Report 1915-17 With the Supplement to the Guide to the Experimental Plots Containing the Yields per Acre Etc.

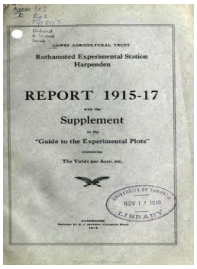

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Table of Results - the Classical Experiments

Rothamsted Research

Rothamsted Research (1917) *Table of Results - the Classical Experiments ;* Report 1915-17 With The Supplement To The Guide To The Experimental Plots Containing The Yields Per Acre Etc., pp 51 - 69 **- DOI: https://doi.org/10.23637/ERADOC-1-108**

DATES OF SOWING AND HARVESTING, 1915

Field.	Crop.	Variety.	Sowing began.	Cutting began.	Carting began.	Carting finished.	Yield per Acre.
Great Knott Wood, west	Oats	Grey Winter	Oct. 15, '14	Aug. 6	Aug. 21	Aug. 21	4 qrs.
,, ,, east	Swedes	Monarch	May 22, '15	... ...	... ...	... ...	... ...
,, ,, ,,	Brussels Sprouts	Sutton's Matchless ...	*June 30, '15	... ...	... ...	... ...	... ...
,, ,, ,,	Savoys	... ...					
Little Knott Wood ...	Oats	Grey Winter	Oct. 20, '14	Aug. 11	Aug. 24	Aug. 24	4½ qrs.
Sawpit	Clover	Red	Apr. 9, '14	June 19 Sept. 7	July 2 Sept. 14	July 3 Sept. 17	... ...
Great Harpenden, west	Wheat	Squareheads Master	Nov. 6, '14	Aug. 17	Aug. 25	Aug. 26	3⅛ qrs.
,, ,, east	Barley	Plumage Cross	Mar. 29, '15	Aug. 19	Aug. 26	Aug. 28	5 ,,
New Zealand	Grass	(Cattle Grazing)	... ...	... ...	... ...	... ...	... ...
Stackyard	Barley	Plumage Cross	Mar. 31, '15	Aug. 27	Sept. 6	Sept. 6	4½ qrs.
Long Hoos	,, ...	,, ,, ...	Mar. 22, '15	Aug. 30	Sept. 9	Sept. 13	3½ ,,
West Barn	Potatoes	King Edward	Apr. 4. '15	... ...	Sept. 21	Sept. 27	5¾ tons
		Arran Chief, Scottish Farmer					
		Dalhousie	Apr. 16, '15	... ...	Oct. 18	Oct. 23	
Foster's, west	Wheat	Squareheads Master	Nov. 4, '14	Aug. 23	Aug. 28	Aug. 28	2¾ qrs.
,, east	Oats	Grey Winter	Oct. 17, '14	Aug. 7	Aug. 23	Aug. 23	3½ ,,
Broadbalk	Wheat	Squareheads Master	Nov. 3, '14	Aug. 16	Aug. 24	Aug. 25	see p. 60
Little Hoos	Mangolds ...	Yellow Globe	May 15, '15	... ...	Nov. 15	Nov. 26	,, 63
Hoos	Barley	Archer's Stiff Straw	Apr. 3, '15	Aug. 28	Sept. 3	Sept. 4	,, 61
Barnfield	Mangolds ...	Sutton's Yellow Globe ...	Apr. 22, '15	... ...	Oct. 30	Nov. 10	,, 56
Agdell	Wheat	Squareheads Master	Nov. 10, '14	Aug. 17	Aug. 26	Aug. 27	,, 54
Greatfield	Grass	(Cattle Grazing)	... ...	... ...	... ...	... ...	... ...
Park	,, ...	... ...	... ...	June 21	June 23	June 26	see p. 57
,, ...	,, ...	... ...	... ...	Sept. 16	Sept. 20	Sept. 21	,, ,,

* Setting out.

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DATES OF SOWING AND HARVESTING, 1916.

Field.	Crop.	Variety.	Sowing began.	Cutting began.	Carting began.	Carting finished.	Yield per Acre.
Great Knott Wood, east	Barley	Burton Brewing	Apr. 28 ...	Sept. 4	Sept. 8	Sept. 12	3 qrs.
	Swedes	Magnum Bonum	June 14 ...	... ...	Jan. 1, '17	Jan. 15, '17	
,, ,, west	Potatoes ...	King Edward	May 24 ...	... ...	Oct. 20	Oct. 24	3½ tons
	Savoys	... ...	June 23* ...	... ...	Dec., sold	... ...	
	Mangolds ...	Yellow Globe	June 6 ...	... ...	Dec. 1	Dec. 4	
Little Knott Wood ...	Barley	Burton Brewing	Apr. 8 ...	Aug. 28	Sept. 14	Sept. 16	3½ qrs.
Sawpit, north	Wheat	White Chaff Browick	Nov. 9, '15	Aug. 24	Sept. 12	Sept. 13	3¾ ,,
,, south	Oats	Grey Winter	Oct. 15, '15	Aug. 9	Sept. 13	Sept. 14	
Great Harpenden, east	Wheat	Wilhelmina	Nov. 20, '15	Aug. 21	Sept. 11	Sept. 12	3½ qrs.
,, ,, west	Wheat	Rivetts	Nov. 16, '15	Aug. 21	Sept. 11	Sept. 12	
,, ,, ,,	Oats	Grey Winter	Oct. 13, '15	Aug. 8	Aug. 24	Sept. 26	4¾ ,,
	Beans	... ...	Apr. 15 ...	Sept. 27	Oct. 9	... ...	
	Winter Oats ...	Grey Winter	Apr. 8 ...	Aug. 12	Aug. 28	... ...	
	Wheat	Squareheads Master	Apr. 5 ...	Aug. 26	Sept. 9	... ...	see
New Zealand	Spring Oats ...	... ...	Apr. 14 ...	Sept. 7	Sept. 14	... ...	p. 69
	Barley	Plumage	Apr. 15 ...	Sept. 6	Sept. 14	... ...	
	Potatoes ...	... ...	May 30 ...	... ...	Oct. 27	Oct. 28	
	Mangolds ...	Yellow Globe	May 31 ...	Nov. 9	... ...	... ...	
Stackyard	Oats	Grey Winter	Oct. 10, '15	Aug. 7	Aug. 22	Sept. 24	3½ qrs.
Long Hoos, east ...	Clover	Red	Apr. 24, '15	June 22	July 5	July 21	
,, west ...	,, ...	,, ...	Apr. 24, '15	June 22	July 5	July 21	
West Barn	Wheat	Rivetts	Nov. 8, '15	Sept. 8	Sept. 21	Sept. 22	5 qrs.†
Foster's, east	Potatoes	King Edward, Arran Chief and Dalhousie	May 11 ...	... ...	Oct. 6	Oct. 20	3½ tons
,, west	Barley	Burton Brewing	Apr. 11 ...	Sept. 1	Sept. 18	Sept. 20	6½ qrs.
Broadbalk	Wheat	Squareheads Master	Nov. 4, '15	Aug. 22	Sept. 11	Sept. 12	see p. 60
Little Hoos	,, ...	,, ,, ...	Nov. 24, '15	Aug. 26	Sept. 13	Sept. 14	,, 63
Hoos	Barley	Plumage Cross	Apr. 4 ...	Sept. 1	Sept. 14	Sept. 16	,, 61
Barnfield	Mangolds ...	Sutton's Yellow Globe ...	May 11 ...	... ...	Nov. 1	Nov. 29	,, 56
Agdell	Swedes	Magnum Bonum	June 16 ...	... ...	Fb. 26, '17	Fb. 28, '17	,, 54
Greatfield	Grass	Cattle Grazing	... ...	... ...	... ...	... ...	
Park	,, ...	... ...	... ...	June 20	July 3	July 5	see p. 57
,, ...	,, ...	... ...	... ...	Mar. 9, '17	Mr. 14, '17	Mr. 14, '17	,, ,,

* Setting out. † Measured Plot.

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DATES OF SOWING AND HARVESTING, 1917.

Field.	Crop.	Variety.	Sowing began.	Cutting began.	Carting began.	Carting finished.	Yield per Acre.
Great Knott Wood, east	Oats	Grey Winter	Oct. 12, '16	Aug. 16	Sept. 1	Sept. 4	3½ qrs.
,, ,, west	Barley	Burton Brewing	Apr. 25 ...	Sept. 8	Sept. 14	Sept. 15	30·8†bus.
Little Knott Wood ...	Potatoes	(King Edward, Arran Chief, Scottish Farmer) ...	May 2 ...	... ...	Sept. 27	Oct. 15	5 tons
Sawpit, north	Oats	Grey Winter	Oct. 16, '16	Aug. 14	Sept. 3	Sept. 3	27·2†bus.
,, south	(Fallowed) ...	... ...	... ...	... ...	... ...	... ...	
		(Squareheads Master (10acres),	... ...	... ...	... ...	... ...	21·0†bus.
Great Harpenden ...	Wheat	Red Standard (10 acres),	Feb. 28, '17	Aug. 23	Sept. 5	Sept. 6	25·6†bus.
		Red Marvel (4 acres) ...	... ...	... ...	... ...	... ...	26·7†bus.
New Zealand	Barley	Burton Brewing	Apr. 21 ...	Sept. 11	Sept. 24	Sept. 25	24·8†bus.
Stackyard	Wheat	Rivetts	Nov. 1, '16	Sept. 13	Sept. 25	Sept. 26	10·9†bus.
Long Hoos	,, ...	,, ...	Nov. 1, '16	Sept. 12	Sept. 26	Sept. 28	½ qrs.
West Barn	Oats	Grey Winter	Oct. 16, '16	Aug. 17	Sept. 7	Sept. 8	2½ qrs.
Foster's, west	Clover	Red	May 1, '16	June 14	June 21	June 22	½ ton
,, east	Wheat	Red Standard	Nov. 15, '16	Aug. 21	Sept. 4	Sept. 5	21·4†bus.
Broadbalk	,, ...	,, ...	Dec. 1, '16	Aug. 22	Sept. 3	Sept. 4	see p. 60
Little Hoos	Clover	Red	Apr. 26, '16	June 15	June 22	June 23	,, 63
Hoos	Barley	Plumage Cross	Apr. 16 ...	Sept. 6	Sept. 10	Sept. 11	,, 61
Barnfield	Mangolds ...	Sutton's Yellow Globe ...	May 16 ...	... ...	Nov. 16	Dec. 3	,, 56
Agdell	Barley	Plumage Cross	Apr. 23 ...	Sept. 13	Sept. 22	Sept. 23	,, 54
Greatfield	Grass	... ...	... ...	June 26	July 3	July 7	
Park	,, ...	... ...	... ...	July 6	July 12	July 13	,, 57
,, ...	,, ...	... ...	... ...	Dec. 14	Dec. 15	Dec 28	,, ,,

† Measured Plots.

CROP YIELDS
ON THE EXPERIMENTAL PLOTS.

1 acre	=	0·404 Hectare
1 bushel	=	0·364 Hectolitre.
1 lb. (pound avoir.)	=	0·453 Kilogramme.
1 cwt. (hundredweight)	=	50·8 Kilogrammes.
1 metric quintal	=	100·0 Kilogrammes. 220·46 lb.
1 bushel per acre	=	0·9 Hectolitre per Hectare.
1 lb. per acre	=	1·12 Kilogramme per Hectare.
1 cwt. per acre	=	125·6 Kilogrammes per Hectare or 1·256 metric Quintals per Hectare.

Crops Grown in Rotation. Agdell Field.

PRODUCE PER ACRE.

Year.	CROP.	O. Unmanured.		M. Mineral Manure.		C. Complete Mineral and Nitrogenous Manure.	
		5. Fallow.	6. Beans or Clover.	3. Fallow.	4. Beans or Clover.	1. Fallow.	2. Beans or Clover.
SEVENTEENTH COURSE, 1912-15.							
1912	Roots (Swedes) Cwt.	8·2	2·3	151·7	251·9	586·6	463·0
1913	Barley Grain Bush.	18·5	24·6	24·7	33·2	22·0	32·5
	Barley Straw ... Cwt.	8·2	13·0	10·6	14·5	9·0	15·0
1914	Clover Hay ... Cwt. (1 crop)	—	4·1	—	6·5	—	3·9
1915	Wheat Grain Bush.	3·2	6·3	13·2	15·2	13·3	10·5
	Wheat Straw ... Cwt.	11·2	13·2	19·9	19·8	17·1	10·8
PRESENT COURSE (18th), 1916-17.							
1916	Roots (Swedes) Cwt.	12·5	1·4	125·2	145·3	285·2	37·8
1917	Barley Grain Bush.	9·4	2·5	14·2	15·2	13·1	15·0
	Barley Straw ... Cwt.	11·6	5·1	16·8	15·6	13·1	19·8

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METEOROLOGICAL RECORDS, 1915-17

	Rain.			Drainage through soil.			Bright Sunshine.	Temperature. (Means).	
	Total Fall.		No. of Rainy Days.						
	5-inch Funnel Gauge.	1/1000 Acre Gauge.	1/1000 Acre Gauge.	20 ins. deep.	40 ins. deep.	60 ins. deep.		Max.	Min.
1915	Inches.	Inches.	No.	Inches.	Inches.	Inches.	Hours.	°F.	°F.
Jan. ...	3·783	4·114	19	3·926	3·943	3·918	44·4	42·1	33·9
Feb. ...	4·198	4·540	20	3·942	3·845	3·830	82·0	44·3	32·7
Mar. ...	1·194	1·384	13	0·624	0·789	0·791	87·9	45·8	34·2
April ...	1·088	1·222	9	0·129	0·196	0·187	161·6	53·3	35·8
May ...	2·337	2·477	8	1·222	1·279	1·279	236·9	61·3	42·2
June ...	1·727	1·793	9	0·360	0·358	0·341	242·0	67·5	47·3
July ...	4·390	4·717	16	1·841	2·010	1·827	188·7	66·2	50·7
Aug. ...	2·385	2·587	14	1·166	1·235	1·154	173·7	67·2	52·1
Sept. ..	2·300	2·491	8	0·825	0·781	0·743	187·7	63·7	47·3
Oct. ...	2·375	2·597	13	1·453	1.301	1·204	63·4	53·8	41·8
Nov. ...	2·162	2·376	15	1·932	2·115	1·915	85·0	42·9	31·7
Dec. ...	5·149	5·561	25	5·316	5·381	5·232	33·5	46·6	35·6
Total or Mean	33·088	35·859	169	22·736	23·233	22·421	1586·8	54·6	40·4
1916									
Jan. ...	2·067	2·237	14	1·826	2·001	1·897	49·1	49·0	38·6
Feb. ...	3·279	3·974	23	3·387	3·337	3 273	76·5	42·4	32·5
Mar. ...	3·841	4·919	23	5·550	6·052	5 608	63·2	42·4	32·3
April ...	1·338	1·430	12	0·212	0·365	0·308	197·5	55·1	37·8
May ...	1·819	1·970	15	0·633	0·738	0·713	185·0	61·9	44·0
June ...	2·558	2·711	17	0·057	0·154	0·128	136·7	58·7	44·9
July ...	1·610	1·771	10	0·281	0·397	0·347	161·2	66·5	50·0
Aug. ...	3·319	3·576	16	1·111	1·209	1·156	174 4	69·6	53·0
Sept. ...	1·497	1·673	11	0·446	0·510	0 452	106·2	61·2	47·4
Oct. ...	3·399	3·696	24	2·104	2·095	2·022	88·5	56·5	44·3
Nov. ...	4·193	4·491	17	4·260	4·353	4·452	73·8	48·4	36·8
Dec. ...	3·065	3·386	16	3·088	3 162	3·023	24·8	39·7	29·7
Total or Mean	31·985	35·834	198	22·955	24·373	23·379	1336·9	54·3	40·9
1917									
Jan. ...	1·598	1·795	17	1·501	1·693	1·662	22·9	35·7	30·1
Feb. ...	0·787	0·927	11	0·758	0·566	0·694	49·8	37·7	28·1
Mar. ...	1·497	1·826	17	0·818	0·874	0 830	72.3	42·3	30·0
April ...	1·935	2·154	16	1·226	1·306	1·061	138·8	48·3	32·6
May ...	1·819	1·980	12	0·670	0·775	0·747	223·7	65·6	45·2
June ...	1·960	2·152	12	0·365	0·428	0·443	207·1	69·9	50·3
July ...	4·200	4·567	10	2·236	2·336	2 250	212·1	68·6	51·7
Aug. ...	6·049	6·514	22	4 378	4·424	4·250	147·9	65·3	53·4
Sept. ...	1·829	2·076	13	0·686	0·704	0·669	155·4	51·1	49·4
Oct. ...	4·636	5·097	22	3·403	3·242	3·133	155·3	52·3	38·1
Nov. ...	1·108	1·414	16	0·910	0·981	0·927	50·6	50·0	39·6
Dec. ...	0·651	0·761	14	0·182	0·189	0·201	70·4	39·1	29·0
Total or Mean	28·069	31·263	182	17·133	17·518	16·867	1506·3	52·2	39·8

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Mangolds, Barn Field, 1915, 1916, 1917.

Strip.	Strip Manures.	Cross Dressings. O. None.	N. Nitrate of Soda	A. Ammon. Salts.	A.C. Ammon. Salts and Rape Cake.	C. Rape Cake.
	1915	Tons.	Tons.	Tons.	Tons.	Tons.
1	Dung only	R. **16·36**	**26·85**	**21·42**	**22·56**	**21·97**
		L. 3·15	4·42	4·69	6·00	4·80
2	Dung, Super., Potash ...	R. **15·00**	**21·69**	**23·07**	**29·59**	**22·39**
		L. 2·82	4·24	4·96	6·62	4·57
4	Complete Minerals ...	R. **1·91**	R. **8·65**	**7·35**	**19·43**	**15·35**
		L. 0·67	L. 2·36	2·11	4·63	3·08
			R. **6·35** L. 1·96			
5	Superphosphate only ...	R. **1·29**	**2·22**	**0·94**	**4·72**	**2·86**
		L. 0·70	0·82	0·76	2·63	1·60
6	Super. and Potash ...	R. **1·71**	**7·54**	**4·82**	**10·13**	**6·77**
		L. 0·73	2·06	1·81	3·27	2·13
7	Super., Sulphate of Mag., and Sodium Chloride	R. **1·97**	**9·20**	**6·71**	**10·55**	**10·62**
		L. 0·83	2·56	2·17	3·38	2·54
8	None	R. **1·19**	**3·30**	**0·69**	**3·88**	**4·70**
		L. 0·75	1·52	0·59	2·42	1·95
	1916					
1	Dung only	R. **19·37**	**31·93**	**27·68**	**28·04**	**26·45**
		L. 3·09	4·54	5·97	5·37	4·81
2	Dung, Super., Potash ...	R. **23·59**	**33·91**	**34·17**	**36·78**	**32·45**
		L. 3·90	5·80	7·95	9·05	6·41
4	Complete Minerals ...	R. **3·24**	R. **21·42**	**19·65**	**34·28**	**27·37**
		L. 0·65	L. 3·77	3·24	4·60	3·40
			R. **20·68** L. 4·13			
5	Superphosphate only ...	R. **3·54**	**18·80**	**9·63**	**12·16**	**14·64**
		L. 0·66	2·92	3·51	3·06	2·97
6	Super. and Potash ...	R. **3·03**	**19·22**	**20·34**	**32·02**	**25·00**
		L. 0·62	2·43	2·78	5·68	2·33
7	Super., Sulphate of Mag., and Sodium Chloride	R. **3·54**	**20·25**	**20·99**	**30·10**	**27·15**
		L. 0·76	3·46	3·45	5·57	3·14
8	None	R. **2·32**	**10·28**	**6·85**	**10·66**	**11·59**
		L. 0·67	2·62	3·18	3·03	2·77
9	Sulphate of Mag. Sodium Chloride and Nitrate of Soda	R. **20·44** L. 2·70				
	1917				No Rape Cake.	No Rape Cake.
1	Dung only	R. **23·16**	**31·97**	**24·02**	**23·72**	**25·09**
		L. 2·88	3·34	2·52	2·78	3·46
2	Dung & Superphosphate (Potash omitted) ...	R. **27·71**	**32·68**	**32·45**	**33·44**	**31·05**
		L. 2·71	3·39	3·81	4·41	3·57
4	Sodium Chloride and Super. (Potash & Mag. omitted)	R. **3·92**	R. **17·93**	**19·21**	**22·57**	**19·15**
		L. 0·44	L. 1·79	1·68	2·72	1·97
			R. **17·12** L. 1·94			
5	Superphosphate only ...	R. **3·28**	**15·03**	**6·85**	**8·36**	**9·90**
		L. 0·46	1·61	1·57	1·84	1·77
6	Superphosphate only (Potash omitted) ...	R. **2·38**	**13·87**	**15·11**	**20·60**	**15·46**
		L. 0·36	1·21	1·25	2·41	1·13
7	Sodium Chloride, and Superphosphate ...	R. **2·56**	**18·17**	**19·69**	**22·79**	**19·27**
		L. 0·41	1·56	1·47	2·40	1·38
8	None	R. **1·89**	**10·22**	**5·89**	**8·45**	**7·48**
		L. 0·38	1·51	1·46	1·54	1·23
9	Sodium Chloride, Nitrate of Soda	R. **19·56** L. 1·65				

R. = roots. L. = leaves. Tons per acre in all cases.

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Hay. The Park Grass Plots. 1915, 1916, 1917.

Plot.	Manuring.		Yield of Hay per acre. 1915. 1st Crop.	Yield of Hay per acre. 1915. 2nd Crop.	Yield of Hay per acre. 1915. Total.	Yield of Hay per acre. 1916. 1st Crop.	Yield of Hay per acre. 1916. 2nd Crop.	Yield of Hay per acre. 1917. 1st Crop.	Yield of Hay per acre. 1917. 2nd Crop.	Average for 57 years 1856-1912 (1st and 2nd crops).	Plot.
			cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	
1	Amm. Salts alone; with Dung 8 years, 1856-63	not limed	8·5	17·0	25·5	15·1	1·5	7·0	9·1	35·9	1
		limed ...	7·6	17·7	25·3	15·9		15·1			
2	Unmanured; Dung 8 years, 1856-63	not limed	5·9	13·4	19·3	10·8	·67	14·3	1·6	28·6	2
		limed ...	3·5	12·5	16·0	9·0		13·4			
3	Unmanured	not limed	5·3	10·9	16·2	7·4	·36	10·0	1·2	20·9	3
		limed ...	3·5	9·7	13·3	7·9		11·2			
4-1	Superphosphate of Lime	not limed	6·7	16·1	22·8	15·1	·39	21·3	2·7	21·6	4-1
		limed ...	4·5	14·4	18·8	10·8		16·1			
4-2	Superphosphate of Lime and Amm. Salts	not limed	3·3	6·6	9·9	18·3	·96	3·7	8·5	33·5	4-2
		limed ...	17·0	23·5	40·4	30·0		21·1			
5-1	(N. half) Unmanured; following Amm. Salts alone, 1856-97	not limed	2·1	5·0	7·0	8·4	·37	7·3	3·7	14·4*a*	5-1
5-2	(S. half) Complete Minerals; following Amm. Salts alone, 1856-97	not limed	9·2	14·9	24·2	16·3	1·3	20·5	9·1	23·2*a*	5-2
6	Complete Mineral Manure as plot 7; following Amm. Salts alone, 1856-68	not limed	18·7	28·3	47·0	20·8	2·7	29·2	21·0	37·2	6
		limed ...	16·3	29·2	45·4	21·5		27·0			
7	Complete Mineral Manure	not limed	18·8	28·7	47·5	31·0	2·4	39·5	20·2	40·9	7
		limed ...	8·5	16·7	25·2	12·4		18·7			
8	Mineral Manure without Potash	not limed	5·0	16·8	21·8	10·9	1·4	16·0	6·8	28·0	8
		limed ...	9·3	29·9	39·2	40·7		26·9			
9	Complete Mineral Manure and Amm. Salts	not limed	26·8	24·4	51·1	46·0	3·3	40·4	17·4	54·3	9
		limed ...	8·5	15·8	24·3	27·7		10·7			
10	Mineral Manure (without Potash) and Amm. Salts ...	not limed	26·4	19·0	45·4	31·4	2·4	26·0	20·9	47·7	10
		limed ...	24·9	39·0	63·8	52·7		7·1			
11-1	Complete Mineral Manure and extra Amm. Salts ...	not limed	45·0	30·2	75·2	54·8	3·9	40·3	15·5	66·5	11-1
		limed ...	30·0	36·9	86·9	54·1		21·4			
11-2	As plot 11-1 and Silicate of Soda	not limed	67·1	34·6	101·7	52·3	4·2	47·3	16·0	73·3	11-2
		limed ...	4·6	10·9	15·5	9·1	·53	14·1	4·5	23·9	
12	Unmanured	not limed	30·5	27·4	57·9	35·0	3·9	30·4	15·5	—	12
13	Dung and Fish Guano, once in 4 years	limed ...	29·1	29·0	58·1	27·4		27·7			13
14	Complete Mineral Manure and Nitrate of Soda = 86 lbs. N.	not limed	57·0	25·1	82·1	51·2	3·5	39·2	10·4	56·9	14
15	Complete Mineral Manure as plot 7; following Nitrate of Soda alone, 1858-75	not limed	15·0	26·9	41·8	20·4	3·3	22·2	15·0	36·8	15
		limed ...	47·2	28·6	75·8	39·5		44·7			
16	Complete Mineral Manure and Nitrate of Soda = 43 lbs. N.	limed ...	29·8	23·2	53·1	30·2	2·2	33·7	16·4	46·3	16
17	Nitrate of Soda alone	not limed	19·7	17·2	36·9	21·7	1·3	24·6	6·7	33·7	17
18	Potash, Sulphate of Soda, Magnesia, and Sulphate of Amm.	not limed	11·1	25·5	36·6	26·4	2·5	13·3	14·2	—	18
19	Farmyard Dung	not limed	17·3	19·1	36·4	23·1	1·7	25·0	12·7	—	19
20	Farmyard Dung	not limed	24·0	21·1	45·0	32·6	1·7	8·1	13·3	—	20

Ground lime was applied to the Southern portion (limed) of the plots at the rate of 2,000 lb. to the acre in 1903, 1937, and March, 1915.

In 1917 all Potash and Magnesia were omitted from the Mineral Manures in plots 5-2, 6, 7, 9, 11-1, 11-2, 14, 15, 16, and 18; and Dung was omitted from plots 19 and 20.

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.

a = Average for 15 years 1893-1912.

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The Park

BOTANICAL COMPO-

Plot.	Manuring.	Liming.	Crop.	1915. Gram-ineæ.	Legu-minosæ.	Other Orders.
3	Unmanured	Not limed	1st	52·52	5·29	42·19
		,,	2nd	42·08	11·49	46·43
4-1	Superphosphate of Lime	Whole plot	1st	44·91	17·45	37·64
		,,	2nd	45·39	8·87	45·73
4-2	Super. of Lime and Amm. Salts ...	Not limed	1st	93·63	—	6·37
		,,	2nd	98·98	0·24	0·77
4-2	Super. of Lime and Amm. Salts ...	Limed ...	1st	98·81	—	1·19
		,, ...	2nd	98·83	—	1·17
5-2	(S. half) Complete Minerals; following Amm. Salts alone, 1856-97 ...	Not limed	1st	79·07	6·02	14·91
		Whole Plot	*2nd	59·70	19·32	20·99
6	Complete Mineral Manure as plot 7; following Amm. Salts alone, 1856-68	Not limed	1st	51·38	33·79	14·83
		,,	2nd	60·94	27·92	11·14
7	Complete Mineral Manure	Not limed	1st	60·85	24·76	14·39
		,,	2nd	50·19	36·73	13·08
7	Complete Mineral Manure	Limed ...	1st	53·76	36·90	9·34
		,, ...	2nd	55·44	34·44	10·12
8	Mineral Manure without Potash ...	Not limed	1st	52·73	11·00	36·27
		,,	2nd	44·24	13·88	41·88
8	Mineral Manure without Potash ...	Limed ...	1st	50·54	22·43	27·03
		,, ...	2nd	40·51	22·21	37·27
9	Complete Mineral Manure and Amm. Salts	Not limed	1st	89·39	—	10·61
		,,	2nd	85·98	—	14·02
9	Complete Mineral Manure and Amm. Salts	Limed ...	1st	98·40	0·14	1·46
		,, ...	2nd	97·72	0·32	1·96
10	Mineral Manure (without Potash) and Amm. Salts	Not limed	1st	98·38	—	1·62
		,,	2nd	96·20	—	3·80
10	Mineral Manure (without Potash) and Amm. Salts	Limed ...	1st	99·64	—	0·36
		,, ...	2nd	99·00	—	1·00
11-2	Complete Mineral Manure and extra Amm. Salts and Silicate of Soda	Not limed	1st	99·71	—	0·29
		,,	2nd	99·59	—	0·41
11-2	Complete Mineral Manure and extra Amm. Salts and Silicate of Soda	Limed ...	1st	100·0	—	—
		,, ...	2nd	99·65	—	0·35
14	Complete Mineral Manure and Nitrate of Soda = 86 lb. N.	Not limed	1st	88·41	4·41	7·18
		,,	2nd	80·71	11·73	7·56
15	Complete Mineral Manure as plot 7; following Nitrate of Soda alone, 1858-75	Not limed	1st	49·77	38·94	11·29
		,,	2nd	54·84	32·74	12·42
19	Farmyard Dung	Not limed	1st	68·91	19·65	11·44
		,,	2nd	58·80	33·67	7·52
20	Farmyard Dung	Not limed	1st	76·95	11·91	11·14
		,,	2nd	73·81	14·98	11·20

* 2nd Crop was sampled from whole of plot 5 (i.e. 5-1 and 5-2).

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Grass Plots.

SITION, PER CENT.

1916.			1917.			"Other Orders" consist largely of	Plot.
Gramineæ.	Leguminosæ.	Other Orders.	Gramineæ.	Leguminosæ.	Other Orders.		
66·04	8·79	25·17	43·96	5·53	50·51	Leontodon hispidus and Centaurea nigra (very varied herbage)	3
64·12	7·49	28·39	51·44	4·98	43·58	Leontodon hispidus, Centaurea nigra, and Plantago lanceolata	4-1
99·63	—	0·37	91·8	—	8·2	Rumex acetosa	4-2
98·33	—	1·67	98·60	—	1·40	Rumex acetosa and Galium verum	4-2
85·34	2·33	12·32	72·56	10·96	16·48	Centaurea nigra and Rumex acetosa	5-2
74·08	17·42	8·50	61·64	25·87	12·48	Centaurea nigra and Achillea millefolium	6
74·84	15·14	10·02	59·11	11·36	29·52	Centaurea nigra and Achillea millefolium	7
69·94	26·31	3·75	70·96	18·21	10·83	Centaurea nigra	7
69·00	8·27	22·73	48·31	2·69	49·01	Centaurea nigra and Plantago lanceolata	8
71·34	7·50	21·16	58·70	4·70	36·60	Centaurea nigra and Plantago lanceolata	8
—	—	—	85·90	0·06	14·01	Rumex acetosa	9
—	—	—	98·28	—	1·72	Rumex acetosa and Achillea millefolium	9
—	—	—	93·18	—	6·82	Rumex acetosa	10
—	—	—	99·9	—	0·1	Rumex acetosa	10
100·0	—	—	—	—	—	... ...	11-2
99·36	—	0·64	—	—	—	Heracleum sphondylium and Rumex acetosa	11-2
83·75	6·68	9·57	—	—	—	Taraxacum vulgare, Anthriscus sylvestris	14
—	—	—	70·18	15·74	14·07	Achillea millefolium	15
74·46	19·20	6·34	68·7	21·38	9·92	Anthriscus sylvestris, Rumex acetosa, Centaurea nigra, Achillea millefolium	19
81·83	12·03	6·14	66·13	24·95	8·92	Anthriscus sylvestris, Centaurea nigra, Achillea millefolium	20

2nd Crop, 1916, was very small and was not sampled for Botanical Analysis.
2nd Crop, 1917, results not yet available.

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Wheat. Broadbalk Field, 1915-17. Produce.

Plot.	1915. (Top portion). Dressed Grain. Yield per Acre.	1915. (Top portion). Dressed Grain. Weight per Bushel.	1915. (Top portion). Straw per Acre.	1916. (Bottom portion). Dressed Grain. Yield per Acre.	1916. (Bottom portion). Dressed Grain. Weight per Bushel	1916. (Bottom portion). Straw per Acre.	1917. (Bottom portion). Dressed Grain. Yield per Acre.	1917. (Bottom portion). Dressed Grain. Weight per Bushel.	1917. (Bottom portion). Straw per Acre.	Average for 61 years, 1852-1912. Dressed Grain per Acre.	Average for 61 years, 1852-1912. Straw per Acre.
	Bushels	lb.	cwt.	Bushels	lb.	cwt.	Bushels	lb.	cwt.	Bushels	cwt.
2	32·2	62·0	37·8	33·3	61·0	41·3	16·1	57·6	14·8	35·2	34·8
3	12·1	62·3	12·4	16·4	61·0	15·8	8·2	59·9	5·5	12·6	10·3
5	15·8	62·6	15·8	18·5	60·2	20·8	9·9	60·8	7·1	14·5	12·1
6	26·7	62·7	27·4	25·4	60·8	24·1	18·1	61·3	13·4	23·2	21·4
7	33·9	62·4	34·5	31·3	60·3	40·9	23·3	60·3	18·3	32·1	32·9
8	37·5	61·5	40·9	31·7	60·5	42·4	30·3	59·7	25·5	36·6	41·1
9	30·3	62·5	32·2	29·2	60·6	35·5	20·6	57·7	18·8	—	—
10	19·3	62·4	20·4	18·5	60·3	26·6	13 8	57·1	9·9	20·0	18·4
11	28·2	61·6	27·5	13·6	59·3	24·9	14·6	57·7	11·3	22·9	22·3
12	33·0	61·5	32·3	22·5	59·7	33·6	19·0	58·5	13·7	29·1	28·0
13	33·2	60·6	38·0	25·1	60·2	35·8	29·8	60·3	22·9	31·0	31·5
14	30·5	60·6	31·0	21·4	59·6	32·5	21·2	59·7	15·6	28·8	28·0
15	19·0	60·6	23·6	21·8	60·6	27·8	27·0	60·5	20·1	29·9	29·7
16	31·8	61·1	42·5	26·0	60·1	36·1	25·7	58·7	22·5	—	—
17	16·1	61·3	18·8	21·7	61·1	33·2	11·1	59·8	7·9	29·9	29·5
18	24·1	61·8	28·0	19·6	61·0	20·4	23·0	60·8	17·1	14·9	13·0
19	25·5	61·9	27·3	20·3	61·0	23·4	11·1	57·1	9·5	*25·4	*25·7
20	16·9	62·0	23·1	—	—	—	—	—	—	—	—

NOTE.—The top portion (western half) was fallow in 1914 owing to the weedy condition of the field. The bottom portion (eastern half) was fallow in 1915.
* 20 years, 1893-1912.

Wheat. Broadbalk Field, 1915-17. Manures.

Plot.	1915 and 1916.	1917.
2	Farmyard Manure	Farmyard Manure
3	Unmanured	Unmanured
5	Complete Mineral Manure	Complete Minerals (Potash omitted)
6	As 5, and single Amm. Salts	As 5, and single Amm. Salts
7	As 5, and double Amm. Salts ...	As 5, and double Amm. Salts
8	As 5, and treble Amm. Salts	As 5, and treble Amm. Salts
9	As 5, and single Nitrate Soda ...	As 5, and single Nitrate Soda
10	Double Amm. Salts alone	Double Amm. Salts alone
11	As 10, and Superphosphate	As 10, and Superphosphate
12	As 10, and Super. and Sulph. Soda ...	As 10, and Super. (Sulphate of Soda omitted)
13	As 10, and Super. and Sulph. Potash	As 10, and Super. (Potash omitted)
14	As 10, and Super. and Sulph. Magnesia	As 10, and Super. (Magnesia omitted)
15	Double Amm. Salts in Autumn and Minerals	Double Amm. Salts in Autumn, and Minerals (Potash omitted)
16	Double Nitrate and Minerals	Double Nitrate and Minerals (Potash omitted)
17) 18)	Minerals alone, or double Amm. Salts alone, in alternate years	Minerals alone (Potash omitted), or double Amm. Salts alone, in alternate years
19	Rape Cake alone	Rape Cake alone
20	Mineral Manure (without Super.) and Amm. Salts	Sulphate of Soda, Sulphate of Magnesia, and Sulphate of Ammonium

NOTE.—No Autumn manures were applied for the 1915 crop: dressings were given in the Autumn of 1913, but not in 1914 as that half of the field was then left fallow. In 1916, Sulphate of Potash being short, the dressing was in each plot made up with the required amount of woodash.

ERRATA.—Plot 19, 1917, for "Rape Cake only" read "Rape Cake omitted," there being none applied in this year.

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Permanent Barley Plots. Hoos Field, 1915, 1916, 1917.

Plot.	MANURING 1915 and 1916.	MANURING 1917.	PRODUCE PER ACRE 1915 Dressed Grain.	1915 Weight per Bushel.	1915 Straw.	1916 Dressed Grain.	1916 Weight per Bushel.	1916 Straw.	1917 Dressed Grain.	1917 Weight per Bushel.	1917 Straw.	Average 60 years, 1852—1911. Dressed Grain.	Average 60 years, 1852—1911. Straw.
			Bush.	lb.	cwt.	Bush.	lb.	cwt.	Bush.	lb.	cwt.	Bush.	cwt.
1 O	Unmanured	Unmanured	8·5	51·8	5·1	23·4	55·8	11·4	7·9	48·4	5·3	12·7	8·4
2 O	Superphosphate only	Superphosphate only	10·9	52·3	7·7	36·5	55·3	16·8	12·1	48·9	7·3	19·7	10·0
3 O	Alkali Salts only	Sulphate of Soda	10·8	52·8	10·4	24·6	55·7	15·7	7·8	48·8	5·8	15·2	8·8
4 O	Complete Minerals	Super. and Sulphate of Soda	12·7	53·5	13·1	37·4	55·3	20·9	12·1	49·8	8·2	19·7	11·1
5 O	Potash and Superphosphate	Superphosphate	12·0	53·3	10·9	18·6	56·4	13·0	9·3	46·8	8·3		
1 A	Ammonium Salts only	Ammonium Salts only	21·5	51·6	8·5	34·8	54·6	17·4	11·7	46·6	8·9	25·5	14·7
2 A	Superphosphate and Amm. Salts	Super. and Amm. Salts	20·2	51·5	10·1	44·7	53·8	23·7	14·1	46·9	9·4	38·2	22·0
3 A	Alkali Salts and Ammonium Salts	Sulphate of Soda and Amm. Salts	29·2	51·9	13·5	*	54·2	21·9	13·7	46·8	9·7	28·0	16·9
4 A	Complete Minerals and Amm. Salts	Super., Sulphate of Soda and Amm.	38·1	53·0	18·5	46·8	54·3	27·5	17·2	46·8	13·1	41·5	25·0
5 A	Potash, Super. and Amm. Salts	Super. and Amm. Salts Salts	36·2	52·8	20·2	40·1	55·6	24·9	19·1	49·0	13·0		
1 AA	Nitrate of Soda only	Nitrate of Soda only	24·8	52·3	12·4	34·8	55·2	20·2	14·6	48·5	12·4	29·3	17·8
2 AA	Super. and Nitrate of Soda	Super. and Nitrate of Soda	32·9	53·1	16·9	47·4	55·5	28·5	22·9	48·5	13·7	43·1	26·3
3 AA	Alkali Salts and Nitrate of Soda	Sulphate of Soda and Nitrate of Soda	29·9	52·9	14·6	34·7	55·5	22·5	14·2	47·4	11·4	30·0	19·3
4 AA	Complete Minerals and Nitrate of Soda	Sulphate of Soda, Super. and Nitrate of Soda	35·2	53·6	17·1	45·1	55·1	28·8	22·4	49·1	15·2	42·7	27·3
1 AAS	As Plot 1 AA and Silicate of Soda	As Plot 1 AA and Silicate of Soda	31·7	53·0	15·0	41·1	55·3	22·1	18·9	48·5	11·4	32·8 (1)	19·7 (1)
2 AAS	,, ,, 2 AA ,, ,,	,, ,, 2 AA ,, ,,	36·2	53·0	18·6	50·6	55·3	29·2	23·5	50·3	15·5	42·3 (1)	26·0 (1)
3 AAS	,, ,, 3 AA ,, ,,	,, ,, 3 AA ,, ,,	31·8	53·2	16·0	39·2	55·3	23·3	16·4	49·9	13·7	35·2 (1)	21·7 (1)
4 AAS	,, ,, 4 AA ,, ,,	,, ,, 4 AA ,, ,,	36·2	53·6	17·9	46·2	54·9	29·0	21·2	50·3	15·4	43·6 (1)	27·7 (1)
1 C	Rape Cake only	Rape Cake omitted	34·0	53·2	14·7	45·4	55·2	23·9	10·7	45·9	6·8	38·3	22·1
2 C	Superphosphate and Rape Cake	Super. (Rape Cake omitted)	34·0	53·0	14·8	45·7	55·3	25·9	10·6	48·8	5·7	40·5	23·6
3 C	Alkali Salts and Rape Cake	Sulph. of Soda (Rape Cake omitted)	32·1	53·1	14·2	46·1	55·4	23·4	7·0	47·4	5·8	36·9	22·3
4 C	Complete Minerals and Rape Cake	Sulphate of Soda and Super. (Rape Cake omitted)	33·0	53·1	15·9	46·8	55·6	26·8	6·8	49·0	5·4	40·5	24·5
7—1	Unmanured (after dung 20 years, 1852—71)	Unmanured (after dung 20 years, 1852—71)	16·3	52·8	12·9	29·7	55·7	16·7	16·7	49·1	10·6	24·8 (2) 47·1	14·8 (2) 29·6
7—2	Farmyard Manure	Farmyard Manure	31·4	53·7	19·0	31·9	55·2	30·9	27·7	46·8	19·2		
6—1	Unmanured	Unmanured	9·7	52·0	6·2	25·8	55·0	14·3	12·4	48·3	7·7		
6—2	Ashes	Sifted Ashes from the Lab. furnace	7·3	52·5	6·0	29·4	54·4	16·7	11·8	48·0	7·3		
1 N	Nitrate of Soda only	Nitrate of Soda only	22·3	52·1	11·5	35·8	53·8	20·4	14·3	48·0	10·2		
2 N	,, ,, ,,	,, ,, ,,	29·3	53·2	14·3	43·4	55·2	25·2	18·5	48·0	12·9		

(1) 48 years, 1864—1911. (2) 40 years, 1872—1911. * Plot 3A figures lost.

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Hoos Field (formerly Potato Plots). No Manure since 1901.

Plot.	Manure given prior to 1901.	1915. OATS. Dressed Grain. Yield per Acre.	Weight per Bush.	Straw per Acre.	Total Produce per Acre.	1916. BARLEY. Dressed Grain. Yield per Acre.	Weight per Bush.	Straw per Acre.	Total Produce per Acre.	1917. BARLEY. Dressed Grain. Yield per Acre.	Weight per Bush.	Straw per Acre.	Total Produce per Acre.
	Previous Cropping: Potatoes, 1876-1901; Barley, 1902 and 1903; Oats, 1904; Barley, 1905-1911; Oats, 1912; Barley, 1913 and 1914.												
		Bush.	lb.	cwt.	lb.	Bush.	lb.	cwt.	lb.	Bush.	lb.	cwt.	lb.
1	Unmanured	9·7	32·3	8·3	1276	10·3	55·6	6·9	1402	5·1	49·5	3·7	707
2	Unmanured 1882 to 1901, previously Dung only	19·4	32·6	17·3	2618	17·8	56·1	10·8	2270	9·9	48·3	6·4	1244
3	Dung 1883 to 1901	23·6	30·2	20·8	3097	17·7	56·5	13·5	2579	8·0	49·1	6·3	1144
4	Dung 1883 to 1901	26·5	32·1	26·3	3842	21·0	56·2	14·7	2902	10·7	49·3	7·3	1408
	Previous Cropping: Potatoes, 1876-1901; Barley, 1902-1903; Oats, 1904; Plots 5, 7, 9, Cow Peas (failed), 1905; Plots 6, 8, 10, Red Clover, 1905; Red Clover, 1906-1911; Oats, 1912; Barley, 1913 and 1914.												
5	Ammonium Salts	13·3	34·0	14·4	2103	8·9	55·4	7·1	1335	5·6	49·5	3·7	725
6	Nitrate of Soda	11·6	32·8	14·3	2012	11·2	56·5	8·6	1647	7·7	49·5	4·6	947
7	Ammonium Salts and Mixed Minerals	25·8	33·0	25·2	3709	23·1	55·5	13·8	2896	12·9	48·7	7·3	1506
8	Nitrate of Soda and Mixed Minerals	28·7	33·5	27·4	4077	21·0	55·8	11·5	2508	11·9	50·3	6·9	1421
9	Superphosphate	22·0	32·6	19·3	2923	19·8	55·2	10·3	2296	6·9	49·3	3·9	812
10	Mixed Minerals	23·5	33·3	24·4	3572	22·5	55·7	13·3	2810	7·1	50·0	4·8	932

Little Hoos Field

PLAN OF ROTATION PLOTS

Arranged to test the RESIDUAL VALUE of VARIOUS MANURES in one, two, three, and four years after their application. Produce per acre.

			1915 (12th Season). Mangolds.			1916 (13th Season). Wheat.			1917 (14th Season). Clover.		
			Roots.	Leav's	Total Pr'd'ce.	Dress-ed Grain.	Straw.	Total Pr'd'ce.	1st Crop.	2nd Crop.	Total.
			Tons.	Tons.	Tons.	Bush.	cwt.	lb.	cwt.	cwt.	cwt.
A 1	Control		*5·36*	*2·03*	*7·39*	*20·7*	*19·1*	*3492*	*19·7*	*22·2*	*41·9*
2		*a*	9·44	2·16	11·60	**28·4**	**30·4**	**5292**	38·2	27·4	65·6
3	Dung (ordinary)	*b*	11·66	2·25	13·91	26·8	26·6	4766	31·7	27·7	59·4
4	16 tons per acre	*c*	9·37	1·97	11·34	25·7	25·1	4520	26·2	26·6	52·8
5		*d*	**13·53**	**2·92**	**16·45**	27·6	28·9	5040	31·9	26·1	58·0
B 1	Dung (cake fed)	*a*	9·52	2·44	11·96	**34·0**	**34·1**	**6003**	38·4	27·2	65·6
2	Control		*7·18*	*2·20*	*9·38*	*21·3*	*17·4*	*3324*	*19·1*	*21·7*	*40·8*
3	Dung (cake fed)	*b*	13·00	2·58	15·58	27·2	28·3	4952	34·3	26·9	61·2
4		*c*	11·81	2·47	14·28	26·6	27·1	4772	35·8	26·1	61·9
5	16 tons per acre	*d*	**15·27**	**3·02**	**18·29**	29·5	29·6	5135	32·7	26·9	59·6
C 1	Shoddy 956 lb. per	*a*	5·17	1·99	7·16	**13·6**	**14·7**	**2668**	17·6	24·0	41·6
2	acre	*b*	6·42	2·15	8·57	11·4	10·6	1961	18·6	21·7	40·3
3	Control		*6·87*	*2·39*	*9·26*	*16·5*	*12·6*	*2523*	*20·7*	*24·6*	*45·3*
4	Shoddy 956 lb. per	*c*	7·23	2·56	9·79	18·6	13·9	2800	19·7	25·1	44·8
5	acre	*d*	**8·71**	**2·79**	**11·50**	20·3	14·1	2923	17·6	26·6	44·2
D 1	Guano 776 lb. per	*a*	4·90	1·60	6·50	**22·0**	**20·4**	**3801**	19·4	27·4	46·8
2		*b*	7·37	1·96	9·33	17·1	13·0	2605	18·6	24·0	42·6
3	acre	*c*	7·35	2·06	9·41	18·2	11·1	2452	21·7	25·6	47·3
4	Control		*6·64*	*2·20*	*8·84*	*17·8*	*13·6*	*2734*	*20·4*	*27.2*	*47·6*
5	Guano	*d*	**8·39**	**2·69**	**11·08**	13·3	12·8	2348	19·7	29·0	48·7
E 1		*a*	5·30	1·81	7·11	**18·4**	**15·5**	**2986**	18·6	25·6	44·2
2	Rape Cake 1036	*b*	7·80	2·03	9·83	18·6	13·8	2768	18·9	26·1	45·0
3	lb. per acre ...	*c*	7·84	2·19	10·03	20·9	12·3	2749	19·7	24·3	44·0
4		*d*	**8·71**	**2·95**	**11·66**	14·6	13·0	2466	20·2	28·2	48·4
5	Control		*4·70*	*1·62*	*6·32*	*10·1*	*12·0*	*2084*	*21·1*	*28·5*	*52·6*
F 1	Control		*4·80*	*2·09*	*6·89*	*11·7*	*11·4*	*2119*	*14·2*	*26·9*	*41·1*
2		*a*	7·90	2·29	10·19	**19·9**	**14·2**	**2906**	18·1	23·8	41·9
3	Superphosphate	*b*	8·51	2·35	10·86	17·7	13·9	2729	16·5	25·9	42·4
4	600 lb. per acre	*c*	7·36	2·42	9·78	20·3	16·2	3165	19·9	29·3	49·2
5		*d*	**7·23**	**2·11**	**9·34**	19·6	16·0	3098	23·0	30·8	53·8
G 1	Bone Meal 430 lb.	*a*	6·24	2·23	8·47	**19·7**	**15·1**	**2980**	14·7	29·0	43·7
2	per acre ...	*b*	6·70	2·32	9·02	22·0	16·5	3235	15·2	29·3	44·5
3	Control		*5·90*	*2·08*	*7·98*	*20·4*	*16·3*	*3172*	*11·7*	*29·0*	*43·7*
4	Bone Meal 430 lb.	*c*	5·87	2·06	7·93	22·0	17·6	3430	17·8	29·5	47·3
5	per acre ...	*d*	**4·41**	**1·86**	**6·27**	23·6	18·7	3680	18·9	29·3	48·2
H 1		*a*	9·01	1·99	11·00	**24·1**	**17·6**	**3528**	24·3	24·6	48·9
2	Basic Slag 600 lb.	*b*	10·34	2·25	12·59	26·5	19·5	3867	21·7	23·8	45·5
3	per acre ...	*c*	10·05	2·13	12·18	27·7	19·9	3921	23·3	22·5	45·8
4		*d*	**8·56**	**1·93**	**10·49**	26·5	19·7	3874	21·0	22·8	43·8
5	Control		*6·23*	*2·11*	*8·34*	*24·6*	*19·3*	*3734*	*18·0*	*23·6*	*41·9*

a received its dressings in 1912, 1916.
b ,, ,, 1913.
c received its dressings in 1910, 1914.
d ,, ,, 1911, 1915.

NOTES AS TO MANURES.

The five plots of Series A to E which deal with nitrogenous manures received cross dressings as under:—
1904 3 cwt. Superphosphate per acre.
1906 3 cwt. Sulphate of Potash ditto.
1907, 1908, 1909 3 cwt. Superphosphate, each year.
1911 ditto plus 200 lbs. Sulphate of Potash, but no cross dressings have been applied since.

The five plots of Series F to H dealing with Phosphatic Manures received dressings as under:—
1904 1 cwt. Sulphate of Ammonia.
1905 ditto.
1906 2 cwt. ditto plus 3 cwt. Sulphate of Potash.
1907 1 cwt. Sulphate of Ammonia.
1908-10 ditto.
1911 ditto plus 200 lbs. Sulphate of Potash.
1912 1 cwt. Nitrate of Soda.
1914 1 cwt. Sulphate of Ammonia.
1915-16 ditto.

Clover was grown over the whole field in 1917; no manures applied in Autumn 1916 nor in Spring 1917.
Thirteen tons of dung per acre was used on A and B for 1916 crop.
Figures in italics denote the unmanured plots.
The yields on the plots to which the manure was applied in a given year are printed in heavy type.
In 13th season plots A and B were sown Nov. 24, 1915. C to H were sown Feb. 17, 1916.

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Long Hoos Field. Green Manuring. 1914-15.

WHEAT—Produce per Acre.

	No Treatment.		Dung 10 tons per Acre.		Mustard ploughed in	
	Grain.	*Straw.*	*Grain.*	*Straw.*	*Grain.*	*Straw.*
	Bushels.	cwt.	Bushels.	cwt.	Bushels.	cwt.
No artificials	14·4	14·6	16·4	20·5	20·8	30·5
Superphosphate 3 cwt. per acre	—	—	18·2	18·8	26·9	26·0
	—	—	19·6	19·0	29·1	26·8
Superphosphate 3 cwt. and Nitrate of Soda 1½ cwt. per acre	21·2	18·5	22·0	24·5	26·6	27·9
	—	—	21·6	24·7	27·2	32·5

SWEDES—Tons per Acre.

	No treatment.	Dung, 10 tons per Acre.	Winter Barley ploughed in.	Clover ploughed in.	Trifolium ploughed in.
No artificials	9·2	—	8·4	8·2	10·3
	11·3	—			
	7·6	—			
Superphosphate 3 cwt. per acre	—	12·0	10·6	10·7	11·0
	—	14·0	10·5	8·3	10·4
	—	12·8			
	—	12·9			
	—	12·7			
	—	13·3			
Superphosphate 3 cwt., Sulphate of Ammonia 1½ cwt. per acre	11·4	7·4	7·0	6·0	8·9
	13·3	9·3	12·9	11·0	12·3
	13·5	12·6			

No treatment / Dung } ploughed in January: fairly free from growth of weeds.

Winter Barley.—Ground well covered but not much bulk.
Clover.—Ground well covered but not much growth.
Trifolium.—Most of this died during winter, but there was a dense growth of annual weeds; not much bulk.

Barley (after Swedes). Long Hoos Field, 1916.

	No Treatment		Dung 10 Tons per Acre		Mustard ploughed in		Red Clover ploughed in		Rape ploughed in		Trifolium	
	Grain	*Straw*	*Grain*	*Straw*	*Grain*	*Straw*	*Grain*	*Straw*	*Grain*	*Straw*	*Grain*	*Straw*
	Bush	cwt.	Bush.	cwt.	bush.	cwt.	bush.	cwt.	bush.	cwt.	bush.	cwt.
No artificials	25·7	14·7	41·7	21·1	34·9	19·1	36·3	19·7	34·7	17·2	33·7	17·0
	32·1	17·4	45·2	24·2	30·0	14·1	37·3	18·4	32·7	15·6	36·5	19·5
	37·4	19·4	41·5	21·9								
	36·9	18·2	40·5	21·0								
	33·7	19·6										
Superphosphate 3 cwt. per acre	—	—	43·1	24·8	37·7	19·3	30·5	20·6	25·7	18·3	31·8	20·4
	—	—	46·7	26·4								
	—	—	33·3	21·6								
	—	—	38·7	21·3								
Superphosphate 3 cwt. per acre and Sulphate of Ammonia 1½ cwt. per acre	48·7	26·6	47·0	32·2	52·6	29·1	38·4	28·8	40·0	27·5	45·5	29·4
	49·8	27·5	46·1	33·9	51·6	29·8	53·7	29·6	51·7	28·8	53·3	28·9
	55·0	29·6	47·0	31·7								
	57·3	31·8	36·1	31·0								
	55·1	30·8										

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CROP YIELDS FROM DUNG STORED IN DIFFERENT WAYS.

Yield of Potatoes manured with bullock dung, 10 tons of stored manure per acre, stored in heaps for three months.

West Barnfield, 1915.

Yield of Potatoes in Tons per Acre.	No Manure.	Loose heap under cover.	Compact heap under cover.	Loose heap in the open.	Compact heap in the open.
Plot 1	5·21	9·29	9·23	8·18	7·61
2	4·95	8·36	8·82	8·00	7·18
3	5·18	—	8·93	7·89	7·32
Mean	5·11	8·82	9·00	8·02	7·38
Percentage increase over the unmanured plots	—	73·00	76·00	57·00	44·00
Weight of original dung, tons per acre	—	15·52	12·96	13·68	12·05

Great Harpenden Field, 1916.

Yield of Rivetts Wheat, manured at same rate from same heaps as above, six months later.

Dressed Grain per acre in bushels :—					
Plot 1	34·6	37·3	40·0	35·6	31·7
2	32·4	36·2	37·8	35·9	35·7
3	34·6				
4	31·1				
Mean	33·2	36·7	38·9	35·8	33·7
Weight of Grain per bushel in lb. :—					
Plot 1	56·0	55·1	55·3	55·0	56·1
2	54·3	55·3	55·0	56·9	55·5
3	56·0				
4	55·0				
Mean	55·3	55·2	55·2	56·0	55·8
Straw per acre in cwt. :—					
Plot 1	26·1	32·0	31·6	24·1	29·3
2	24·8	30·9	31·4	30·7	31·1
3	28·9				
4	27·7				
Mean	26·9	31·4	31·5	27·4	30·2
Total Produce per acre in lb. :—					
Plot 1	4975	5748	5893	4760	5168
2	4635	5550	5690	5610	5560
3	5275				
4	4885				
Mean	4943	5649	5792	5185	5364
Percentage increase in grain over the unmanured plots	—	10·5	17·2	7·8	1·5

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Residual effect of Dung stored in different ways.

Manure applied at the rate of 20 tons of original manure per acre for Potatoes in 1916, followed in 1917 by Wheat without manure.

Foster's Field.

POTATOES.	No Manure.	Compact heap in the open.	Compact heap in the open, covered with soil.	Compact heap under cover.
Weight of Potatoes. Tons per Acre	2·63	3·65	3·91	4·00
Percentage increase over Unmanured Plots	—	39	48	52
WHEAT.				
Weight of Grain per Acre ... lb.	1349	1637	1572	1752
Weight of Straw per Acre ... lb.	1870	2135	1965	2315
Weight of total Produce per Acre lb.	3219.	3772	3537	4067
Bushels of Grain per Acre	19·95	24·55	23·25	25·55
Percentage increase over Unmanured	—	23	16	28

EXPERIMENTS WITH VARIOUS NITROGENOUS MANURES.

Potatoes. Great Knott Wood Field, 1916.

Plot.	All plots received per Acre: Dung, 10 tons; Superphosphate, 2 cwt.; Bone Flour, 2½ cwt.	Weight of Potatoes per Acre.
	Additional Manure per Acre:—	Tons.
1	Nitrolim, 1 cwt.	5·45
2		5·20
3	No additional manure	4·80
4	Sulphate of Ammonia, 1 cwt.	5·00
5		4·54

Savoys. Great Knott Wood Field, 1916.

Plot.	All plots received per Acre: Dung, 10 tons; Superphosphate, 2 cwt.; Bone Flour, 1½ cwt.; Salt, 1½ cwt.	No. of plants per Acre.	Weight of produce per Acre.
			Tons.
1	Received an additional dressing of Nitrolim at	10600	13·04
2	1½ cwt. per Acre	12300	14·64
3	No additional manure	11800	11·52

Savoys. Little Knott Wood Field, 1917.

Plot.	All plots received per Acre: Dung, 10 tons, and Superphosphate, 2½ cwt.	No. of plants per Acre.	Weight per Acre.
	Additional Manure per Acre:—		Tons.
1	Sulphate of Ammonia, 2 cwt.	10380	15·24
2	Nitre Cake Sulphate of Ammonia, 2 cwt. ...	10450	14·59
3	No additional manure	10160	11·56
4	Decomposed Cordite, 275 lb.	11350	12·32

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EXPERIMENTS IN SOIL MANAGEMENT.

CHALKING.

Sawpit Field.

		Chalked in 1913.		Not Chalked.	
		20 loads per Acre Carted (1).	50 loads per Acre Dug (2).		
1914, OATS (Grey Winter—Yield per acre	bush.	37·3	41·1	—	44·6
1915, CLOVER—Yield per acre as Hay	cwt.	35·8	39·2	20·2	18·6
1916, WHEAT—Yield per acre Dressed Grain	bush.	33·8	30·2	24·2	31·3
Weight per bushel ...	lb.	62·0	63·3	62·4	63·0
Straw per acre	cwt.	40·3	35·0	30·5	35·5
Total Produce per acre ...	lb.	6878	6130	5163	6246
1917, OATS—Yield per acre Dressed Grain	bush.	29·7	27·1	23·6	28·3
Weight per bushel	lb.	33·3	36·4	36·8	35·3
Straw per acre	cwt.	22·8	22·9	23·2	23·6
Total Produce per acre ...	lb.	3842	3804	3675	3895

1, Chalk carted from Harpenden New Sewage beds, February, 1913.
2, Chalk dug on Sawpit Field, November, 1912, to March, 1913, and spread as dug.
Journal of Board of Agriculture, October 1916 (Vol. XXIII, No. 7, page 625) gives a detailed account of the method and cost of Chalking.

Great Harpenden Field.

	1914.	1915.							
	POTATOES (Dalhousie).	BARLEY. (Plumage Cross).				WHEAT. (Squareheads Master).			
		Dressed Grain.		Straw per Acre.	Total produce per Acre.	Dressed Grain.		Straw per Acre.	Total produce per Acre.
	Tons per Acre.	Yield per Acre. Bush.	Weight per Bushel. lb.	cwt.	lb.	Yield per Acre. Bush.	Weight per Bushel. lb.	cwt.	lb.
Unchalked ...	9·3	W 31·9	55·6	17·0	3788	20·2	62·0	19·2	3584
		E 40·5	55·9	21·2	4784	21·6	61·5	23·7	4228
Chalked in 1913 ... (about 20 loads per Acre)	8·8	W 31·9	55·5	18·8	4025	21·7	62·0	20·8	3859
		E 35·9	54·9	19·0	4212	17·6	62·0	20·1	3525

1916.	WHEAT. (Wilhelmina).				WINTER OATS.			
Unchalked	31·7	59·5	39·7	6631	29·4	42·2	20·5	3661
					33·3	45·0	19·5	3850
Chalked in 1913	27·3	59·0	37·3	6100	40·7	43·0	26·3	4825
					36·3	44·4	25·0	4553

1917.	WHEAT. (Red Standard).				WHEAT. (Squarehead's Master).			
Unchalked ...	24·2	61·2	18·7	3809	22·2	59·7	17·9	3539
	24·9	61·2	18·4	3801	19·1	58·8	15·9	3079
Chalked in 1913	27·7	60·8	20·1	4138	23·2	60·0	18·0	3643

W = West portion of plot. E = East portion.

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EXPERIMENTS IN SUBSOILING.

Potatoes. Great Knott Wood Field, 1916.

Plot.	All plots received per Acre: Dung, 10 tons; Superphosphate, 2 cwt.; Bone Flour, 2½ cwt.; Sulphate of Ammonia, 1 cwt.	Weight of produce per Acre.
		Tons.
4	Not subsoiled	5·00
5	Not subsoiled	4·54
6	Subsoiled for this crop	5·27
7	Subsoiled for this crop	5·50

Great Harpenden Field.

	1914.		1915.			1916.			1917.	
	POTATOES. (King Edward VII)		WHEAT. (Squarehead's Master).			WINTER OATS.			WHEAT. (Squareheads Master).	
	Tons per Acre.		1	2	3	1	2	3	1	2
Subsoiled in 1914	7·4 (mean of 4 plots)	Dressed Grain per Acre ... Bus.	20·3	19·4	16·4	30·5	30·9	29·3	19·0	21·5
		Weight per Bus. lb.	62·0	61·8	61·3	42·9	43·6	43·8	58·5	59·1
		Straw per Acre cwt.	20·8	18·8	21·2	20·9	21·1	23·0	16·2	17·9
		Total produce per Acre ... lb.	3775	3478	3541	3808	3863	4075	3123	3450
Not subsoiled	6·9 (mean)	Dressed Grain per Acre ... Bus.	19·1	15·5	13·7	29·4		33·3	22·2	19·1
		Weight per Bus. lb.	61·8	62·3	62·0	42·2		45·0	59·7	58·8
		Straw per Acre cwt.	21·0	16·3	15·8	20·5		19·5	17·9	15·9
		Total produce per Acre ... lb.	3709	2938	2788	3661		3850	3539	3079

Wheat after Fallow (without Manure, 1851, and since). Hoos Field, 1915, 1916 and 1917.

		1915.	1916.	1917.	Average 61 years, 1856-1916.
Dressed Grain ...	Yield—Bush. per Acre	7·1	8·8	6·6	15·6
	Weight per Bushel lb.	59 8	60·2	59·4	59·5
Straw	cwt. per Acre ...	8·4	7·8	7·8	13·4
Total produce ...	lb. per Acre	1462	1475	1346	2477

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COMPARISON IN VARIETIES OF WHEAT, 1917.

Great Harpenden Field.

	Red Standard.		Squareheads Master.		Red Marvel.	
Dressed Grain per Acre Bush.	24·2	24·9	22·2	19·1	25·2	28·3
Weight per Bushel ... lb.	61·2	61·2	59·7	58·8	59·3	60·6
Straw per Acre ... ... cwt.	18·7	18·4	17·9	15·9	19·5	22·2
Total produce per Acre lb.	3809	3801	3539	3079	3830	4354

METHODS of SOWING WHEAT after POTATOES.

	Produce per Acre.	Land ploughed Wheat then sown in usual way		Wheat ploughed in after being		Drilled on potato tilth, not plough'd
		Seed drilled.	Seed broad-casted.	De-posited by drill.	Broad-casted.	
Great Harpenden Field 1915. WHEAT. Squareheads Master.	Dressed Grain Bush.	24·6	25·0	24·0	24·6	23·4
	Weight per Bushel ... lb.	62·9	61·9	62·6	62·8	62·6
	Straw per Acre cwt.	21·1	23·4	19·7	21·4	20·3
	Total produce ... lb.	4084	4329	3855	4121	3898
West Barn Field, 1916. RIVETTS WHEAT.	Dressed Grain Bush.	46·1	42·9	36·9	40·4	37·9
	Weight per Bushel ... lb.	59·5	59·4	59·1	59·4	59·4
	Straw per Acre cwt.	34·4	35·7	28·7	32·1	29·8
	Total produce ... lb.	6722	6634	5479	6088	5690
Foster's Field, 1917. WHEAT. Red Standard.	Dressed Grain Bush.	23·9	—	13·8	—	—
		25·1	—	11·0	—	—
	Weight per Bushel lb.	60·5	—	60·0	—	—
		60·8	—	59·8	—	—
	Straw per Acre cwt.	23·8	—	14·1	—	—
		22·0	—	7·6	—	—
	Total produce lb.	4286	—	2525	—	—
		4124	—	1588	—	—

PLOUGHED UP GRASSLAND.

New Zealand Field, 1916.

This field had been pasture land for 8 years and was ploughed up in autumn of 1915. No manure was given.

	Produce per Acre.		Produce per Acre.
	Tons.		Tons.
Potatoes—"King Edward"	1·34	Mangolds	12·25
"Dalhousie"	1·07	,,	8·98

Beans—Crop failed, the seed being taken by birds.

	Yield per Acre. Grain.	Weight per Bush. Grain.	Weight per Acre. Straw.	Total Produce per Acre.
Wheat*	14·41 bush.	56·3 lb.	26·1 cwt.	4011 lb.
Barley	27·6 bush.	55·0 lb.	20·9 cwt.	3981 lb.
Winter Oats ...	45·7 bush.	40·2 lb.	30·9 cwt.	5553 lb.
Spring Oats ...	37·9 bush.	37·0 lb.	21·5 cwt.	3957 lb.

1917.—Barley was sown over the whole field and gave a yield of 24·8 bush. per acre.

* Crop attacked by birds.

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