ROTHAMSTED RESEARCH

Rothamsted Report for 1936

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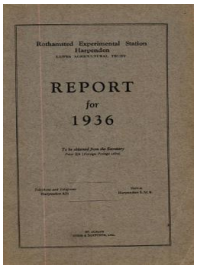

Chemical Analyses of Manures Used in Replicated Experiments, 1936

Rothamsted Research

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CHEMICAL ANALYSES OF MANURES USED IN REPLICATED EXPERIMENTS, 1936

Manures.	% N	% P_2O_5	% K_2O
Sulphate of Ammonia	21.0	—	—
Nitrate of Soda	16.2	—	—
Nitrochalk	15.8	—	—
Cyanamide	20.7	—	—
Poultry Manure (Dried) (1)	4.08	3.72	1.79
	3.63	3.22	1.60
	3.68	3.60	1.71
	4.25	3.65	1.67
	3.86	3.23	1.65
	3.89	3.76	1.78
Rape Dust	5.60	1.85	0.99
Soot	3.12, 3.04	—	—
Fish Meal	8.25	5.53	1.45
Dung (2)	0.82	0.69	0.86
Dung (3)	0.83	0.69	0.87
Dung (4)	0.66	0.95	0.95
Dung + Straw (5)	0.92	1.12	1.24
Superphosphate	17.0—17.6 Total 15.6—15.7 Water Sol.		P_2O_5
Sulphate of Potash	49.3		% K_2O
Muriate of Potash	51.4		
Muriate of Potash (high grade)	62.2		
Potash Salt	31.0		

(1) Used for Rothamsted and Woburn Experiments. All other samples of poultry manure used at outside centres.
(2) Used in Rothamsted Sugar Beet Experiment.
(3) Used in Rothamsted Potato Experiment, Autumn application.
(4) (5) Used in Rothamsted Potato Experiment, Spring application.

Three Course Rotation

Manures.	% Organic Matter.	% N	% P_2O_5	% K_2O
Chaffed Straw	84.5	0.50	0.13	1.90
Adco	14.9	0.44	0.30	0.28
Superphosphate	—	—	16.6(1) 17.6(2)	—
Sulphate of Ammonia	—	20.9(1) 21.0(2)	—	—
Muriate of Potash	—	—	—	52.0(1) 51.4(2)
Nitrate of Soda	—	16.2	—	—

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

Four Course Rotation

Manures.	% Organic Matter.	% N	% P_2O_5	% K_2O
Chaffed Straw	84.5	0.50	0.13	1.90
Dung	16.9	0.62	0.29	0.70
Adco	14.9	0.44	0.30	0.28
Superphosphate	—	—	16.6	—
Mineral Phosphate (90 % through 120 mesh)	—	—	25.7	—
Muriate of Potash	—	—	—	52.0
Sulphate of Ammonia	—	20.9	—	—

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Six Course Rotation

Sulphate of Ammonia	21.0 % N
Superphosphate	16.6(1), 17.6(2)
Muriate of Potash	51.9(1), 51.4(2)

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

Long Period Cultivation Experiment

Cyanamide	20.7 % N
Nitrochalk	15.8 % N
Superphosphate ..	17.6 % P_2O_5 (Total)
Muriate of Potash ..	51.4 % K_2O

AVERAGE WHEAT YIELDS OF VARIOUS COUNTRIES

Country.	Mean yield per acre, 1926-35 cwt.	Country.	Mean yield per acre, 1926-35 cwt.
Great Britain	17.9	Denmark	22.7
England and Wales ..	17.7	Argentine	7.1
Hertfordshire	16.8	Australia	6.2
France	11.9	Canada	8.3
Germany	16.6	United States	7.3
Belgium	20.7	U.S.S.R. (Europe and Asia)	6.0*

Note.—Figures for Great Britain, England and Hertfordshire are taken from the Ministry of Agriculture's "Agricultural Statistics," Vol. 70. Other figures from "International Year Book of Agricultural Statistics," 1929-37.

* Excluding 1931.

CONVERSION TABLE

1 acre (10 sq. chains or 4,840 sq. yards) ..	0.405 Hectare
1 bushel (Imperial) (8 gallons)	0.364 Hectolitre
1 lb. (pound avoirdupois)	0.453 Kilogramme
1 cwt. (hundredweight, 112 lb.)	50.8 Kilogrammes
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	0.899 Hectolitre per Hectare
1 lb. per acre	1.118 Kilogrammes per Hectare
1 cwt. per acre	1.256 dz. per Hectare
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. In America 1 cwt.=100 lb.

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, 1936

	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 Sunshine.	Max.	Min.	1 ft. in gr'd.	Grass Min.
1936—	Inches.	No.	Inches.	Inches.	Inches.	Hours.	°F.	°F.	°F.	°F.
Jan. ..	4.254	21	3.807	3.898	3.719	49.6	42.5	33.6	38.2	29.1
Feb. ..	2.334	16	1.842	2.070	1.957	81.0	39.7	30.5	35.6	24.8
Mar. ..	1.413	15	0.437	0.533	0.520	86.0	49.8	38.3	41.5	33.5
April ..	1.385	12	0.240	0.274	0.266	126.8	48.6	36.4	43.5	31.0
May ..	0.530	9	0.000	0.005	0.008	177.0	61.1	43.4	52.7	38.7
June ..	6.338	19	2.851	2.074	1.892	182.8	66.0	50.7	58.7	46.5
July ..	4.939	22	1.878	2.094	1.890	120.9	65.5	53.0	61.0	49.7
Aug. ..	0.354	7	0.023	0.058	0.050	181.2	68.5	52.2	61.1	47.5
Sept. ..	3.574	19	1.132	1.230	1.121	84.4	62.7	52.0	58.6	48.0
Oct. ..	1.834	16	0.620	0.638	0.569	97.1	54.1	41.4	49.0	36.3
Nov. ..	3.942	18	3.390	3.703	3.467	46.3	46.4	34.7	43.4	31.6
Dec. ..	2.349	21	1.744	1.868	1.823	59.7	44.8	34.6	40.3	31.1
Total or Mean	*33.246*	*195*	*17.964*	*18.445*	*17.282*	*1292.8*	*54.1*	*41.7*	*48.6*	*37.3*

RAIN AND DRAINAGE

Monthly Mean for 66 Harvest years, 1870-1 — 1935-6

	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
	Inches	Inches.	Inches.	Inches.	%	%	%	Inches	Inches	Inches
Sept. ..	2.409	0.823	0.801	0.740	34.2	33.2	30.7	1.586	1.608	1.669
Oct. ..	3.084	1.737	1.716	1.590	56.3	55.6	51.6	1.347	1.368	1.494
Nov. ..	2.872	2.198	2.252	2.127	76.5	78.4	74.0	0.674	0.620	0.745
Dec. ..	2.819	2.400	2.499	2.389	85.1	88.6	84.7	0.419	0.320	0.430
Jan. ..	2.403	1.973	2.162	2.065	82.1	90.0	85.9	0.430	0.241	0.338
Feb. ..	2.000	1.479	1.594	1.521	74.0	79.7	76.0	0.521	0.406	0.479
Mar. ..	1.960	1.042	1.167	1.105	53.2	59.5	56.4	0.918	0.793	0.855
April ..	2.057	0.671	0.750	0.713	32.6	36.5	34.7	1.386	1.307	1.344
May ..	2.051	0.488	0.554	0.523	23.8	27.0	25.5	1.563	1.497	1.528
June ..	2.242	0.547	0.565	0.542	24.4	25.2	24.2	1.695	1.677	1.700
July ..	2.699	0.711	0.741	0.692	26.3	27.4	25.6	1.988	1.958	2.007
Aug. ..	2.562	0.673	0.687	0.646	26.3	26.8	25.2	1.889	1.875	1.916
Year ..	*29.158*	*14.742*	*15.488*	*14.653*	*50.6*	*53.1*	*50.2*	*14.416*	*13.670*	*14.505*

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