Memoranda of the Plan and Results of the Rothamsted Field Experiments - Supplement - June 1864

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MEMORANDA

OF THE

PLAN AND RESULTS

OF THE

ROTHAMSTED FIELD EXPERIMENTS,

&c.

SUPPLEMENT—JUNE, 1864.

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EXPERIMENTS ON THE GROWTH OF **WHEAT** YEAR AFTER YEAR ON THE SAME LAND; WITHOUT MANURE, AND WITH DIFFERENT KINDS OF MANURE.

BROADBALK FIELD.

Previous Cropping—1839, Turnips, with Farmyard Manure; 1840, Barley; 1841, Peas; 1842, Wheat; 1843, Oats. The last four Crops Unmanured.

First Experimental Wheat Crop in 1844. Wheat every year since; and with some exceptions, nearly the same description of Manures on the same Plots each year—especially during the last 12 years.

(Area under experiment about 13 acres.)

Manures, per acre, for the growing (21st) Wheat-crop—1864.

1 acre	= (about)	0·40	Hectare.
1 bushel	= (about)	0·36	Hectolitre.
1 lb. (pound, avoir.)	= (about)	0·45	Kilogramme.
1 cwt. (hundredweight)	= (nearly)	51·0	Kilogrammes.
1 bushel per acre ..	= (nearly)	0·9	Hectolitre per Hectare.
1 cwt. per acre ..	= (about)	125·5	Kilogrammes per Hectare.

Plots.	Manures, per acre, for the growing (21st) Wheat-crop—1864.	Produce per Acre. Average per Annum, over 12 Years, 1852–1863. Dressed Corn. Quantity.	Weight per Bushel.	Total Straw.	Twentieth Season, 1863. Dressed Corn. Quantity.	Weight per Bushel.	Total Straw.
		Bush. pks.	lbs.	cwts.	Bush. pks.	lbs.	cwts.
0	Superphosphate of Lime (three times as much as on No. 5 and succeeding Plots)	18 1	57½	16½	22 0½	62⅜	16¼
1	Mixed Alkalies (twice as much as on No. 5 and succeeding Plots)	16 1½	57¼	15¾	20 3	62¾	15½
2	Farm-yard dung (14 tons every year)	35 1½	59¼	34½	44 0	63⅛	38¼
3	Unmanured, continuously	15 2	56½	14¾	17 1	62¾	14¼
4	Unmanured for Crop of 1852, and since (previously Superphosphate and Ammonia-salts)	16 3¾	57¼	15½	20 1	62¼	14¾
5 (a–b)	Mixed Alkalies(1) ; and Superphosphate of Lime(2)	18 1¾	58	17	19 2¾	63	15½
6 (a–b)	ditto ; ditto ; and 200 lbs. Ammonia-salts(3) ;	28 1¼	58½	27	39 2¼	62¼	33¼
7 (a–b)	ditto ; ditto ; and 400 lbs. ditto	36 1½	58½	37½	53 2¾	62½	52½
8 (a–b)	ditto ; ditto ; and 600 lbs. ditto	38 0	57¾	42	55 2¾	62¼	59
9 a	ditto ; ditto ; and 550 lbs. Nitrate of Soda	34 2	57	39½	55 2¼	62⅛	56¼
9 b	none ; none ; 550 lbs. ditto	25 3¼	55½	28½	41 1¾	62½	37½
10 a	none since 1844 ; none since 1844 ; 400 lbs. "Ammonia-salts"	22 2½	56	23¼	39 0½	62⅝	31
10 b	none (except 1844, '48 and '50) ; none (except 1844, '48, & '50) ; 400 lbs. ditto	26 3¾	57	27¼	43 2¼	62¾	36¼
11 (a–b)	none ; "Superphosphate of Lime" ; and 400 lbs. ditto	29 2½	56½	28¾	45 3	62¼	38¾
12 (a–b)	366½ lbs.(4) Sulphate of Soda ; ditto ; and 400 lbs. ditto	35 0¾	58¼	35¼	54 0	62⅛	48¼
13 (a–b)	200 lbs.(5) Sulphate of Potass ; ditto ; and 400 lbs. ditto	34 2¼	58½	35½	53 1½	62½	51½
14 (a–b)	280 lbs.(6) Sulphate of Magnesia ; ditto ; and 400 lbs. ditto	35 0	58¼	35¾	53 3¾	62½	48
15 a	"Mixed Alkalies" ditto(8) ; and 400 lbs. ditto	33 0¾	58½	34	48 1¼	62½	46
15 b	ditto ditto(8) ; 300 lbs. ditto and 500 lbs. Rape-cake	34 3½	58¾	36	48 0	62⅞	45¾
16 (a–b)	ditto ditto ; and 800 lbs. ditto	38 2	57½	46	55 3½	62⅜	61¼
(7) 17 (a–b)	none none ; 400 lbs. ditto	32 2½(9)	58¾(9)	33½(9)	21 1 (11)	62¾(11)	17(11)
(7) 18 (a–b)	"Mixed Alkalies" "Superphosphate of Lime" ; none	18 3½(10)	58 (10)	17¾(10)	46 1¼(12)	62⅝(12)	43(12)
19	none ditto(3) ; 300 lbs. "Ammonia-salts" ; and 500 lbs. Rape-cake	31 2¾	58	31½	46 2¾	62⅞	40½
20	Unmanured continuously	15 2½	57	15¼	17 2¾	62½	13¼
21	"Mixed Alkalies" "Superphosphate of Lime" ; and 100 lbs. Muriate Ammonia	22 0¾	58	21	27 2½	62½	22¼
22	ditto ditto ; and 100 lbs. Sulphate Ammonia	21 2¾	57¾	20½	29 3	62⅜	24

(1) Since 1858, 200 lbs. Sulphate of Potass, 100 lbs. Sulphate of Soda, and 100 lbs. Sulphate of Magnesia; for Crop of 1857–8, and previously, 300 lbs., 200 lbs., and 100 lbs., respectively.
(2) 200 lbs. Bone-ash, 150 lbs. Sulphuric acid (Sp. gr. 1·7). (3) Equal parts Sulphate and Muriate of Commerce. (4, 5, 6,) For 1858, and previously 1½ time as much.
(7) The Manures of 17 and 18 alternate. (8) With Hydrochloric instead of Sulphuric Acid. (9) Average of 12 years' Ammonia-salts alternated with Mineral Manures.
(10) Average of 12 years' Mineral Manures alternated with Ammonia-salts. (11) Plots 17 had the Mineral Manures for the Crop of 1863. (12) Plots 18 had the Ammonia-salts for the Crop of 1863.

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ROTHAMSTED FARM.

JUNE, 1864.

SUMMARY STATEMENT OF THE PRESENT AND PREVIOUS CROPPING, &c., OF THE ARABLE LAND NOT UNDER EXPERIMENT.

(9 Years, 1856-64, inclusive.)

Name of Field.	Acres.	Previous Cropping and Manuring.								Crop, &c., Present Season. 1863-4.
		1856.	1857.	1858.	1859.	1860.	1861.	1862.	1863.	
Barn	20	Turnips, Artificial.	Wheat, Artificial.	Oats, Artificial.	Red Clover (peren.), Unmanured	Wheat, after Sheep-Folding.	Swedes, Dung & Artificial.	Oats, Artificial (2 cwts. Guano).	Red Clover (peren.), Unmanured.	**Wheat, Artificial** (2 cwts. Guano).
Thirty Acres ..	30	Oats, Artificial.	Red Clover (peren.), Unmanured.	Wheat, after Sheep-Folding.	Oats, Artificial.	Swedes, Dung & Artificial.	Oats, after Sheep-Folding.	Red Clover (peren.), Unmanured.	Wheat, Sheep-Folded, and 2 cwts. Guano.	**Oats, Artificial** (2 cwts. Guano, 1 cwt. Corn Manure).
Upper Harpenden	14	Turnips, Artificial.	Barley, after Sheep-Folding.	Beans, Dung.	Wheat, Artificial.	Barley, Artificial.	Swedes, Dung & Artificial.	Oats after Sheep-Folding.	Red Clover, Unmanured.	**Wheat, Artificial** (1½ cwt. Guano, 1½ cwt. Corn Manure).
Harpenden	22	Red Clover (peren.), Unmanured.	Wheat, Artificial	Oats, Artificial.	Swedes, Dung & Artificial.	Oats, after Sheep-Folding.	Red Clover (peren.), Unmanured.	Wheat, Artificial (2 cwts. Guano).	Oats, Artificial (3 cwts. Guano).	**Mangolds and Turnips, Dung & Artificial.**
Little Hoos	9	Oats, Artificial.	Turnips, Artificial.	Wheat, after Sheep-Folding.	Oats, Artificial.	Mangolds, Dung & Artificial.	Oats, Unmanured.	Barley, Artificial (2 cwts. Guano, 1 cwt. superphos.).	Barley, (3 cwts. Guano, and 1 cwt. superphos.).	**Red Clover.**
Fosters'	18	Wheat, Artificial.	Barley, Artificial.	Swedes, Artificial.	Barley, after Sheep-Folding.	Red Clover (peren.), Unmanured.	Wheat, Artificial.	Oats, Artificial (3 cwts. Guano).	Barley, (5½ cwts. Artificial Manure).	**Swedes, Dung & Artificial.**
Knott Wood	30	Oats, Artificial.	Swedes, Dung & Artificial.	Barley, after Sheep-Folding.	Red Clover (peren.), Unmanured.	Wheat, Artificial.	Oats, Artificial.	Swedes, Dung and Artificial.	Oats, Sheep-Folded.	**Cow Grass.**
Little Knott Wood	14	Wheat, Artificial.	Oats, Artificial.	Swedes, Dung & Artificial.	Oats, after Sheep-Folding.	Red Clover (peren.), Unmanured.	Wheat, after Sheep-Folding.	Oats, Artificial (3 cwts. Guano).	Swedes, Dung and Artificial.	**Wheat, Unmanured.**
Sawpit	14	Red Clover (peren.), Unmanured.	Wheat, Artificial.	Oats, Artificial.	Mangolds, Dung & Artificial.	Oats, Unmanured.	White Clover, Unmanured.	Wheat, Artificial, (2 cwts. Guano).	Tares and Oats, Sheep-Folded, and 2 cwts. Guano.	**Barley, Artificial** (1½ cwt. Guano, ½ cwt. superphos., and 1 cwt. Corn Manure).
Rick-yard	8	Oats, Artificial.	Mangolds, Dung & Artificial.	Wheat, Unmanured.	Oats, Artificial.	Tares, Dung.	Oats, Unmanured.	Mangolds, Dung and Artificial.	Wheat, Unmanured.	**Wheat, Sheep-Folded, and Artificial,** (3 cwts. Guano).
Six Acres	6	Barley, after Sheep-Folding.	Trefoil, Unmanured.	Wheat, after Sheep-Folding.	Barley, Artificial.	Beans, Dung.	Wheat, Unmanured.	Oats, Artificial, (3 cwts. Guano).	Mangolds, Dung and Artificial.	**Wheat, Unmanured.**
Clay-Croft	5	Oats, Artificial.	Beans, Dung.	Wheat, Artificial.	Oats, Artificial.	Red Clover (peren.), Unmanured.	Wheat, Artificial.	Beans, Dung } and Fallow.	Wheat, Dung.	**Wheat, Artificial** (2 cwts. Guano, and 2 cwts. Corn Manure).
Apple Tree	18	Swedes, Dung & Artificial.	Oats, after Sheep-Folding.	Red Clover (peren.) Unmanured.	Wheat, Artificial.	Oats, Artificial.	Mangolds, Dung & Artificial.	Wheat, Unmanured.	Laid down in Grass Seeds.	**Grass.**
Ten Acres	10	Barley, Artificial.	Tares, Dung.	Oats, Unmanured.	Tares, Dung.	Oats, Artificial.	Red Clover (peren.) Unmanured.	Wheat, after Sheep-Folding.	Oats (3 cwts. Guano).	**Oats,** (2 cwts. Guano, and 1 cwt. Dried Blood).
Park Field	10	Wheat, Artificial.	Red Clover (bien.), Unmanured.	Wheat, after Sheep-Folding.	Wheat, Artificial.	Oats, Artificial.	Red Clover (peren.), Unmanured.	Wheat, Artificial (2 cwts. Guano).	Oats (3 cwts. Guano).	**Tares, Dung.**
Agdell	9	Barley, Artificial.	Tares, Dung.	Oats, Unmanured.	Barley, Artificial	Garden-ground.	Oats, Unmanured.	Tares, Dung.	Barley, Sheep-Folded.	**Barley, Artificial** (1½ cwt. Guano, ½ cwt. superphos., and 1 cwt. Corn Manure).

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