268	2686	16.5	9.8	26.3	1602	881	2483	1
		limed ...	23.1	14.9	38.0	2075	1155	3230	21.9	9.2	31.1	2111	823	2934	
2	Unmanured (after Dung 8 years, 1856-63)	not limed	14.4	12.8	27.2	1308	974	2282	14.3	14.9	29.2	1303	1331	2634	2
		limed ...	21.7	12.8	34.5	1987	884	2871	16.3	8.5	24.8	1406	764	2170	
3	Unmanured	not limed	12.5	11.7	24.2	1122	871	1993	11.8	9.0	20.8	1026	807	1833	3
		limed ...	17.7	11.7	29.4	1647	863	2510	14.1	7.9	22.0	1285	711	1996	
4-1	Superphosphate of Lime	not limed	22.5	14.6	37.1	1971	971	2942	16.8	10.6	27.4	1511	952	2463	4-1
		limed ...	20.2	12.3	32.5	1839	839	2678	14.5	7.6	22.1	1229	682	1911	
4-2	Superphosphate of Lime and double dressing Amm. Salts (=86 lb. N.)	not limed	22.6	7.3	29.9	1812	570	2382	24.6	6.6	31.2	1843	595	2438	4-2
		limed ...	32.7	16.7	49.4	3126	1326	4452	37.1	10.1	47.2	3259	901	4160	
5-1	(N. half) Unmanured following double dressing Amm. Salts (=86 lb. N.) 1856-97 ...	not limed	13.9	8.0	21.9	1288	625	1913	12.6	8.8	21.4	1169	792	1961	5-1
5-2	(S. half) Superphosphate, Sulphate of Potash; following double dressing Amm. Salts (=86 lb. N.) 1856-97	not limed	24.2	14.9	39.1	2187	1152	3339	24.2	10.6	34.8	2137	951	3088	5-2
6	Complete Mineral Manure as plot 7; following double dressing Amm. Salts (=86 lb. N.) 1856-68	not limed	26.6	23.1	47.9	2320	1329	3649	31.5	15.7	47.2	2835	1402	4237	6
7	Complete Mineral Manure	not limed	28.2	22.8	51.0	2480	1403	3883	32.2	18.4	50.6	2949	1651	4600	7
		limed ...	35.0	19.1	54.1	2900	1051	3951	32.8	14.0	46.8	3450	1251	4701	
8	Mineral Manure without Potash	not limed	19.8	17.9	37.7	1714	1129	2843	20.0	14.3	34.3	1759	1277	3036	8
		limed ...	17.3	12.4	29.7	1575	873	2448	16.4	9.2	25.6	1473	901	2374	
9	Complete Mineral Manure and double dressing Amm. Salts (=86 lb. N.) ...	not limed	39.9	20.4	60.3	3617	1228	4845	42.5	18.6	61.1	3463	1666	5128	9
		limed ...	49.0	21.7	70.7	4455	1642	6097	54.1	22.5	76.6	4674	2019	6693	
10	Mineral Manure (without Potash) and double dressing Amm. Salts (=86 lb. N.) ...	not limed	28.1	10.1	38.2	2649	776	3425	25.6	11.9	37.5	2282	1064	3346	10
		limed ...	37.5	15.4	52.9	3524	1360	4884	38.0	18.5	56.5	3454	1656	5110	
11-1	Complete Mineral Manure and treble dressing Amm. Salts (129 lb. N.)	not limed	40.8	34.1	74.9	3607	2179	5786	55.4	28.3	83.7	4117	2536	6653	11-1
		limed ...	58.7	22.7	81.4	5338	1773	7111	54.5	23.0	77.5	4698	2065	6763	

11-2	As plot 11-1 and Silicate of Soda	not limed	49.5	30.3	79.8	4424	1950	6374	59.4	24.4	83.8	4535	2188	6723	11-2
		limed ...	63.9	26.4	90.3	5847	2150	7997	58.3	28.4	86.7	4860	2548	7408	
12	Unmanured	not limed	17.6	13.1	30.7	1630	1000	2630	18.4	15.4	33.8	1646	1376	3022	12
13	Dung 1905, and every fourth year since (omitted 1917), Fish Guano in 1907 and every fourth year since	not limed	45.8	26.9	72.7	4099	1461	5560	45.6	24.0	69.6	3767	2147	5914	13
		limed ...	38.5	25.3	63.8	3536	1406	4942	41.1	21.9	63.0	3465	1964	5429	
14	Complete Mineral Manure and double dressing Nitrate of Soda (=86 lb. N.) ...	not limed	61.1	25.2	86.3	4709	1886	6595	56.2	23.0	79.2	4626	2064	6690	14
		limed (Sun)	58.4	20.0	78.4	4725	1413	6138	55.9	16.7	72.6	4469	1499	5968	
		limed(Shade)	47.4	11.3	58.7	3846	781	4627	49.6	5.2	54.8	4181	465	4646	
15	Complete Mineral Manure as plot 7; following double dressing Nitrate of Soda (=86 lb. N. 1858-1875)	not limed	33.5	25.8	59.3	2854	1650	4504	30.5	19.5	50.0	2674	1750	4424	15
		limed ...	29.2	21.6	50.8	2676	1555	4231	25.8	13.4	39.2	2442	1196	3638	
16	Complete Mineral Manure and single dressing Nitrate of Soda (=43 lb. N.) ...	not limed	41.6	21.6	63.2	3480	1409	4889	38.6	18.8	57.4	2993	1688	4681	16
		limed ...	44.1	18.5	62.6	3763	1273	5036	38.0	17.1	55.1	3046	1529	4575	
17	Single dressing Nitrate of Soda (= 43 lb.N.)	not limed	26.8	15.9	42.7	2137	1024	3161	23.1	12.5	35.6	2010	1123	3133	17
		limed ...	30.8	14.9	45.7	2633	999	3632	28.5	12.6	41.1	2571	1127	3698	
18	Mineral Manure (without Super.), and double dressing Sulphate of Amm. (=86 lb. N.) 1905 and since; following Minerals and Amm. Salts supplying the constituents of 1 ton of Hay, 1865-1904 ...	not limed	17.7	14.6	32.3	1690	895	2585	19.4	24.0	43.4	1689	2147	3836	18
		limed (6788 lb.)	36.5	21.7	58.2	3372	1253	4625	49.7	24.2	73.9	4086	2165	6251	
		limed (3951 lb.)	29.8	18.7	48.5	2757	974	3731	39.1	19.0	58.1	3039	1703	4742	
19	Farmyard Dung in 1905 and every fourth year since (omitted in 1917) following Nitrate of Soda (=43 lb. N.) and Minerals, 1872-1904	not limed	29.4	18.4	47.8	2398	1123	3521	34.7	17.5	52.2	3106	1569	4675	19
		limed (3150 lb.)	27·0	15.0	42.0	2421	849	3270	30.0	8.7	38.7	2771	777	3548	
		limed (570 lb.)	27.0	14.1	41.1	2282	902	3184	32.6	10.8	43.4	3108	970	4078	
20	Farmyard Dung in 1905 and every fourth year since (omitted in 1917); each intervening year plot 20 receives Sulphate of Potash, Superphosphate and Nitrate of Soda (=26 lb. N.); following Nitrate of Potash and Superphosphate, 1872-1904	not limed	35.8	*	*	3010	*	*	47.1	18.1	65.2	4693	1625	6318	20
		limed (2772 lb.)	30.4	15.0	45.4	2654	1033	3687	43.9	11.5	55.4	4246	1027	5273	
		limed (570 lb.)	41.6	14.4	56.0	3513	977	4490	43.3	16.6	59.9	4243	1488	5731	

Ground lime was applied to the Southern portion (limed) of the plots at the rate of 2,000 lb. to the acre in the Winter of 1903-4, 1907-8, 1915-16, 1923-24, and at the rate of 2,500 lb. to the acre in the Winter of 1920-21, except where otherwise stated.

Up to 1914 the limed and unlimed plot results were not separately given in the Annual Report, but the mean of the two was given. From 1915 onwards the separate figures are given.

* Figures for this plot not recorded.

§ The second crop was carted green; the figures given are estimated hay yields, calculated from the dry matter.

The Park Grass Plots.

BOTANICAL COMPOSITION, PER CENT. 1923, 1st CROP.

Plot	Manuring	Liming	Gramineæ	Leguminosæ	Other Orders	"Other Orders" consist largely of	Plot
3	Unmanured	Limed ...	63.7	4.6	31.6	Plantago lanceolata; Poterium sanguisorba; Luzula campestris	3
		Unlimed ...	63.6	10.6	25.8	Plantago lanceolata; Centaurea nigra; Poterium sanguisorba	
7	Complete Mineral Manure	Limed ...	52.7	40.1	7.1	Achillea millefolium; Ranunculus sp.	7
		Unlimed ...	69.1	15.2	15.7	Plantago lanceolata; Spiræa ulmaria, etc.	
9	Complete Mineral Manure and double Amm. Salts	Limed ...	99.4	—	0.6	Rumex acetosa	9
		Unlimed ...	99.7	—	0.2	Rumex acetosa	
14	Complete Mineral Manure and double Nitrate of Soda	Limed ...	96.0	0.8	3.2	Taraxacum vulgare	14
		Unlimed ...	93.7	0.1	6.2	Taraxacum vulgare; Anthriscus sylvestris; Rumex acetosa	
15	As plot 7 following double Nitrate of Soda, 1858-75	Limed ...	69.2	18.3	12.4	Plantago lanceolata; Conopodium denudatum; Taraxacum vulgare	15
		Unlimed ...	57.8	15.4	26.8	Plantago lanceolata; Luzula campestris; Conopodium denudatum	
17	Single Nitrate of Soda	Limed ...	73.9	1.2	24.9	Plantago lanceolata; Leontodon hispidus; Centaurea nigra	17
		Unlimed ...	65.6	0.1	34.3	Plantago lanceolata; Leontodon hispidus; Centaurea nigra	
18	Mineral Manure (without Super.) and double Sulphate Amm. 1905 and since	L. 6,788 lb.	87.4	—	12.6	Rumex acetosa	18
		L. 3,951 lb.	85.6	—	14.4	Rumex acetosa	
		Unlimed ...	96.8	0.1	3.0	Rumex acetosa	
19	Farmyard Dung in 1905 and every 4th year since (omitted in 1917) ...	L. 3,150 lb.	72.4	17.0	10.6	Ranunculus sp.; Plantago lanceolata; Conopodium denudatum	19
		L. 570 lb. ...	79.2	10.0	10.7	Ranunculus sp.; Rumex acetosa; Conopodium denudatum	
		Unlimed ...	78.5	7.4	14.1	Ranunculus sp.; Rumex acetosa; Anthriscus sylvestris ...	
20	Farmyard Dung in 1905 and every 4th year since (omitted in 1917), each intervening year Sulphate Potash, Super., and Nitrate of Soda	L. 2,772 lb.	82.7	5.3	11.9	Anthriscus sylvestris; Ranunculus sp.; Conopodium denudatum; Tragapogon pratensis	20
		L. 570 lb. ...	82.5	10.6	6.8	Ranunculus sp.; Conopodium denudatum	
		Unlimed ...	88.2	2.5	9.3	Anthriscus sylvestris; Rumex acetosa: Ranunculus sp. ...	

The Park Grass Plots—*contd.*

BOTANICAL COMPOSITION, PER CENT. 1924, 1st CROP.

Plot	Manuring	Liming	Gramineæ	Leguminosæ	Other Orders	"Other Orders" consist largely of	Plot
3	Unmanured	Limed ...	51.2	14.5	34.3	Centaurea nigra; Scabiosa arvensis; Plantago lanceolata; Poterium sanguisorba	3
		Unlimed ...	50.0	8.0	42.0	Plantago lanceolata; Centaurea nigra; Leontodon hispidus; Poterium sanguisorba	
5-1	(N. half), Unmanured following double dressing of Amm. Salts (=86 lb. N.), 1856-97	Unlimed ...	68.0	1.7	30.3	Centaurea nigra; Scabiosa arvensis; Rumex acetosa ...	5-1
5-2	(S. half), Super., Sulphate of Potash; following double dressing of Amm. Salts (=86 lb. N.), 1856-97 ...	Unlimed ...	57.3	17.6	25.1	Rumex acetosa: Centaurea nigra; Luzula campestris; Achillea millefolium	5-2
7	Complete Mineral Manure	Limed ...	36.9	51.8	11.3	Heracleum sphondylium; Centaurea nigra	7
		Unlimed ...	47.1	33.3	19.6	Plantago lanceolata; Heracleum sphondylium; Conopodium denudatum; Achillea millefolium	
9	Complete Mineral Manure and double Amm. Salts	Limed ...	98.8	0.1	1.0	Conopodium denudatum; Rumex acetosa	9
		Unlimed ...	98.7	0.2	1.0	Heracleum sphondylium; Potentilla reptans	
14	Complete Mineral Manure and double Nitrate of Soda	Limed ...	84.9	6.2	8.9	Taraxacum vulgare; Anthriscus sylvestris	14
		Unlimed ...	90.2	0.4	9.4	Anthriscus sylvestris; Taraxacum vulgare	
18	Mineral Manure (without Super.) and double Sulphate Amm., 1905 and since	L. 6,788 lb.	91.8	0.1	8.1	Rumex acetosa; Conopodium denudatum	18
		L. 3,951 lb.	86.6	0.2	13.2	Rumex acetosa; Conopodium denudatum; Centaurea nigra	
		Unlimed ...	86.2	—	13.8	Heracleum sphondylium; Rumex acetosa	
19	Farmyard Dung in 1905 and every 4th year since (omitted in 1917) ...	L. 3,150 lb.	66.9	19.7	13.3	Ranunculus sp.; Taraxacum vulgare; Conopodium denudatum	19
		L. 570 lb. ...	69.0	21.6	9.4	Ranunculus sp.; Conopodium denudatum; Cerastium vulgatum	
		Unlimed ...	66.7	20.0	13.3	Ranunculus sp.; Conopodium denudatum; Centaurea nigra; Rumex acetosa	
20	Farmyard Dung in 1905 and every 4th year since (omitted in 1917) each intervening year Sulphate of Potash, Super. and Nitrate of Soda	L. 2,772 lb.	65.5	23.4	11.1	Taraxacum vulgare; Anthriscus sylvestris; Ranunculus sp.	20
		L. 570 lb. ...	57.8	30.5	11.7	Ranunculus sp.; Taraxacum sp.	
		Unlimed ...	71.2	16.8	12.0	Ranunculus sp.; Centaurea nigra	

WHEAT. BROADBALK FIELD, 1925.

Plot.	Manurial Treatment.	Top Portion.						Bottom Portion.						74 year Average 1852-1925.	
		Dressed Grain.		Offal Grain per Acre.	Straw per Acre.	Total Straw per Acre.	Proportion of Total Grain to 100 of Total Straw.	Dressed Grain.		Offal Grain per Acre.	Straw per Acre.	Total Straw per Acre.	Proportion of Total Grain to 100 of Total Straw.	Dressed Grain per Acre.	Total Straw per Acre.
		Yield per Acre.	Weight per Bushel.					Yield per Acre.	Weight per Bushel.						
		bush.	lb.	lb.	lb.	cwt.		bush.	lb.	lb.	lb.	cwt.		bush.	cwt.
2A	Farmyard Manure	10.5	58.4	88	1500	17.7	35.3	14.9	58.5	82	1591	19.1	44.6	26.8*	32.1*
2B	Farmyard Manure	15.1	59.1	151	1807	21.3	43.9	19.1	58.6	228	1907	22.8	52.9	33.5	34.2
3	Unmanured	6.7	58.8	49	518	5.8	68.3	5.7	58.1	37	569	6.5	50.8	11.7	9.8
5	Complete Mineral Manure	6.8	58.8	68	502	5.6	74.4	6.8	58.5	51	462	5.3	76.7	13.5	11.5
6	As 5, and Single Amm. Salts	10.1	58.7	87	707	8.1	74.7	10.1	58.7	80	784	9.2	65.5	21.7	20.3
7	As 5, and Double Amm. Salts	18.6	59.2	93	1558	17.9	59.6	21.4	54.7	100	1768	20.0	56.7	30.4	32.1
8	As 5, and Treble Amm. Salts	19.5	59.7	106	2182	25.0	45.5	21.7	59.0	95	1868	22.0	56.0	34.5	39.8
9	As 5, and Single Nitrate of Soda	16.3	58.2	45	1362	15.9	55.7	16.0	57.0	55	1534	17.6	49.1	18.8†	24.6†
10	Double Amm. Salts alone	14.0	59.2	138	1162	13.6	63.6	10.6	58.5	126	797	10.1	66.3	18.7	17.8
11	As 10, and Superphosphate	20.5	58.3	143	1558	17.7	62.3	16.9	57.2	142	1042	13.2	75.0	21.3	21.4
12	As 10, and Super. and Sulph. Soda	18.8	59.1	189	1496	17.3	67.0	18.0	58.6	189	1698	19.7	56.2	27.0	26.8
13	As 10, and Super. and Sulph. Potash ...	24.3	59.4	87	1832	21.4	63.8	22.2	59.0	64	2192	24.4	50.2	29.2	30.6
14	As 10, and Super. and Sulph. Magnesia ...	20.2	58.5	77	1556	17.9	62.8	21.7	58.9	78	2275	24.3	49.9	26.7	26.8
15	Double Amm. Salts in Autumn and Minerals	20.6	59.7	64	1460	16.6	69.6	16.3	59.5	66	1184	13.9	66.6	27.8	28.2
16	Double Nitrate and Minerals	21.2	59.5	104	2002	22.7	53.7	22.0	59.6	118	2175	24.5	52.0	29.9†	35.2†
17	Minerals alone, or double Amm. Salts alone in	9.7	59.6	68	624	7.1	81.1	10.7	60.0	56	692	8.0	77.9	27.8	27.7
18	alternate years	15.7	60.0	133	1272	14.6	65.8	14.2	59.8	157	1510	16.9	53.2	14.1	12.5
19	Rape Cake alone	12.6	59.7	55	1102	12.5	57.7	6.7	58.9	43	971	11.1	35.5	20.8‡	22.0‡
20	Mineral Manure (without Super.) and Amm. Salts	7.7	60.0	47	1045	11.6	39.1	—	—	—	—	—	—	16.5§	18.6§

* 26 years only, 1900-1925. † 41 years only, 1885-1925. ‡ 33 years only, 1893-1925. § 18 years only, 1906-1925 (no crop in 1912 and 1914).

WHEAT. BROADBALK FIELD, 1926.

Top portion fallowed.

Plot	Manurial Treatment	Dressed Grain		Offal Grain per Acre	Straw per Acre	Total Straw per Acre	Proportion of Total Grain to 100 of Total Straw
		Yield per Acre	Weight per Bushel				
		bush.	lb.	lb.	lb.	cwt.	
2A	Farmyard Manure	6.8	54.8	113	1979	24.6	17.6
2B	Farmyard Manure	6.5	55.5	133	2675	33.6	13.2
3	Unmanured	0.9	57.5*	9	135	1.8	30.2
5	Complete Mineral Manure	2.2	57.5	17	285	3.5	38.8
6	As 5, and Single Amm. Salts	5.9	56.8	50	1030	13.0	26.5
7	As 5, and Double Amm. Salts	5.7	55.1	91	1985	23.3	15.4
8	As 5, and Treble Amm. Salts	7.5	50.4	118	2973	33.5	13.2
9	As 5, and Single Nitrate of Soda	5.8	54.0	72	1293	16.0	21.8
10	Double Amm. Salts alone	4.4	51.3	84	1030	12.6	22.0
11	As 10, and Superphosphate	4.2	53.0	113	1360	17.7	16.8
12	As 10, and Super. and Sulph. Soda	7.1	54.1	149	1733	21.7	21.9
13	As 10, and Super. and Sulph. Potash ...	9.3	56.3	123	2205	26.4	21.7
14	As 10, and Super. and Sulph. Magnesia ...	8.6	54.6	135	1838	22.7	24.1
15	Double Amm. Salts in Autumn and Minerals	5.5	56.4	107	1408	18.9	20.4
16	Double Nitrate and Minerals	7.5	54.4	141	2283	27.8	17.8
17	Minerals alone or Double Amm.	6.4	56.0	88	1508	18.0	22.9
18	Salts alone in alternate years	3.6	56.0	60	668	9.0	27.2
19	Rape Cake alone	4.4	53.4	98	1503	17.6	16.6

* Adopted from plot 5.

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RED CLOVER grown year after year on rich Garden Soil, Rothamsted Garden.

Hay, Dry Matter, and Nitrogen per Acre, 1925 and 1926.

Year	No. of Cuttings	As Hay	Dry Matter	Nitrogen	Seed Sown
1925	2	1525	1270	33	April 17th, Re-seeded
1926	2	1248	1040	32	June 1st, Patched
Averages:					
25 years, 1854—1878		7664	6387	179	
25 years, 1879—1903		3924	3270	101	
20 years, 1904—1923		2640	2200	65	

WHEAT AFTER FALLOW (without Manure 1851, and since).

Hoos Field, **1925** and **1926.**

	1925	1926	Average 70 years 1856-1925
Dressed Grain { Yield per Acre—bushels	5.9	5.24	14.70
Dressed Grain { Weight per Bushel—lb.	58.9	58.2	58.8
Offal Grain per Acre—lb.	33.5	96.0	50.7
Straw per Acre—lb.	623.0	780.0	—
Total Straw per Acre—cwt.	6.8	9.0	12.7
Proportion of Total Grain to 100 of Total Straw	49.8	39.7	—

AVERAGE WHEAT YIELDS *of* VARIOUS COUNTRIES.

Country	Mean Yield per Acre 1901-10 bushels	Country	Mean Yield per Acre 1901-10 bushels
Great Britain	31.6	Denmark	41.3
England	31.7	Argentine	10.6
Hertfordshire	30.5	Australia	10.1
France	20.2	Canada	19.5
Germany	29.1	United States	14.3
Belgium	35.1	Russia—European	10.0

NOTE.—Figures for Great Britain, England and Hertfordshire are taken from the Board of Agriculture's "Agricultural Statistics," Vol. 46. Other figures from "Annuaire International de Statistique Agricole," 1910-12, and converted at the rate of 60 lb. per bushel.

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PERMANENT BARLEY PLOTS. Hoos Field, 1925, 1926.

PRODUCE PER ACRE.

Plot.	Manuring.	1925. Dressed Grain. Yield per Acre.	1925. Dressed Grain. Weight per Bushel.	1925. Offal Grain per Acre.	1925. Straw per Acre.	1925. Total Straw per Acre.	1925. Proportion of Total Grain to 100 of Total Straw.	1926. Dressed Grain. Yield per Acre.	1926. Dressed Grain. Weight per Bushel.	1926. Offal Grain per Acre.	1926. Straw per Acre.	1926. Total Straw per Acre.	1926. Proportion of Total Grain to 100 of Total Straw.	74 years Average Yield 1852—1926.† Dressed Grain per Acre.	74 years Average Yield 1852—1926.† Total Straw per Acre.
		bush.	lb.	lb.	lb.	cwt.		bush.	lb.	lb.	lb.	cwt.		bush.	cwt.
1 O	Unmanured	6.7	50.8	33	396	5.0	66.9	6.1	51.5	30	382	7.1	42.9	13.6	7.9
2 O	Superphosphate only	10.9	52.3	44	594	7.6	72.5	12.2	53.1	32	569	8.3	72.6	19.2	9.8
3 O	Alkali Salts only	5.0	50.0	26	355	4.5	54.0	4.8	50.8	41	374	5.7	39.6	14.5	8.6
4 O	Complete Minerals	7.1	51.8	43	470	6.3	58.0	12.9	52.5	135*a*	875	13.2	55.3*a*	19.3	11.0
5 O	Potash and Superphosphate ...	8.1	52.3	33	451	5.9	69.4	9.9	52.5	39	622	9.6	51.9	15.7	9.5
1 A	Ammonium Salts only	9.4	49.5	39	693	8.5	53.3	12.0	51.9	52	836	11.9	50.5	24.0	13.8
2 A	Superphosphate and Amm. Salts	19.0	52.5	147	1037	13.2	77.5	26.1	52.1	63	1546	18.9	67.4	36.4	20.7
3 A	Alkali Salts and Amm. Salts ...	11.0	51.8	55	864	10.9	51.2	11.3	50.6	65	1009	13.0	43.8	26.2	16.1
4 A	Complete Minerals and Amm. Salts	19.3	51.7	116	1372	16.6	59.6	30.1	51.7	74	2054	23.6	61.7	39.9	23.8
5 A	Potash, Super. and Amm. Salts ...	21.8	53.3	122	1436	17.5	65.4	24.2	53.0	50	1645	20.7	57.4	34.4	21.9
1 AA	Nitrate of Soda only	12.6	50.3	52	825	10.2	60.0	15.9	52.9	62	1084	16.0	50.6	24.5*	15.4*
2 AA	Super. and Nitrate of Soda ...	29.9	53.7	165	1623	20.2	78.3	31.0	52.1	78	1986	23.6	64.1	39.3*	23.3*
3 AA	Alkali Salts and Nitrate of Soda	10.0	50.0	76	803	10.4	49.4	10.3	50.3	70	1051	16.8	31.4	24.9*	16.5*
4 AA	Complete Minerals and Nitrate of Soda	18.7	53.0	96	1342	15.5	62.5	27.9	51.0	89	2167	24.5	55.1	38.2*	23.7*
1 AAS	As Plot 1 AA and Silicate of Soda	13.8	52.0	69	941	12.1	58.0	21.0	53.3	70	1359	17.7	59.9	30.5*	18.4*
2 AAS	,, ,, 2 AA ,, ,,	26.3	53.6	124	1381	17.5	78.2	37.8	52.0	94	2316	27.7	66.4	40.3*	24.2*
3 AAS	,, ,, 3 AA ,, ,,	12.5	52.3	96	963	12.2	54.8	16.6	52.3	107	1271	17.9	48.7	31.7*	20.1*
4 AAS	,, ,, 4 AA ,, ,,	17.9	52.9	66	1364	16.8	53.6	35.0	51.5	95	2299	27.0	62.8	40.6*	25.7*
1 C	Rape Cake only	24·5	52.9	87	1955	18.1	68.3	24.5	52.4	60	1559	19.1	62.9	35.9	20.7
2 C	Superphosphate and Rape Cake	21.9	54.4	128	1331	15.8	74.8	33.6	51.5	63	2019	23.4	68.4	38.4	22.1
3 C	Alkali Salts and Rape Cake ...	12.7	52.8	99	1001	12.5	54.7	20.4	52.2	39	1570	18.8	52.3	34.2	20.6
4 C	Complete Minerals and Rape Cake	21.3	53.2	85	1298	15.5	69.9	34.6	52.0	64	2107	25.5	65.2	38.0	22.8
7—1	Unmanured (after dung 20 years, 1852—71)	7.0	51.5	76	475	6.3	61.7	11.0	53.3	48	725	10.9	51.6	22.8‡	13.7‡
7—2	Farmyard Manure	22.0	52.3	121	1158	15.9	71.4	35.8	52.1	88	2331	27.6	63.3	45.1	28.1
6—1	Unmanured	5.7	50.5	54	354	4.9	62.6	7.1	51.5	50	485	7.8	47.3	14.9	8.7
6—2	Ashes from Laboratory furnace ...	7.5	51.0	36	431	5.6	66.4	9.6	52.4	43	620	8.7	55.6	15.9	9.4
1 N	Nitrate of Soda only	11.8	51.8	80	820	11.3	54.7	14.3	52.0	70	1078	16.0	45.4	29.0§	18.0§
2 N	,, ,, ,, ...	16.8	53.3	63	1172	14.0	61.2	20.0	52.5	85	1436	19.6	51.6	32.1§§	20.1§§

† 1912, all plots were fallowed. * 58 years, 1868—1926. ‡ 54 years, 1872—1926. § 73 years, 1853—1926. §§ 67 years, 1859—1926.

a A large amount of black medic seed in Offal Grain.

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Little Hoos Field. Swedes, 1926.

Produce per acre. Roots and Leaves in Tons.

	Manurial Treatment	Roots	Leaves	Total	Season of last Dressing
A 1	Control	*12.61*	*2.31*	*14.92*	—
2		**21.79**	**3.94**	**25.73**	1926
3	Ordinary Dung, 16 tons	11.46	2.87	14.33	1921
4		8.25	2.44	10.69	1922
5		9.20	2.53	11.73	1924
B 1	Cake-fed Dung, 16 tons	**21.11**	**3.75**	**24.86**	1926
2	Control	*13.30*	*2.62*	*15.92*	—
3		14.95	2.99	17.94	1921
4	Cake-fed Dung, 16 tons	13.88	3.09	16.97	1922
5		12.74	2.94	15.68	1924
C 1	Shoddy; Superphosphate; Sulphate	**16.74**	**3.01**	**19.75**	1926
2	of Potash	13.44	2.62	16.06	1921
3	Control	*10.28*	*2.32*	*10 60*	—
4	Shoddy; Superphosphate	5.72	1.56	7.28	1922
5	Sulphate of Potash	1.87	0.56	2.43	1924
D 1	Guano; Sulphate of Ammonia ...	**17.31**	**3.20**	**20.51**	1926
2	Sulphate of Potash	13.71	2.68	16.39	1921
3		12.96	2.79	15.75	1922
4	Control	*11.34*	*2.36*	*13.70*	—
5	Guano; Sulphate of Ammonia, Sul-				
	phate of Potash	13.79	3.41	17.20	1924
E 1		**16.86**	**2.89**	**19.75**	1926
2	Rape Dust; Superphosphate	11.64	2.55	14.19	1921
3	Sulphate of Potash	8.71	2.08	10.79	1922
4		14.36	2.62	16.98	1924
5	Control	*10.81*	*2.42*	*13.22*	—
F 1	Control	*7.20*	*1.78*	8.98	—
2		**15.54**	**2.85**	**18.39**	1926
3	Superphosphate; Sulphate of Ammo-	5.95	1.40	7.35	1921
4	nia; Sulphate of Potash	6.59	1.41	8.00	1922
5		11.60	2.00	13.60	1924
G 1	Bone Meal; Sulphate of Ammonia;	**14.46**	**2.97**	**17.43**	1926
2	Sulphate of Potash	7.08	1.88	8.96	1921
3	Control	*3.86*	*1.09*	*4.95*	—
4	Bone Meal; Sulphate of Ammonia;	6.84	1.75	8.59	1922
5	Sulphate of Potash	8.89	2.02	10.91	1924
H 1		**13.40**	**2.08**	**15.48**	1926
2	Basic Slag; Sulphate of Ammonia;	9.50	1.88	11.38	1921
3	Sulphate of Potash	9.47	1.94	11.41	1922
4		9.88	1.85	11.73	1924
5	Control	*4.76*	*1.47*	*6.23*	—

1925, field fallowed.

NOTES.—Since 1919 the manure for each plot (except of series A and B) has been rationed at 40 lb. Nitrogen, 100 lb. Calcium Phosphate and 50 lb. Potash per acre. Each plot has been supplied with as much of its particular manure (shoddy, guano, etc.) as possible without exceeding the receipt in any of the three rationed ingredients. Any deficit in either of these three has been made good by adding the necessary quantity of Sulphate of Ammonia, Superphosphate, or Sulphate of Potash. No manure was applied for 1923 crop.

Figures in italics denote unmanured plots. The yield on the plots to which the manure was applied in a given season are printed in heavy type.

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Hay. Great Field, 1925 and 1926.

Plot.	Manurial Treatment. Quantities per Acre.	Yield per Acre. 1925. No Potash. cwt.	Yield per Acre. 1925. With Potash. cwt.	Yield per Acre. 1926. No Potash. cwt.	Yield per Acre. 1926. With Potash. cwt.	Dry Matter per Acre. 1926.* No Potash. lb.	Dry Matter per Acre. 1926.* With Potash. lb.
1 A	High Grade Slag, No. 12, 1,170 lb.	38.2	34.8	41.6	40.4	3628	3519
1 B		48.4	42.9	43.2	37.5	3776	3381
2 A	Open Hearth Slag, No. 13, 1,925 lb.	36.3	37.9	36.3	42.3	3159	3741
2 B		45.0	35.0	37.3	39.5	3214	3688
3 A	Open Hearth Slag, No. 14, 1,930 lb.	39.8	34.3	35.5	38.4	3198	3336
3 B		40.7	32.3	37.5	40.9	3384	3730
4 A	Gafsa Phosphate 750 lb.	47.0	32.7	39.6	41.1	3358	4129
4 B		42.5	32.7	37.3	42.3	3252	3940
A C	Control. No Manure	37.0	34.1	31.8	43.0	2853	3648
B C		45.2	35.7	40.2	38.2	3154	3397
7 C	Nauru Phosphate 263 lb.	37.1	35.5	—	—	—	—
7 D		33.6	32.9	—	—	—	—
8 C	Nauru Slag Phosphate, No. 8, 411 lb.	36.4	31.3	—	—	—	—
8 D		30.7	31.4	—	—	—	—
1 C	High Soluble Slag, No. 1, 872 lb.	33.6	38.8	—	—	—	—
2 C	Low Soluble Slag, No. 2, 1,225 lb.	30.7	33.4	—	—	—	—
3 C	Gafsa Phosphate, 347 lb.	30.5	36.1	—	—	—	—
4 C	Tunisian Phosphate, 336 lb. ...	33.4	34.8	—	—	—	—
5 C	Florida Phosphate, 292 lb. ...	36.4	35.5	—	—	—	—
C C	Control. No Manure	27.9	32.0	—	—	—	—
D C		30.0	27.1	—	—	—	—

Kainit at 4 cwt. per acre, applied January 28th, 1924.
* Dry Matter determinations were not made in 1925.
Series C and D were discarded in 1926.

Great Knott Field, 1926.

Produce per Acre.

Wheat Varieties	Dressed Yield per Acre. bush.	Grain Weight per bush. lb.	Straw per Acre lb.	Total Straw per Acre. cwt.	Proportion of Total Grain to 100 Total Straw
Red Standard	30.7	61.4	3105	31.4	54.6
Browick A	36.8	58.7	4118	42.8	49.4
Browick B	36.2	57.7	3406	35.5	53.5
Little Joss A	45.9	62.6	4795	48.3	55.5
Little Joss B	46.5	61.8	4630	47.2	57.4
R. Million A	37.1	61.4	3900	43.5	48.9
R. Million B	37.4	61.2	3224	38.9	54·8

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