

EXPERIMENTS at ROTHAMSTED with DIFFERENT MANURES ON PERMANENT MEADOW LAND.
TABLE VII.—PRODUCE OF TOTAL MINERAL MATTER (Ash) per Acre; lbs.

Plot Nos.	MANURES PER ACRE, PER ANNUM. (For detailed description, see pp. 504-5.)	Annual Produce.				Average Annual Increase by Manure.	
		1859.	1860.	1861.	1862.	Average. Of 4 Years (1859-62).	Of 7 Years (1859-65).
SERIES 1.—Without Direct Mineral Manure.							
1	Unmanured (duplicate plot)	lbs. 160.5	173.1	164.2	158.9	177.4	183.4
2	Unmanured	163.3	166.0	192.8	187.6	177.4	171.9
4	200 lbs. each, Sulphate and Muriate Ammonia	181.9	198.6	178.5	187.3	174.3	167.5
5	200 lbs. each, Sulphate and Muriate Ammonia, and 2000 lbs. Sawdust	194.7	198.3	197.7	200.9	196.3	197.5
6	275 lbs. Nitrate of Soda	203.9	156.3	197.7	200.9	196.3	197.5
7	550 lbs. Nitrate of Soda	215.1	239.2	232.9	231.0	237.4	237.0
	Mean, or Standard Unmanured	240.4	267.2	253.9	262.2	253.9	262.2
SERIES 2.—With Direct Mineral Manure.							
32	Superphosphate of Lime	194.9	212.2	221.7	208.0	203.2	214.5
33	Sulphate of Lime	313.7	301.8	275.4	263.8	286.2	287.2
8	Mixed Mineral Manure, and 900 lbs. Sulphate and Muriate Ammonia	244.6	272.0	261.8	251.0	274.9	261.0
9	Mixed Mineral Manure, and 2000 lbs. Sawdust	338.4	365.3	333.8	331.0	371.7	361.5
10	Mixed Mineral Manure, and 200 lbs. each, Sulphate and Muriate Ammonia	409.2	367.2	385.0	359.2	404.3	407.7
11	Mixed Mineral Manure, and 200 lbs. each, Sulphate and Muriate Ammonia, and 2000 lbs. Sawdust	484.1	368.6	433.9	368.4	398.8	412.0
12	Cut Wheat-Straw	472.5	319.4	422.7	454.9	417.4	435.6
132	Mixed Mineral Manure, and 400 lbs. each, Sulphate and Muriate Ammonia	329.5	329.5	337.3	339.1	343.9	349.3
130	Mixed Mineral Manure, (including 200 lbs. each, Silicates Soda, and Lime), and 2000 lbs. Sawdust	379.9	337.4	353.9	377.4	363.4	364.3
14	Mixed Mineral Manure, and 200 lbs. each, Sulphate and Muriate Ammonia	329.5	329.5	337.3	339.1	343.9	349.3
15	Mixed Mineral Manure, and 500 lbs. Nitrate of Soda	379.9	337.4	353.9	377.4	363.4	364.3
SERIES 3.—With Farmyard Manure.							
16	14 tons Farmyard Manure	318.5	331.2	342.7	368.0	345.1	388.7
17	14 tons Farmyard Manure, and 100 lbs. each, Sulphate and Muriate Ammonia	361.9	388.6	346.0	386.7	370.8	372.2

* With Sulphate of Potass excluded, and the amount of Sulphate of Soda increased, in 1862. † Only 200 lbs. each in 1859, 1860, and 1861. ‡ Average of 5 years only.

EXPERIMENTS at ROTHAMSTED with DIFFERENT MANURES ON PERMANENT MEADOW LAND.
TABLE VIII.—PRODUCE OF NITROGEN per Acre; lbs.

Plot Nos.	MANURES PER ACRE, PER ANNUM. (For detailed description, see pp. 504-5.)	Annual Produce.				Average Annual Increase by Manure.	
		1859.	1860.	1861.	1862.	Average. Of 4 Years (1859-62).	Of 7 Years (1859-65).
SERIES 1.—Without Direct Mineral Manure.							
1	Unmanured (duplicate plot)	lbs. 38.6	37.5	42.6	37.6	42.5	42.5
2	Unmanured	38.1	38.1	42.6	42.6	42.5	42.5
4	200 lbs. each, Sulphate and Muriate Ammonia	38.4	39.7	39.9	41.6	39.9	39.9
5	200 lbs. each, Sulphate and Muriate Ammonia, and 2000 lbs. Sawdust	61.6	54.1	63.9	63.9	60.9	60.9
6	275 lbs. Nitrate of Soda	56.7	50.7	63.9	57.8	56.8	55.8
7	550 lbs. Nitrate of Soda	63.4	66.2	70.3	59.2	65.3	64.4
SERIES 2.—With Direct Mineral Manure.							
32	Superphosphate of Lime	45.0	43.5	47.3	39.7	43.9	47.0
33	Sulphate of Lime	70.4	58.5	74.0	65.6	69.6	69.6
8	Mixed Mineral Manure, and 900 lbs. each, Sulphate and Muriate Ammonia	54.3	53.3	57.9	57.0	56.8	56.8
9	Mixed Mineral Manure, and 2000 lbs. Sawdust	73.1	63.6	61.7	57.5	60.4	60.4
10	Mixed Mineral Manure, and 200 lbs. each, Sulphate and Muriate Ammonia	63.5	64.3	70.5	73.6	73.9	73.9
11	Mixed Mineral Manure, and 200 lbs. each, Sulphate and Muriate Ammonia, and 2000 lbs. Sawdust	83.1	70.2	85.7	67.1	79.1	79.1
12	Cut Wheat-Straw	92.2	68.4	82.5	100.2	68.8	98.3
132	Mixed Mineral Manure, and 400 lbs. each, Sulphate and Muriate Ammonia	37.4	37.4	37.4	37.4	37.4	37.4
130	Mixed Mineral Manure, (including 200 lbs. each, Silicates Soda, and Lime), and 2000 lbs. Sawdust	73.5	65.4	70.5	64.6	68.3	68.3
14	Mixed Mineral Manure, and 200 lbs. each, Sulphate and Muriate Ammonia	37.4	37.4	37.4	37.4	37.4	37.4
15	Mixed Mineral Manure, and 500 lbs. Nitrate of Soda	73.5	65.4	70.5	64.6	68.3	68.3
SERIES 3.—With Farmyard Manure.							
16	14 tons Farmyard Manure	55.0	68.0	63.7	59.1	58.5	58.5
17	14 tons Farmyard Manure, and 100 lbs. each, Sulphate and Muriate Ammonia	62.7	68.4	65.4	64.7	67.5	67.5

* With Sulphate of Potass excluded, and the amount of Sulphate of Soda increased, in 1862. † Only 200 lbs. each in 1859, 1860, and 1861. ‡ Average of 5 years only.

EXPERIMENTS at ROTHAMSTED WITH DIFFERENT MANURES ON PERMANENT MEADOW LAND.
TABLE IX.—INCREASED YIELD OF NITROGEN PER ACRE when a known Quantity was supplied in MANURE; lbs.

Plot Nos.	MANURES PER ACRE, PER ANNUM. (For detailed description, see pp. 504-5.)	Increase over the yield without Manure.				Increase over the yield by the "Mixed Mineral Manure."			
		1859.		1860.		1861.		1862.	
		Of 4 Years (1859-62).	Average	Of 7 Years (1859-62).	Average	Of 4 Years (1859-62).	Average	Of 7 Years (1859-62).	
SERIES 1.—Without Direct Mineral Manure.									
4	200 lbs. each, Sulphate and Muriate Ammonia.	25.0	14.4	25.2	24.3	22.2	22.4	22.4	22.4
5	200 lbs. each, Sulphate and Muriate Ammonia, and 200 lbs. Sawdust.	23.2	11.0	26.0	23.8	21.0	21.1	21.1	21.1
6	275 lbs. Nitrate of Soda.	19.3	14.8	18.2	16.2	16.9	15.5	15.5	15.5
7	550 lbs. Nitrate of Soda.	27.1	25.3	30.4	17.6	25.4	24.5	24.5	24.5
SERIES 2.—With Direct Mineral Manure.									
30	Superphosphate of Lime, and 200 lbs. each, Sulphate and Muriate Ammonia.	28.1	28.8	34.1	24.0	29.8	16.8	10.0	16.1
10	"Mixed Mineral Manure," and 200 lbs. each, Sulphate and Muriate Ammonia.	34.8	28.4	47.2	32.0	35.6	38.1	19.5	9.6
11	"Mixed Mineral Manure," 200 lbs. each, Sulphate and Muriate Ammonia, and 200 lbs. Sawdust.	27.2	24.7	36.6	30.1	29.7	38.1	11.9	9.8
12	"Mixed Mineral Manure," 200 lbs. each, Sulphate and Muriate Ammonia, and 300 lbs. Crude Straw.	46.7	30.5	45.8	25.5	37.1	39.2	31.5	11.7
13a	"Mixed Mineral Manure," and 400 lbs. each, Sulphate of Soda, and Lime.	53.9	28.7	42.6	58.6	46.0	58.4	38.6	9.9
13b	"Mixed Mineral Manure" (including 200 lbs. each, Sulphate of Soda, and Lime), and 400 lbs. each, Sulphate and Muriate Ammonia.	..	..	..	58.8	..	..	..	..
14	"Mixed Mineral Manure," and 275 lbs. Nitrate of Soda.	22.0	22.9	30.6	16.9	25.6	25.4	16.8	4.1
15	"Mixed Mineral Manure," and 550 lbs. Nitrate of Soda.	35.1	25.7	29.6	23.0	28.4	20.4	19.9	6.9
SERIES 3.—With Farmyard Manure.									
17	14 tons Farmyard Manure, and 100 lbs. each, Sulphate and Muriate Ammonia.	7.7	6.5	1.8	6.6	5.7	9.0	..	..

* With Sulphate of Potash excluded, and the amount of Sulphate of Soda increased, in 1862.
† Only 200 lbs. each in 1859, 1860, and 1861.
‡ The increase is here taken over the yield by Farmyard Manure alone.
§ Average of 5 years only.

EXPERIMENTS at ROTHAMSTED WITH DIFFERENT MANURES ON PERMANENT MEADOW LAND.
TABLE X.—NITROGEN recovered, and not recovered, as increased yield of it, for 100 supplied in MANURE.

Plot Nos.	MANURES PER ACRE, PER ANNUM. (For detailed description, see pp. 504-5.)	Increase taken over the yield without Manure.				Increase taken over the yield by the "Mixed Mineral Manure."			
		1859.		1860.		1861.		1862.	
		Of 4 Years (1859-62).	Average	Of 7 Years (1859-62).	Average	Of 4 Years (1859-62).	Average	Of 7 Years (1859-62).	
SERIES 1.—Without Direct Mineral Manure.									
4	200 lbs. each, Sulphate and Muriate Ammonia.	30.5	17.6	30.7	27.1	27.4	72.9	72.6	..
5	200 lbs. each, Sulphate and Muriate Ammonia, and 200 lbs. Sawdust.	26.8	12.7	30.1	24.3	24.4	75.7	75.6	..
6	275 lbs. Nitrate of Soda.	44.6	36.1	44.4	39.5	41.2	58.8	62.3	..
7	550 lbs. Nitrate of Soda.	33.1	32.3	37.1	31.0	29.9	69.0	70.1	..
	Mean	33.8	24.7	35.6	30.9	29.9	69.1	70.1	..
SERIES 2.—With Direct Mineral Manure.									
30	Superphosphate of Lime, and 200 lbs. each, Sulphate and Muriate Ammonia.	39.1	35.1	41.6	29.3	36.3	63.7	..	84.6
10	"Mixed Mineral Manure," and 200 lbs. each, Sulphate and Muriate Ammonia.	42.4	34.6	57.6	39.0	43.4	46.5	53.5	23.8
11	"Mixed Mineral Manure," 200 lbs. each, Sulphate and Muriate Ammonia, and 200 lbs. Sawdust.	31.5	28.6	42.3	34.3	38.2	65.7	61.8	13.8
12	"Mixed Mineral Manure," 200 lbs. each, Sulphate and Muriate Ammonia, and 300 lbs. Crude Straw.	49.4	32.2	48.4	27.0	39.2	41.4	60.8	33.3
13a	"Mixed Mineral Manure," and 400 lbs. each, Sulphate of Soda, and Lime.	65.7	35.0	52.0	35.7	47.1	46.5	52.9	47.1
13b	"Mixed Mineral Manure" (including 200 lbs. each, Sulphate of Soda, and Lime), and 400 lbs. each, Sulphate and Muriate Ammonia.	..	..	..	..	..	..	..	..
14	"Mixed Mineral Manure," and 275 lbs. Nitrate of Soda.	78.1	55.9	74.6	41.2	62.4	61.9	37.6	38.1
15	"Mixed Mineral Manure," and 550 lbs. Nitrate of Soda.	42.8	31.3	36.1	28.1	34.6	36.1	65.4	63.3
	Mean	49.9	35.1	50.4	33.9	42.5	45.1	57.5	39.1
SERIES 3.—With Farmyard Manure.									
17	14 tons Farmyard Manure, and 100 lbs. each, Sulphate and Muriate Ammonia.	18.8	15.9	4.4	13.6	21.9	86.2	78.1	..

* With Sulphate of Potash excluded, and the amount of Sulphate of Soda increased, in 1862.
† Only 200 lbs. each in 1859, 1860, and 1861.
‡ The increase is here taken over the yield by Farmyard Manure alone.