ROTHAMSTED RESEARCH

Report for 1934

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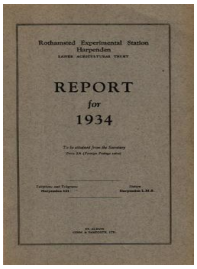

Chemical Analyses of Manures Used in Replicated Experiments, 1934

Rothamsted Research

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CHEMICAL ANALYSES OF MANURES USED IN REPLICATED EXPERIMENTS, 1934

Manures.	% N	% P_2O_5	% K_2O
Sulphate of Amm.	20.9—21.0	—	—
Nitrate of Soda	15.8	—	—
Nitrochalk	16.1	—	—
Cyanamide	20.2	—	—
Poultry Manure (1)	3.29	3.18	1.61
Poultry Manure (2)	2.62	3.84	1,61
Rape Dust	5.33	2.53	1.48
Malt Culms	4.40	1.63	2.21
Soot	2.57, 2.98, 5.48	—	—
Fish Guano	8.55	5.83	1.53
Dung Fresh (3)	0.70	0.27	0.75
Dung Fresh (4)	0.55	0.20	0.78
Dung Rotted (3)	0.84	0.29	0.91
Dung Rotted (4)	0.75	0.32	0.90
Superphosphate	16.6—17.7 (Total) 16.4—16.7 (Water Sol.)		% P_2O_5
Sulphate of Potash	49.9		
Muriate of Potash	51.6—52.3		% K_2O
Muriate of Potash (High Grade)	63.0		
Potash Manure Salt 30%	32.0		

1. Used at Long Ashton, Burford, Staindrop, Harrowden, Haynes, Hull, Honeydon, Langford, Nantwich, Newcastle (Staffs), Newport, Norton School, Oaklands, Potton, Rothamsted, Sandy, Swanley, Woburn, Wye.

(2) Used at Bakewell, Bromham, Chittoe, Evesham, Fakenham, Godalming, Kidderminster, Kinmel, Newent, Ormskirk, Oundle, Perdiswell, Steppingley, Welshpool, Wyboston.

(3) Applied in Autumn to Rothamsted Potato Experiment 34 R.P. 1-81.

(4) Applied in Spring to Rothamsted Potato Experiment 34 R.P. 1-81.

Three Course Rotation, 1934

Manures.	% Organic Matter.	% N	% P_2O_5	% K_2O
Chaffed Straw	77.5	0.51	0.20	1.36
Adco	14,9	0.50	0.43	0.20
Superphosphate	—	—	17.7(1)(2)	—
Sulphate of Ammonia	—	21.0(1)20.9(2)	—	—
Muriate of Potash	—	—	—	52.3(1)51.6(2)
Sulphate of Potash	—	—	—	49.9
Nitrate of Soda	—	15.8	—	—

(1) Applied in Autumn. (2) Applied in Spring.

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Four Course Rotation, 1934

Manures.	% Organic Matter.	% N	% P_2O_5	% K_2O
Chaffed Straw	77.5	0.51	0.20	1.36
Dung	18.7	0.51	0.35	0.62
Adco	14.9	0.50	0.43	0.20
Superphosphate	—	—	17.7	—
Mineral Phosphate (90% through 120 mesh)	—	—	26.7	—
Muriate of Potash	—	—	—	52.0
Sulphate of Ammonia	—	21.0	—	—

Six Course Rotation, 1934

Rothamsted and Woburn

Sulphate of Ammonia .. 20.9%N
Superphosphate .. .. 17.7(1)(2)% P_2O_5
Muriate of Potash .. .. 52.0(1), 51.6(2)% K_2O
(1) Applied in Autumn. (2) Applied in Spring.

AVERAGE WHEAT YIELDS OF VARIOUS COUNTRIES

Country.	Mean yield per acre, 1924-33 cwt.	Country.	Mean yield per acre, 1924-33. cwt.
Great Britain	17.6	Denmark	22.5
England and Wales ..	17.5	Argentine	6.8
Hertfordshire	16.4	Australia	6.3
France	11.8	Canada	8.7
Germany	16.1	United States	7.6
Belgium	20.5	U.S.S.R. (Europe and Asia)	5.8*

Note—Figures for Great Britain, England and Hertfordshire are taken from the Ministry of Agriculture's "Agricultural Statistics," Vol. 68. Other figures from "International Year Book of Agricultural Statistics," 1927-34.
* Excluding 1931.

CONVERSION TABLE

1 acre	0.405 Hectare	0.963 Feddan
1 bushel (Imperial)	0.364 Hectolitre (36.364 litres)	0.184 Ardeb.
1 lb. (pound avoirdupois) ..	0.453 Kilogramme	1.009 Rotls.
1 cwt. (hundredweight, 112 lb.)	50.8 Kilogrammes	113.0 Rotls. 1.366 Maunds.
1 ton (20 cwt. or 2,240 lb.)	1016 Kilogrammes.	
1 metric quintal or Doppel Zentner (Dz.)	100.0 Kilogrammes. 220.46 lb.	
1 metric ton (tonne) ..	1000 Kilogrammes.	
1 bushel per acre	0.9 Hectolitre per Hectare ..	0.191 Ardeb per Feddan
1 lb. per acre	1.12 Kilogramme per Hectare	1.049 Rotls.per Feddan
1 cwt. per acre	1.256 dz. per Hectare ..	117.4 Rotls. per Feddan
1 ton per acre	25.12 dz. per Hectare.	
1 dz. per Hectare	0.796 cwt. per acre.	
1 kg. per Hectare	0.892 lb. per acre.	

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

The yields of grain in the replicated experiments are given in cwt. per acre. One bushel of wheat weighs 60 lb., of barley weighs 52 lb., of oats weighs 42 lb., approximately.

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METEOROLOGICAL RECORDS, 1934

	Rain.		Drainage through soil.				Temperature (Mean).				
	Total Fall 1/1000th Acre Gauge.	No. of Rainy Days (0.01 inch or more) 1/1000th Acre. Gauge.	20 ins. deep.	40 ins. deep.	60 ins. deep.	Bright Sun-shine.	Max.	Min.	1 ft. in gr'd.	Solar Max.	Grass Min.
1934—	Inches.	No.	Inches.	Inches.	Inches.	Hours.	°F.	°F.	°F.	°F.	°F.
Jan. ..	2.136	22	1.687	1.762	1.690	56.9	43.1	32.1	37.2	67.3	28.0
Feb. ..	0.633	14	0.047	0.073	0.070	96.1	42.8	30.5	36.3	78.0	26.8
Mar. ..	2.464	18	1.571	1.676	1.531	127.0	47.1	33.6	39.0	96.4	28.5
April ..	2.026	16	0.469	0.476	0.417	120.8	53.6	38.6	45.0	108.8	34.8
May ..	0.895	11	0.041	0.074	0.071	200.8	61.1	42.8	52.8	120.3	38.3
June ..	1.750	11	0.000	0.005	0.000	184.9	67.4	49.8	59.4	127.0	44.8
July ..	1.130	10	0.000	0.000	0.000	274.8	75.0	53.3	64.3	130.4	47.2
Aug. ..	1.914	14	0.045	0.058	0.039	180.4	68.5	50.9	60.7	124.6	45.3
Sept. ..	2.727	16	0.692	0.748	0.680	172.6	66.8	49.8	57.7	119.6	43.9
Oct. ..	2.072	20	0.717	0.659	0.595	85.0	56.3	44.6	51.9	100.2	39.6
Nov. ..	1.988	17	1.525	1.462	1.356	45.9	46.4	37.8	43.2	70.6	34.7
Dec. ..	5.391	30	4.891	4.941	4.753	20.9	49.1	41.9	44.9	63.1	36.7
Total or Mean	25.126	199	11.685	11.934	11.202	1566.1	56.4	42.1	49.4	100.5	37.4

RAIN AND DRAINAGE
MONTHLY MEAN FOR 64 HARVEST YEARS, 1870-1—1933-4.

	Rain-fall.	Drainage.			Drainage % of Rainfall.			Evaporation.		
		20-in. Gauge.	40-in. Gauge.	60-in. Gauge.	20-in. Gauge.	40-in. Gauge.	60-in. Gauge.	20-in. Gauge.	40-in. Gauge.	60-in. Gauge.
	Ins.	Ins.	Ins.	Ins.	%	%	%	Ins.	Ins.	Ins.
Sept. ..	2.372	0.805	0.781	0.721	33.9	32.9	30.4	1.567	1.591	1.651
Oct. ..	3.101	1.754	1.733	1.605	56.6	55.9	51.8	1.347	1.368	1.496
Nov. ..	2.847	2.169	2.223	2.098	76.2	78.1	73.7	0.678	0.624	0.749
Dec. ..	2.773	2.356	2.454	2.343	85.0	88.5	84.5	0.417	0.319	0.430
Jan. ..	2.395	1.964	2.156	2.059	82.0	90.0	86.0	0.431	0.239	0.336
Feb. ..	1.980	1.465	1.579	1.506	74.0	79.7	76.1	0.515	0.401	0.474
Mar. ..	1.989	1.066	1.193	1.129	53.6	60.0	56.8	0.923	0.796	0.860
April ..	2.038	0.660	0.738	0.703	32.4	36.2	34.5	1.378	1.300	1.335
May ..	2.077	0.501	0.568	0.536	24.1	27.3	25.8	1.576	1.509	1.541
June ..	2.166	0.506	0.535	0.515	23.4	24.7	23.8	1.660	1.631	1.651
July ..	2.691	0.704	0.732	0.684	26.2	27.2	25.4	1.987	1.959	2.007
Aug. ..	2.611	0.694	0.708	0.666	26.6	27.1	25.5	1.917	1.903	1.945
Year ..	29.040	14.644	15.400	14.565	50.4	53.0	50.2	14.396	13.640	14.475

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