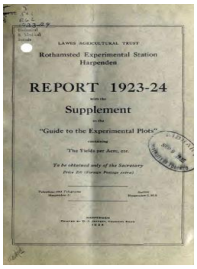
Report for 1923-1924 With the Supplement to the Guide to the Experimental Plots Containing the Yields per Acre Etc.



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Rothamsted Research

Rothamsted Research (1925) *Table of Results - Later Experiments ;* Report For 1923-1924 With The Supplement To The Guide To The Experimental Plots Containing The Yields Per Acre Etc., pp 114 - 129 **- DOI: https://doi.org/10.23637/ERADOC-1-116**

NITROGENOUS TRIALS.

Analyses of Manures used, 1923† and 1924.

Description.	% Nitrogen.
Sulphate of Ammonia	20·72
Muriate of Ammonia	24·75
Urea	46·65
Phosphazote (Tricalc. Phosphate 26·2%)	11·65

Except Top Dressing Oats, 1923.

MALTING BARLEY EXPERIMENTS.

Malting Barley (Plumage Archer). Long Hoos Field, 1923.

Manures per Acre.	Dressed Grain.		Offal Grain per Acre.	Straw per Acre.		Proportion of Total Grain to 100 of Total Straw.
	Yield per Acre.	Weight per Bushel.		Straw.	Total Straw.	
	bushels	lb.	lb.	lb.	cwt.	
Super. 3 cwt., Sul./Pot. 1½ cwt., Sul./Amm. 1 cwt.	32·5	56·4	78	1762	19·9	85·7
Super. 3 cwt., Sul./Pot. 1½ cwt., Mur./Amm. 104 lb.	35·6	56·1	91	1787	19·9	93·6
Super. 3 cwt., Sul./Pot. 1½ cwt. ...	19·9	55·0	59	1212	15·2	67·6
Super. 3 cwt., Sul./Amm. 1 cwt. ...	34·2	55·5	69	1265	17·4	100·8
Super. 3 cwt., Sul./Amm. 1 cwt., Mur./ Pot. 1½ cwt.	37·2	56·1	95	1787	19·7	98·9
Sul./Amm. 1 cwt., Sul./Pot. 1½ cwt.	34·4	54·9	84	1675	18·4	96·1
No Manure	22·2	54·1	81	1288	14·5	79.2

Clover (after Malting Barley). Long Hoos Field, 1924.

Manures per Acre. Applied in 1923.	Yield per Acre.			Dry Matter per Acre.		
	1st Crop.	2nd Crop.	Total Crop.	1st Crop.	2nd Crop.	Total Crop.
	cwt.	cwt.	cwt.	lb.	lb.	lb.
Super. 3 cwt., Sul./Pot. 1½ cwt., Sul./Amm. 1 cwt.	52·0	20·3	72·3	4796	1464	6260
Super. 3 cwt., Sul./Pot. 1½ cwt., Mur./Amm. 104 lb.	47·1	16·5	63·6	4149	1260	5409
Super. 3 cwt., Sul./Pot. 1½ cwt. ...	49·2	12·3	61·5	4439	936	5375
Super. 3 cwt., Sul./Amm. 1 cwt. ...	46·4	11·6	58·0	4207	875	5082
Super. 3 cwt., Sul./Amm. 1 cwt., Mur./Pot. 1½ cwt.	50·2	15·4	65·6	4344	1120	5464
Sul./Amm. 1 cwt., Sul./Pot. 1½ cwt.	49·3	16·9	66·2	4493	1250	5743
No Manure	47·8	9·6	57·4	4226	734	4960

Manures applied April 17th, 1923.

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Clover (after Malting Barley). Long Hoos Field, 1923.

Manuring per Acre, applied Spring 1922.	Yield per Acre. cwt.
Super. 3 cwt., Sulphate Potash 1½ cwt., Sulphate Ammonia 1 cwt.	36·8
Super. 3 cwt., Sulphate Potash 1½ cwt., Muriate Ammonia 93 lb.	37·1
Super. 3 cwt., Sulphate Potash 1½ cwt.	35·3
Super. 3 cwt., Sulphate Ammonia 1 cwt.	23·7
Super. 3 cwt., Sulphate Ammonia 1 cwt., Muriate Potash, 1½ cwt.	39·1
Sulphate Ammonia 1 cwt., Sulphate Potash 1½ cwt.	35·1
No Manure	31·0

Manures applied March 24th, 1922.

Malting Barley (Plumage Archer). Great Harpenden Field, 1924.

No. of Plot.	Manuring. Quantities per Acre.	Dressed Grain. Yield per Acre. bush.	Dressed Grain. Weight per bushel. lb.	Offal Grain per Acre. lb.	Straw per Acre. Straw. lb.	Straw per Acre. Total Straw. cwt.	Proportion of Total Grain to 100 of Total Straw.
1A	No Manure	27·2	53·8	172	1112	14·1	103·8
5B		22·6	52·6	200	863	12·1	102·8
6C		27·5	53·5	144	988	12·5	115·4
2A	Superphosphate 3 cwt., Sulphate of Potash 1½ cwt., Sulphate of Ammonia 1 cwt.	33·7	52·6	345	1575	18·5	102·0
6B		29·0	52·0	344	1338	16·4	100·7
4C		26·6	52·3	289	1188	14·6	102·5
3A	Superphosphate 3 cwt., Sulphate of Ammonia 1 cwt.	38·9	51·9	275	1663	19·1	107·1
7B		31·5	53·3	289	1388	17·0	103·4
2C		32·7	52·9	325	1575	19·5	94·0
4A	Sulphate of Potash 1½ cwt., Sulphate of Ammonia 1 cwt.	32·4	52·4	247	1438	17·2	101·0
1B		30·8	52·8	369	1525	17·9	99·8
7C		28·7	53·4	291	1300	15·4	105·6
5A	Superphosphate 3 cwt., Sulphate of Potash 1½ cwt.	25·6	51·8	184	988	12·3	109·8
2B		22·7	51·8	211	938	12·3	100·6
5C		17·9	51·8	228	738	9·7	106·0
6A	Superphosphate 3 cwt., Muriate of Potash 136 lb., Sulphate of Ammonia 1 cwt.	30·6	53·3	328	1400	17·3	100·9
3B		27·4	51·4	369	1288	15·8	100·2
3C		28·0	52·3	366	1338	16·4	99·5
7A	Superphosphate 3 cwt., Sulphate of Potash 1½ cwt., Muriate of Ammonia 94 lb.	24·1	51·8	325	1138	14·2	99·0
4B		29·8	53·0	372	1450	18·1	96·3
1C		35·2	53·4	347	1663	20·2	98·5

Manures sown March 17th, 1924.

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NITROGENOUS FERTILISER EXPERIMENTS, 1923 AND 1924.

Oats (Black Winter). Sawpit Field, 1923.

Treatment of Plots and Quantities per Acre.	Date of Application of Top Dressing.	Dressed Grain. Yield per Acre. bushels.			Dressed Grain. Weight per Bushel. lb.			Offal Grain per Acre. lb.			Straw per Acre. Straw. lb.			Straw per Acre. Total Straw. cwt.			Proportion of Total Grain to 100 of Total Straw.		
		Plot A	Plot B	Plot C	Plot A	Plot B	Plot C	Plot A	Plot B	Plot C	Plot A	Plot B	Plot C	Plot A	Plot B	Plot C	Plot A	Plot B	Plot C
No Manure	——	27·3	29·4	22·4	44·3	42·8	43·0	300	288	241	1500	1600	1350	18·1	19·9	16·1	74·5	69·4	66·8
No Manure	——	27·7	33·1	24·9	42·0	43·5	43·5	284	350	231	1600	1875	1525	19·0	21·7	17·2	68·1	73·7	68·2
Superphosphate, 2 cwt.	——	28·5	34·0	25·0	43·3	42·5	42·8	256	234	244	1700	1875	1325	19·0	21·7	16·7	70·0	69·3	70·0
Sulphate of Ammonia, 1 cwt. ...	April 23rd	36·3	38·9	34·0	42·4	42·3	41·5	331	337	319	2200	2325	2075	25·0	25·9	23·9	66·7	68·3	64·7
Superphosphate, 1 cwt., Sulphate of Ammonia, 1 cwt.	April 23rd	37·1	38·2	32·9	42·0	42·0	42·0	300	347	266	2250	2275	2025	25·7	25·0	22·8	64·6	69·8	64·6
Superphosphate, 2 cwt., Sulphate of Ammonia, 1 cwt.	March 28th	39·8	33·5	38·7	44·3	42·9	43·3	400	294	366	2375	2000	2525	27·2	23·0	28·3	70·9	67·2	64·3
Superphosphate, 2 cwt., Sulphate of Ammonia, 1 cwt.	April 23rd	38·8	34·7	39·7	43·5	43·4	43·6	416	372	356	2375	2150	2450	27·2	25·4	28·3	69·0	65·9	65·7
Superphosphate, 2 cwt., Muriate of Ammonia, 103 lb....	April 23rd	41·4	44·9	49·0	44·1	43·3	43·5	419	353	372	2550	2775	2750	28·1	30·1	31·0	71·2	68·0	72·0
Superphosphate, 2 cwt., Sulphate of Ammonia, 1 cwt.	May 22nd	29·2	37·4	37·2	42·1	43·8	42·3	338	394	350	1700	2075	2025	20·1	24·8	23·4	69·7	73·2	73·2
Superphosphate, 4 cwt., Sulphate of Ammonia, 2 cwt.	March 28th	44·1	52·1	43·1	43·5	43·8	42·9	456	406	394	3050	3450	2725	35·5	37·3	31·3	59·7	64·4	64·1
Superphosphate, 2 cwt., Sulphate of Ammonia, 2 cwt.	March 28th	44·5	54·0	40·9	43·5	44·9	43·5	406	597	375	3125	3750	2725	35·0	41·3	30·6	59·7	65·3	62·9
Superphosphate, 2 cwt., Sulphate of Ammonia, 2 cwt.	April 23rd	40·7	48·0	47·4	44·3	43·8	43·5	372	506	397	2475	3350	2775	27·9	37·3	31·0	69·5	62·4	70·8
Superphosphate, 2 cwt., Muriate of Ammonia, 208 lb....	April 23rd	49·7	47·1	53·2	43·8	43·5	43·9	544	425	441	3250	2800	3325	36·6	32·4	37·1	66·3	68·3	66·9
Superphosphate, 2 cwt., Sulphate of Ammonia, 2 cwt.	May 22nd	54·5	49·4	57·3	42·0	40·8	41·9	606	500	513	3050	2575	3100	34·8	31·0	35·7	74·2	72·3	72·8

Barley (Plumage Archer). Long Hoos Field, 1923.

Manuring per Acre.	Dressed Grain. Yield per Acre. bushels. 1st Plot.	Dressed Grain. Yield per Acre. bushels. 2nd Plot.	Dressed Grain. Weight per Bushel. lb. 1st Plot.	Dressed Grain. Weight per Bushel. lb. 2nd Plot.	Offal Grain per Acre. lb. 1st Plot.	Offal Grain per Acre. lb. 2nd Plot.	Straw per Acre. Straw. lb. 1st Plot.	Straw per Acre. Straw. lb. 2nd Plot.	Straw per Acre. Total Straw. cwt. 1st Plot.	Straw per Acre. Total Straw. cwt. 2nd Plot.	Proportion of Total Grain to 100 of Total Straw. 1st Plot.	Proportion of Total Grain to 100 of Total Straw. 2nd Plot.
Super. 2 cwt., Sulphate of Ammonia 1 cwt. ...	22·7	22·9	56·0	55·5	100	94	1550	1500	18·6	17·1	65·7	71·2
Super. 2 cwt., Sulphate of Ammonia 2 cwt. ...	27·5	27·6	56·0	56·3	119	84	1925	1675	21·0	18·6	70·5	78·3
Super. 2 cwt., Muriate of Ammonia 93¾ lb. ...	25·4	24·9	56·3	55·5	88	84	1500	1450	17·5	16·2	77·2	80·8
Super. 2 cwt., Muriate of Ammonia 187½ lb. ...	23·5	34·3	55·5	55·9	116	97	1700	1950	19·6	21·1	64·6	85·2
Super. 2 cwt., Urea 49¾ lb.	26·8	22·5	56·1	56·0	103	72	1500	1325	16·6	15·5	86·2	76·6
Super. 2 cwt.	18·0	24·3	56·0	55·3	78	103	1200	1375	14·0	15·6	69·4	82·5
Control—No Manure	19·6	20·1	56·5	55·8	94	88	1275	1325	15·7	15·2	68·1	71·1

Barley (Plumage Archer). Great Harpenden Field, 1924.

Basal Manure (= Superphosphate 2 cwt., S/Pot., 1 cwt.)	22·2	25·5	52·0	52·8	197	169	1225	1200	14·1	14·1	85·9	96·2
Basal Manure, Sulphate of Ammonia 1 cwt. ...	29·7	37·8	50·8	51·9	272	234	1650	1875	18·8	20·5	84·7	95·5
Basal Manure, Sulphate of Ammonia 2 cwt. ...	45·4	40·1	52·5	52·3	247	322	2350	2200	25·7	23·7	91·4	91·2
Basal Manure, Muriate of Ammonia 94 lb. ...	36·3	33·4	52·8	52·3	212	281	1825	1675	20·8	19·0	91·4	95·3
Basal Manure, Muriate of Ammonia 188 lb. ...	47·2	43·3	53·0	52·5	256	338	2375	2050	26·1	22·8	94·2	102·5
Basal Manure, Urea 50 lb.	30·4	27·7	51·8	51·0	297	253	1750	1550	19·6	17·2	85·1	86·5
	41·2	31·8	52·0	52·0	222	241	2150	1700	22·8	18·8	92·8	90·2
Control—No Manure	22·5	24·3	52·0	53·0	212	175	1225	1200	13·8	14·1	89·3	92·9

1923, Nitrogenous Manures applied as top dressing on May 19th.

1924, Nitrogenous Manures applied with seed on March 15th.

Potatoes (Kerr's Pink).

Treatment of Plots and Manuring per Acre.	Produce per Acre. 1st Plot. Tons.	2nd Plot. Tons.
Little Knott Field, 1923.		
Superphosphate 4 cwt., Sulphate of Potash 1½ cwt., Sulphate of Ammonia 3 cwt.*	15·6	14·9
Superphosphate 4 cwt., Sulphate of Potash 1½ cwt., Sulphate of Ammonia 1½ cwt.	14·4	13·0
Superphosphate 4 cwt., Sylvinite 273½ lb., Sulphate of Ammonia 1½ cwt.	14·8	12·6
Superphosphate 4 cwt., Sylvinite 273½ lb.	12·8	10·8
Superphosphate 4 cwt., Sulphate of Potash 1½ cwt.	12·0	12·0
Superphosphate 4 cwt., Sulphate of Potash 1½ cwt., Muriate of Ammonia 2½ cwt.	14·0	13·9
Superphosphate 4 cwt., Sulphate of Potash 1½ cwt., Sulphate of Ammonia 3 cwt.	15·4	14·9
Superphosphate 4 cwt., Sulphate of Potash 1½ cwt., Sulphate of Ammonia 4½ cwt.*	14·9	14·7
Superphosphate 8 cwt., Sulphate of Potash 3 cwt., Sulphate of Ammonia 3 cwt.	16·6	14·9
Superphosphate 8 cwt., Sulphate of Potash 3 cwt., Sulphate of Ammonia 4½ cwt.*	16·3	16·0
Foster's Field, 1924.		
Control. No Manure	5·4	7·5
Superphosphate 4 cwt., Sulphate of Potash 1½ cwt.	8·3	7·8
Superphosphate 4 cwt., Sulphate of Potash 1½ cwt., Sulphate of Ammonia 1½ cwt.	9·0	10·0
Superphosphate 4 cwt., Sulphate of Potash 1½ cwt., Sulphate of Ammonia 3 cwt.	10·2	8·6
Superphosphate 4 cwt., Sulphate of Potash 1½ cwt., Sulphate of Ammonia 3 cwt.*	8·4	9·9
Superphosphate 4 cwt., Sulphate of Potash 1½ cwt., Sulphate of Ammonia 4½ cwt.*	10·0	9·9
Superphosphate 4 cwt., Sulphate of Potash 1½ cwt., Muriate of Ammonia 2½ cwt.	8·6	10·2
Superphosphate 8 cwt., Sulphate of Potash 3 cwt., Muriate of Ammonia 5 cwt.	11·7	10·3
Superphosphate 8 cwt., Sulphate of Potash 3 cwt., Muriate of Ammonia 7½ cwt.†	10·3	10·7

* 1½ cwt. given as Top Dressing. † 2½ cwt. given as Top Dressing.

Date of application of Manures:—1923, May 12th and 14th; Top Dressings July 14th. 1924, May 9th; Top Dressings, July 9th.

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Swedes (Hurst's Monarch). Foster's Field.

Treatment of Plots and Manuring per Acre.	Produce per Acre.			
	Roots.		Leaves.	
	1st Plot. Tons.	2nd Plot. Tons.	1st Plot. Tons.	2nd Plot. Tons.
1923.				
Superphosphate 5 cwt., Muriate of Potash 1 cwt., Dung 10 tons	14·2	14·4	1·5	1·3
Superphosphate 5 cwt., Muriate of Potash 1 cwt., Dung 10 tons, Sulphate of Ammonia 2 cwt.* ...	17·1	16·4	1·8	1·6
Superphosphate 5 cwt., Muriate of Potash 1 cwt., Sulphate of Ammonia 2 cwt.*	16·0	15·4	1·6	1·5
Superphosphate 5 cwt., Muriate of Potash 1 cwt. ...	13·5	12·9	1·3	1·2
1924.				
Control. No Manure	24·3 20·5	23·0 28·5	3·3 2·1	2·9 3·5
Superphosphate 5 cwt., Sulphate of Potash 1 cwt. ...	27·5 22.0	26·2 27·0	3·0 2·3	3·2 3·1
Superphosphate 5 cwt., Sulphate of Potash 1 cwt., Sulphate of Ammonia ¾ cwt.§	27.2	25·0	3·0	2·9
Superphosphate 5 cwt., Sulphate of Potash 1 cwt., Sulphate of Ammonia 1½ cwt.§	28·8	27·6	3·3	3·2
Superphosphate 5 cwt., Sulphate of Potash 1 cwt, Sulphate of Ammonia 1½ cwt.†	26·0	28·7	3·3	3·3
Superphosphate 5 cwt., Sulphate of Potash 1 cwt., Sulphate of Ammonia 2¼ cwt.‡	28·2	28·7	3·8	3·5
Superphosphate 5 cwt., Sulphate of Potash 1 cwt., Sulphate of Ammonia 2¼ cwt.†	26·4	28·2	3·6	3·6
Superphosphate 5 cwt., Sulphate of Potash 1 cwt., Sulphate of Ammonia 2¼ cwt.§	27·3	27·6	3·4	3·5

* Applied as top dressing. July 14th, 1923.
§ Applied as top dressing. July 9th, 1924.
† ¾ cwt. applied as top dressing. July 9th, 1924.
‡ 1½ cwt. applied as top dressing. July 9th, 1924

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POTASSIC TRIALS.

Analyses of Manures, 1923 and 1924.

Description.	% K_2O 1923	% K_2O 1924
Sulphate of Potash	51·90	47·55
Muriate of Potash—High Grade	62·85	—
Muriate of Potash—Low Grade	56·35	51.36
Potash Manure Salts 30%	31·35	30·33
Potash Manure Salts 20%	21·35	22·21
Sylvinite	17·20	18·13
Kainit	13·45	—

Potatoes (Kerr's Pink). Foster's Field, 1924.

* Farmyard Manure Series (15 tons per Acre).

Manures per Acre.	Produce per Acre in Tons. Series D.	Series E.	Series F.	Series G.
Control. Farmyard Manure 15 tons	7·2	8·2	8.4	7·6
Basal Manure (Superphosphate 4 cwt., Sulphate of Ammonia 1½ cwt.)	9·7	9·9	9·2	7·9
Sulphate of Potash 191 lb., Basal Manure	8·8	8·6	8·8	9·1
Muriate of Potash 177 lb., Basal Manure	9·1	8·6	8·7	8·4
20% Potash Manure Salts, 408 lb., Basal Manure	9·4	9·5	8·6	9·4
Sylvinite 566 lb., Basal Manure	8·5	9·1	9·5	9·9

† No Farmyard Manure Series.

Manures per Acre.	Produce per Acre in Tons. Series W.	Series X.	Series Y.	Series Z.
Control. No Manure	5·0	4·7	5·5	5·2
Basal Manure (Superphosphate 6 cwt., Sulphate of Ammonia 2 cwt.)	7·9	6·1	6·0	4·8
Sulphate of Potash 255 lb., Basal Manure	7·6	8·2	6·7	6·6
Muriate of Potash 234 lb., Basal Manure	7·8	7·4	6·2	7·2
20% Potash Manure Salts 544 lb., Basal Manure	7·4	8·8	7·0	7·9
Sylvinite 6¾ cwt., Basal Manure	7·8	8·0	8·1	7·6
Sulphate of Potash 255 lb., Sulphate of Soda 830 lb., Basal Manure	8·2	7·0	7·5	7·9
Muriate of Potash 234 lb., Calcium Chloride 525 lb. Basal Manure	7·7	7·5	7·9	8·2

§ Potatoes (Kerr's Pink). Foster's Field, 1924.

Manures per Acre.	Produce per Acre in Tons. Series 1.	Series 2.	Series 3.
Control. No Manure	6·7	6·8	6·4
Sulphate of Potash 256 lb., Superphosphate 6 cwt., Sulphate of Ammonia 226 lb.	10·5	9·9	7·6
Superphosphate 6 cwt., Sulphate of Ammonia 226 lb.	10·0	8·1	3·4
Sulphate of Potash 512 lb., Superphosphate 12 cwt., Sulphate of Ammonia 452 lb.	11·9	9·3	10·5
Sulphate of Potash 125 lb., Superphosphate 3 cwt., Sulphate of Ammonia 113 lb.	9·1	8·1	6·2

* Manures applied, May 5-6th. † Manures applied, April 29th—May 5th.
§ Manures applied, May 15th.

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Potatoes (Kerr's Pink). Sawyer's Field, 1923.

Manuring per Acre.	Yield per Acre. 1st Plot.	2nd Plot.	3rd Plot.
With Dung, 15 tons per Acre.			
	Tons.	Tons.	Tons.
Basal Manuring (Superphosphate 4 cwt., Sulphate of Ammonia 1½ cwt.)	11·2	12·6	11·3
Muriate Potash 144 lb., Sul./Mag. 171 lb., Salt 452 lb., Basal	12·0	11·8	12·2
Muriate Potash 144 lb., Sul./Mag. 171 lb., Basal	12·6	12·3	14·2
Muriate Potash 144 lb., Salt 452 lb., Basal	10·6	11·7	12·4
Muriate Potash (High Grade) 144 lb., Basal	12·0	14·5	12·6
Muriate Potash (Low Grade) 161 lb., Basal	13·0	13·9	13·0
Potash Manure Salts 30% 290 lb., Basal	11·1	13·0	12·1
Potash Manure Salts 20% 424 lb., Basal	12·3	12·6	10·9
Sulphate Potash 178 lb., Basal	11·1	12·9	13·4
Sulphate Potash Mag. 328½ lb., Basal	12·1	12·1	14·5
Kainit 682 lb., Basal	12·4	10·3	12·2
Sylvinite 527 lb., Basal	9·8	9·7	11·9
No Artificial Manure	10·3	9·1	12·0
Without Dung.			
Basal Manuring (Superphosphate 6 cwt., Sulphate of Ammonia 2 cwt.	9·9	12·1	7·2
Muriate Potash 192½ lb., Sul/Mag. 228 lb., Salt 602½ lb. Basal	12·6	12·0	11·5
Muriate Potash 192½ lb., Sul/Mag. 228 lb., Basal	13·2	12·2	14·2
Muriate Potash 192½ lb., Salt 602½ lb., Basal	12·1	11·9	11·8
Muriate Potash (High Grade) 192½ lb., Basal	11·5	13·0	11·5
Muriate Potash (Low Grade) 215 lb., Basal	11·9	14·1	12·9
Potash Manure Salts 30% 386 lb., Basal	11·3	13·0	10·0
Potash Manure Salts 20% 565 lb., Basal	11·0	13·0	9·7
Sulphate Potash 237 lb., Basal	12·7	12·3	11·7
Sulphate Potash Mag. 438 lb., Basal	12·5	12·4	13·3
Kainit 908 lb., Basal	12·7	10·9	10·2
Sylvinite 702 lb., Basal	10·1	11·5	10·2
No Manure	6·9	8·4	8·6

NOTE: The potatoes when lifted were wet and dirty. Manures applied May 2nd, 3rd and 4th.

PHOSPHATIC TRIALS, 1923 AND 1924.

Analyses of Manures used.

No.	Description.	Total Phosphate as Tricalcic Phosphate.	Solubility %
Slag 1	Open Hearth Low Grade, High Sol.	25·0	90·4
,, 2	Open Hearth Low Grade, Low Sol.	18·0	35·7
,, 8	Open Hearth L. G. and Nauru Mineral Phosphate	53·1	25·5
,, 9	Open Hearth L. G., H. S. and Precipitated Bone Phosphate (4 : 1)	31·5	92·8
,, 10	Open Hearth L. G., H. S. and Gafsa Mineral Phosphate (3 : 7)	47·0	35·0
,, 12	Talbot Process H. G., H. S.	37·0	80·7
,, 13	Open Hearth L. G., H. S.	22·7	91·5
,, 14	Open Hearth L. G., L. S.	22·6	29·0
,, 20	Open Hearth L. G., H. S.	17·2	78·8
,, 21	Open Hearth L. G., L. S.	21·3	31·4
,, 22	Open Hearth L. G., H. S.	24·4	95·4
,, 23	Open Hearth H. G., L. S.	30·3	20·3
,, 24	Open Hearth H. G., H. S.	29·6	92·1
,, 25	Talbot Process H. G., H. S.	37·1	—
Mineral Phosphates.	Gafsa (1921—1923 Expts.)	62·9	—
	Gafsa (1924 Expts.)	55·0	—
	Nauru	83·0	—
	Tunisian	64·8	—
	Florida	74·8	—

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SLAG APPLIED IN SEASON OF GROWTH.

Clover. Long Hoos Field, 1924.

Manuring Per Acre.*	Produce Per Acre.						Dry Matter per Acre.					
	1st Crop.			2nd Crop.			1st Crop.			2nd Crop.		
	A Series cwt.	B Series cwt.	C Series cwt.	A Series cwt.	B Series cwt.	C Series cwt.	A Series cwt.	B Series cwt.	C Series cwt.	A Series cwt.	B Series cwt.	C Series cwt.
Slag No. 21, 100 mesh, 1028 lb. ...	40·7	49·0	50·0	22·6	17·3	12·1	3956	4628	4513	1845	1484	1025
Slag No. 22, 100 mesh, 896 lb. ...	41·4	48·8	48·8	19·8	20·2	11·9	3963	4686	4570	1693	1696	1047
Superphosphate 596 lb.	42·6	49·2	60·4	21·8	13·5	11·1	3869	4667	5350	1828	1160	931
Gafsa Phosphate 398 lb.	43·8	48·0	48·9	23·8	15·9	11·9	3973	4556	4372	2037	1346	1014
Sulphate of Potash 1 cwt. (= Basal) ...	42·7	46·3	50·0	18·6	21·3	11·1	4065	4273	4447	1624	1764	950
Control: No Manure	40·9	46·2	40·0	17·6	21·0	13·4	3333	4415	3642	1515	1770	1157

* All plots (except Control) received a basal dressing of 1 cwt. Sulphate of Potash per acre. Phosphate Dressings are at the rate of 100 lb. P_2O_5 per acre.

Slags applied January 24th, 1924.

Swedes (Hurst's Monarch). Foster's Field 1924.

Produce per Acre.

Manurial Treatment. Quantities per Acre.	Roots.			Leaves.		
	A Series. Tons.	B Series. Tons.	C Series. Tons.	A Series. Tons.	B Series. Tons.	C Series. Tons.
Control: No Manure	17·0	18·6	16·2	2·9	3·5	3·0
Basal Manure (Sulphate of Ammonia 186 lb., Sulphate of Potash 93 lb.) ...	18·7	19·3	19·3	3·2	3·9	3·8
Slag No. 21, 100 mesh, 772 lb., Basal Manure	19·5	19·5	17·0	3·7	4·1	3·3
Slag No. 22, 100 Mesh, 672 lb., Basal Manure	19·5	19·5	18·2	3·4	3·6	3·7
Gafsa Phosphate 248 lb., Basal Manure	19·9	19·2	18·7	3·5	4·0	3·6
Superphosphate 3½ cwt., Basal Manure...	20·9	21·6	19·2	3·8	4·4	3·6

Slags applied June 18th, 1924.

Barley (Plumage Archer). Great Harpenden Field, 1924.

Manurial Treatment. Quantities per Acre.	Dressed Grain. Yield per Acre in bushels.			Dressed Grain. Weight per Bushel in lb.			Offal Grain per Acre. lb.			Straw per Acre. Straw. lb.			Straw per Acre. Total Straw. cwt.			Proportion of Total Grain to 100 of Total Straw.		
	1st Series.	2nd Series.	3rd Series.	1st Series.	2nd Series.	3rd Series.	1st Series.	2nd Series.	3rd Series.	1st Series.	2nd Series.	3rd Series.	1st Series.	2nd Series.	3rd Series.	1st Series.	2nd Series.	3rd Series.
Control: No Manure ...	16·1	24·5	22·9	50·0	50·6	51·8	158	170	210	1000	1240	1160	12·5	15·0	13·4	68·8	83·9	93·0
Basal Manure (Sulphate of Potash, 1 cwt.; Sulphate of Ammonia, 107 lb.) ...	31·5	25·7	31·0	51·5	52·9	52·3	185	315	215	1500	1420	1640	16·8	17·9	18·4	96·0	83·8	89·0
Slag No. 21, 100 mesh, 514 lb.; Basal Manure ...	26·8	41·5	25·3	50·5	51·8	52·0	315	265	273	1560	1840	1640	17·3	20·5	17·3	86·1	104·8	81·8
Slag No. 22, 100 mesh, 447 lb.; Basal Manure ...	24·7	41·3	27·3	51·5	51·8	49·8	280	215	328	1420	1960	1500	17·1	22·0	18·4	80·7	95·5	81·9
Superphosphate, 298 lb.; Basal Manure	—	33·6	—	—	52·3	—	—	220	—	—	1720	—	—	19·3	—	—	91·4	—
Gafsa Phosphate, 157 lb.; Basal Manure	27·7	29·9	26·7	50·5	50·9	51·0	255	263	280	1500	1480	1500	16·1	17·0	17·1	91·9	93·8	85·4
Control. No Manure ...	14·7	24·3	13·8	49·3	50·5	51·0	220	212	223	840	1180	880	12·0	14·8	11·1	70·5	86·7	74·8
Basal Manure (Sulphate of Potash 1 cwt., Sulphate of Ammonia 107 lb.) ...	34·8	27·1	29·4	50·4	50·9	49·8	308	293	283	1640	1440	1660	19·8	16·6	18·4	92·9	89·9	84·6
Slag No. 23, 100 mesh, 360 lb., Basal Manure ...	23·2	24·3	20·0	49·5	50·3	49·0	325	348	345	1380	1500	1280	15·9	17·5	15·0	82·9	80·0	78·9
Slag No. 24, 100 mesh, 370 lb., Basal Manure ...	24·2	21·9	27·0	49·0	49·5	51·5	328	398	245	1400	1200	1420	15·9	14·1	16·6	85·0	93·8	87·9

Slags applied December 21st, 1923.

RESIDUAL EFFECT OF PHOSPHATES.

Hay. Great Field,* 1923.

No. of Plot.	Treatment of Plot and Quantities per Acre.	Yield per Acre. cwt.		Dry Matter per Acre. lb.	
		Series A.	Series B.	Series A.	Series B.
1	High Grade Slag No. 12, 1170 lb.	33·0	35·0	2755	2929
2	Open Hearth Slag No. 13, 1925 lb. (High Soluble)	28·3	36·0	2382	2948
3	Open Hearth Slag No. 14, 1930 lb. (Low Soluble)	30·9	39·6	2518	3219
4	Gafsa Phosphate, 750 lb.	33·6	37·4	2733	3036
C	No Manure	31·2	39·5	2686	3218
C 1	High Soluble Slag No. 1, 872 lb.	31·5		2570	
2	Low Soluble Slag No. 2, 1225 lb.	38·3		3011	
3	Gafsa Phosphate, 347 lb.	39·9		3051	
4	Tunisian Phosphate, 336 lb.	37·8		2782	
5	Florida Phosphate, 292 lb.	35·5		2911	
7	Nauru Phosphate, 263 lb.	35·2		2829	
D 7	Nauru Phosphate, 263 lb.	36·4		3058	
C 8	Slag Phosphate, Low Grade No. 8, 411 lb. ...	36·6		3042	
D 8	Slag Phosphate, Low Grade No. 8, 411 lb. ...	41·1		3215	
C	Control. No Manure	28·0		2284	
D	Control. No Manure	38.4		3059	

* Manures on the A and B series applied in January, 1921.
Manures on the C and D series applied in December, 1921.

Hay. Great Field, 1924.

Plot.	Manurial Treatment. Quantities per Acre.	Yield per Acre.		Dry Matter per Acre.	
		No Potash. cwt.	With Potash. cwt.	No Potash. lb.	With Potash. lb.
1 A	High Grade Slag, No. 12, 1170 lb.	30·4	29·5	2807	2661
1 B		34·3	30·5	3082	2717
2 A	Open Hearth Slag, No. 13, 1925 lb.	25·7	28·2	2365	2555
2 B		33·9	26·6	2965	2406
3 A	Open Hearth Slag, No. 14, 1930 lb.	31·4	27·5	2794	2422
3 B		28·2	26·1	2454	2399
4 A	Gafsa Phosphate 750 lb.	39·6	29·1	3400	2598
4 B		29·3	29·3	2625	2578
A C	Control. No Manure	27·7	30·0	2587	2658
B C		36·8	30·4	3132	2651
7 C	Nauru Phosphate 263 lb.	30·5	31·6	2759	2884
7 D		30·5	30·5	2855	2670
8 C	Nauru Slag Phosphate, No. 8, 411 lb. ...	29·6	30·4	2727	2778
8 D		25·5	27·9	2341	2523
1 C	High Soluble Slag, No. 1, 872 lb.	28·4	30·5	2519	2647
2 C	Low Soluble Slag, No. 2, 1225 lb.	29·8	32·0	2723	2886
3 C	Gafsa Phosphate, 347 lb.	29·1	32·7	2672	2839
4 C	Tunisian Phosphate, 336 lb.	29·1	33·6	2408	2936
5 C	Florida Phosphate, 292 lb.	30·2	31·6	2767	2777
C C	Control. No Manure	27·5	32·0	2454	2827
D C		27·0	26·6	2455	2404

Kainit at 4 cwt. per acre, applied January 28th, 1924.

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Clover. New Zealand Field, 1923.

No. of Plot.	Treatment of Plot and Quantities per Acre.	Yield per Acre. cwt.	Dry Matter per Acre. lb.
8	Slag Phosphate, No. 8, 376 lb.	34·1	3502
10	Slag Phosphate, No. 10, 424 lb.	34·0	3461
12	Low Grade, No. 20, 1176 lb.	32·6	3241
2	Open Hearth Slag, No. 2, 1100 lb.	29·3	2967
9	Slag, No. 9, 636 lb.	31·0	3099
C	Control. No Manure	32·0	3273

Clover. Stackyard Field, 1923.

5	Florida Phosphate	24·8	2431
3	Gafsa Phosphate	22·9	2145
11	Phosphate, No. 25, 540 lb.	20·3	2073
4	Constantine Phosphate, 308 lb.	22·1	2253
7	Nauru Phosphate, No. 7, 241 lb.	21·5	1951
C	Control. No Manure	23·7	2411

Slags applied January 25th, 1923.

Clover (after Barley 1922.) Long Hoos Field, 1923.

Treatment of Plots in Spring 1922.	Yield per Acre. cwt.			Dry Matter per Acre. lb.		
	Slag No. 20.	Slag No. 2.	Slag No. 1.	Slag No. 20.	Slag No. 2.	Slag No. 1.
Basal Manuring, Slag, full quantity ...	36·4	36·4	36·4	3648	3553	3532
	44·6	38·8	42·2	4376	3736	4098
Basal Manuring, Slag, half quantity; Gafsa Phosphate, 87 lb.	38·6	35·9	41·5	3747	3508	4100
	37·1	43·8	41·7	3169	4234	4064
Basal Manuring, Gafsa Phosphate, 174 lb.	37·1	33·5	40·0	3630	3235	3964
Basal Manuring only	34·6	40·9	45·5	3423	3959	4392
No Manure	42·2	35·1	36·8	4123	3471	3531

Basal Manuring is 1 cwt. Sulphate of Potash; 1 cwt. Sulphate of Ammonia. Full Quantity Slag represents 636 lb. Slag No. 20, 602 lb. Slag No. 2 and 436 lb. Slag No. 1 per acre.

Date of application of Slags { No. 20, March 24th. / Nos. 2 and 1, March 26th.

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Oats (Grey Winters). West Barnfield, 1923.

No. of Plot.	Treatment of Plots in Season 1921 and Qauntities per Acre.	Dressed Grain. Yield per Acre. Bushels.		Dressed Grain. Weight per Bushel. lb.		Offal Grain per Acre. lb.		Straw per Acre. Straw. lb.		Straw per Acre. Total Straw. cwt.		Proportion of Total Grain to 100 of Total Straw.	
		Series A.	Series B.	Series A.	Series B.	Series A.	Series B.	Series A.	Series B.	Series A.	Series B.	Series A.	Series B.
1	High Grade Slag No. 12, 1170 lb. ...	48·2	53·1	42·0	39·9	401	549	2740	3195	31·6	36·9	68·6	64·5
2	Open Hearth, High Soluble Slag No. 13, 1925 lb.	52·9	51·1	39·5	40·2	400	475	3200	3255	36·9	35·9	60·3	62·8
3	Open Hearth, Low Soluble Slag No. 14, 1930 lb.	52·7	54·1	41·9	40·4	543	525	3090	3210	33·9	34·8	72·4	69·5
4	Gafsa Phosphate, 750 lb.	52·5	50·9	41·3	39·7	548	568	3090	2770	33·8	29·5	71·9	78·4
C	No Manure	47·2	54·0	41·0	39·7	539	554	3075	2990	35·8	32·3	61·7	74·5
C	No Manure	55·8		40·8		448		3020		31·9		76·3	

Slag applied, January 14th, 1921.

Wheat (Red Standard) after Swedes. Great Harpenden Field, 1923.

Manuring per Acre. (applied in Spring, 1922).	Dressed Grain. Yield per Acre. Bushels.			Dressed Grain. Weight per Bushel. lb.			Offal Grain per Acre. lb.			Straw per Acre. Straw. lb.			Straw per Acre. Total Straw. cwt.			Proportion of Total Grain to 100 of Total Straw.		
	Slag No. 20.	Slag No. 2.	Slag No. 1.	Slag No. 20.	Slag No. 2.	Slag No. 1.	Slag No. 20.	Slag No. 2.	Slag No. 1.	Slag No. 20.	Slag No. 2.	Slag No. 1.	Slag No. 20.	Slag No. 2.	Slag No. 1.	Slag No. 20.	Slag No. 2.	Slag No. 1.
Sulphate Ammonia 2 cwt., Sulphate Potash 1 cwt., Slag full quantity ...	19·4	25·5	21·1	64·0	63·6	63·6	272	228	222	2200	2738	2125	23·6	28·3	22·0	57·5	58·4	63·5
	20·9	24·6	22·9	60·3	63·8	63·0	177	300	211	2000	2288	2425	20·8	22·8	25·4	61·6	73·1	58·1
Sulphate Ammonia 2 cwt., Sulphate Potash 1 cwt., Slag half quantity, Gafsa Phosphate 175 lb.	18·2	22·7	21·7	63·0	63·0	63·5	217	228	214	2025	2538	2262	21·1	26·5	23·9	57·7	55·8	59·3
	23·5	22·5	23·4	62·8	62·6	62·8	208	187	219	2388	1888	2225	24·3	19·3	24·3	61·6	73·8	62·0
Sulphate Ammonia 2 cwt., Sulphate Potash 1 cwt., No. 7 Nauru Phosphate 262½ lb.	19·7	22·7	23·8	62·8	63·8	62·9	284	231	212	2125	1975	2575	23·0	20·6	27·4	58·9	72·8	55·6
Sulphate Ammonia 2 cwt., Sulphate Potash 1 cwt., No. 3 Gafsa Phosphate 350 lb.	22·9	21·1	24·6	62·8	59·1	63·8	284	122	252	2750	1925	2225	29·0	20·4	25·2	53·0	59·8	64·4
Sulphate Ammonia 2 cwt., Sulphate Potash 1 cwt.	26·0	23·9	20·7	63·9	63·4	63·1	186	241	202	2600	2163	2338	27·0	22·2	25·1	61·1	70·6	53·7
No Manure	22·8	19·2	23·0	64·3	63·0	63·0	294	208	217	2550	1950	2012	26·5	20·5	20·8	59·4	61·5	71·5

NOTE.—"Full Quantity" Slag is: No. 20, 1275 lb. per Acre. No. 2, 1225 lb. per Acre. No. 1, 875 lb. per Acre.
Date of application of Slags, May 8th, 1922.

MISCELLANEOUS EXPERIMENTS.

ORGANIC MANURE. GREEN MANURING.

Oats (Black Winter). Produce per Acre. Great Knott Field, 1924.

GREEN MANURING	No. of Plot.	Basal Manuring. Quantities per Acre. Applied August 13th, 1923.	Dressed Grain. Yield per Acre. bushels.		Dressed Grain. Weight per Bushel. lb.		Offal Grain per Acre. lb.		Straw per Acre. Straw. lb.		Straw per Acre. Total Straw. cwt.		Proportion of Total Grain to 100 of Total Straw.	
			Plot 1.	Plot 2.	Plot 1.	Plot 2.	Plot 1.	Plot 2.	Plot 1.	Plot 2.	Plot 1.	Plot 2.	Plot 1.	Plot 2.
Mustard.*	M 1&4	10 Tons London Refuse ...	51·5	47·0	36·0	36·9	100	95	2840	2500	33·2	30·4	52·6	53·8
	M 2&5	5 Tons London Refuse ...	48·9	54·7	37·1	35·9	90	95	2300	2800	28·2	33·6	60·3	54·9
	M 3	Control. No Manure	43·3	—	36·8	—	120	—	2200	—	28·9	—	52·8	—
No Green Manuring.	C 1&4	10 Tons London Refuse ...	31·8	33·8	36·0	37·3	88	80	2080	1840	27·7	25·5	39·8	46·9
	C 2&5	5 Tons London Refuse ...	25·8	32·8	36·0	37·1	83	88	1560	1900	21·8	25·7	41·5	45·3
	C 3	Control. No Manure	27·5	—	37·5	—	80	—	1520	—	20·4	—	48·7	—
No Green† Manuring.	H 1&4	10 Tons London Refuse ...	30·1	26·8	36·8	36·9	75	73	1860	1500	23·4	20·7	45·0	45·7
	H 2&5	5 Tons London Refuse ...	25·3	24·4	36·5	36·8	70	83	1420	1480	18·6	20·7	47·8	42·2
	H 3	Control. No Manure	22·5	—	36·8	—	65	—	1200	—	17·5	—	45·4	—

* The Mustard crop was sown August 20th, 1923, and ploughed on October 18th, 1923.

† Hubam Clover was sown on this series for Green Manure, but the plant failed.

TOWN REFUSE EXPERIMENT.

Mangolds (Prizewinner Yellow Globe). Fosters Field, 1923.

Treatment of Plots and Manuring per Acre.	Yield per Acre.	
	Roots.	Leaves.
	Tons.	Tons.
Control. No Manure	9·6	3·2
Dung, 15 tons...	13·2	3·9
Hampstead Refuse, 15 tons...	14·0	3·4
Walworth Refuse, 15 tons	13·9	3·5

Manures applied May 4th.

PHOSPHAZOTE EXPERIMENT.

Potatoes (Kerr's Pink). Little Knott Field, 1923.

Manuring per Acre.	Yield per Acre.		
	1st Plot.	2nd Plot.	3rd Plot.
	Tons.	Tons.	Tons.
Control. No Manure	10·8	9·4	8·2
Sulphate of Potash 1¼ cwt.	12·4	9·8	10·1
Sulphate of Potash 1¼ cwt., Superphosphate 3 cwt., Sulphate of Ammonia 266½ lb.	14·2	13·8	13·9
Sulphate of Potash 1¼ cwt., Phosphazote 4¼ cwt.	12·8	13·2	12·7

Manures applied, May 12th-14th.

EFFECT OF STRAW AND MINERALS ON LEGUMINOSAE.

Produce per Acre. Little Hoos Field, 1923 and 1924.

Manures per Acre. Applied in 1923.	1923. Beans and Straw.			1924. Wheat and Straw.		
	1st Series.	2nd Series.	3rd Series.	1st Series.	2nd Series.	3rd Series.
	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.
5 tons Chaff	29·9	25·9	33·5	27·2	21·4	29·5
400 lb. Superphosphate	24·1	25·9	24·6	17·9	25·0	23·7
5 tons Chaff, 400 lb. Superphosphate ...	34·8	28·1	29·9	29·9	24·4	30·8
400 lb. Superphosphate, 200 lb. Sulphate of Potash	32·1	37·0	29·0	20·5	32·1	25·9
Control	25·0	26·3	26·8	18·8	21·9	21·0
	24·6	—	—	27·2	—	—

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