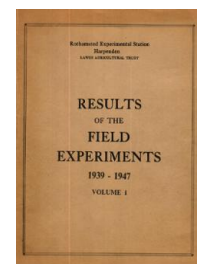


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Yields of the Field Experiments 1939-1947 Volume 1



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BD/1 Highfield Grazing

Rothamsted Research

Rothamsted Research (1948) *BD/1 Highfield Grazing* ; Yields Of The Field Experiments 1939-1947 Volume 1, pp 119 - 122 - DOI: <https://doi.org/10.23637/ERADOC-1-145>

Bd/1.1

GRAZING EXPERIMENT

Highfield (begun in 1937)The residual manurial value of feeding stuffs consumed on grassland

The experiment consisted of 3 blocks each of 3 plots. Each year one block began a new three-year cycle. In the first year of each cycle all three plots of the block were grazed with cattle only, additional feeding stuffs being fed on one plot. In the following winter or early spring another plot of each block received fertilizers estimated to be equivalent to the residual manurial value of the feeding stuffs consumed on the first plot in the previous year. The third plot of each block received neither feeding stuff nor fertilizer. In the second and third years of the cycle each of the plots was grazed by cattle and sheep which were weighed regularly.

Area of each plot, 5 acres.

Details of the design of the experiment are as given in the 1937 Station Report, pp. 24-27.

In order to obtain a single measure of the yield of a plot, the amount of starch equivalent produced on each plot in each year has been calculated. In this way it is possible to include in a single figure the energy value of the food required to produce the observed live-weight increases, together with the energy value required to maintain the animals. The calculations are based upon the tables of average composition given by Woodman, H.E., in "Rations for Livestock", Min. of Agric. and Fish. Bull. No. 48. H.M.S.O., 1948.

A full report of the experiment is given by Boyd, D.A., Crowther, E.M., Moffatt, J.R. and Yates, F. in a paper entitled "A grazing experiment on residual manurial value of feeding stuffs consumed on grass". J.R.A.S.E., 110, (1949), 104-114.

Herbage analyses were made by the Botany Department.

Amounts of Feeding Stuffs and Fertilizers applied

Year	Plot	Feeding Stuffs cwt. per acre			Year	Plot	Fertilizers cwt. per acre		
		1st Period	2nd Period	Total			N	P ₂ O ₅	K ₂ O
1938	4	3.00	5.98	8.98					
1938	2	3.38	6.74	10.12	1939	6	0.17	0.06	0.07
1939	7	3.06	3.78*	3.24	1939	3	0.19	0.07	0.07
1940	4	3.24	4.80	8.04	1940	8	0.17	0.05	0.05
1941	2	4.00	8.91	12.91	1941	6	0.16	0.05	0.06
1942	7	2.89	5.11	8.00	1942	3	0.25	0.09	0.09
1943	4	3.80	4.31	8.11	1943	8	0.16	0.06	0.05
1944	2	3.35	7.40	10.75	1944	6	0.17	0.07	0.07
1945	7	4.52	4.52	9.03	1945	3	0.25	0.09	0.10
1946	4	3.65	5.54	9.19	1946	8	0.18	0.07	0.06
					1947	6	0.19	0.08	0.07

*Plus 1.41 second-period ration fed during first period.
Feeding stuffs; equal parts of flaked maize and undecorticated cotton cake (1st period) or decorticated groundnut cake (2nd period).

Starch Equivalent: lb. per acre

Plot	1	2	3	5	4	6	9	7	8
	No Manure	Cake 1938,41, 44	Equivalent Manures	No Manure	Cake 1938,40, 43,46	Equivalent Manures	No Manure	Cake 1939,42, 45	Equivalent Manures
1937	Cattle 779	763	710	544	576	594	672	629	616
1938	Sheep 116	142	117	134	112	101	86	119	79
1939	Cattle 864	1033	985	917	1022	1059	639	648	613
1940	Sheep 746	724	807	746	774	848	653	670	664
1941	Cattle 680	847	719						
1941	Sheep 601	560	631						
1942	Cattle 780	849	768	747	1108	792	769	993	963
1942	Sheep 716	852	811	598	713	629	646	650	625
1943	Cattle 870	872	1086	775	813	783	1027	976	950
1943	Sheep 689	728	936	822	656	838	702	655	652
1944	Cattle 811	1231	1037	1182	1017	1408	882	1195	1163
1945	Sheep 445	680	743	716	551	674	908	999	863
1945	Cattle 1296	1627	1312	1079	1006	1174	1074	1399	945
1946	Sheep 646	631	568	696	624	731	622	680	591
1947	Cattle Sheep			1549	1042	1625	1254	1799	1489
				464	543	582	712	689	690
							1397	1694	1290
							383	420	556

Bd/1.2

Highfield Grazing Experiment

Plot	Live weight increase: lb. per acre								
	1	2 Cake 1938,41, 44	3 Equivalent Manures	5 No Manure	4 Cake 1938,40, 43,46	6 Equivalent Manures	9 No Manure	7 Cake 1939,42, 45	8 Equivalent Manures
1937	181	176	151	105	118	126	140	118	114
1938	3	13	6	14	6	4	0	9	-1
							126	130	114
1939	193	274	231	205	237	242	105	115	111
1940	114	100	123	115	107	130			
	135	178	133						
1941	91	74	95						
				128	214	147	148	235	229
1942	154	177	133	89	79	101	84	111	96
	104	145	127	160	190	144	217	192	180
1943	222	221	263	135	96	124	91	74	72
	69	84	108						
1944				332	296	404	237	312	300
				54	30	19	108	113	79
1945	175	276	237	209	210	219	315	398	236
1946	38	54	68	74	53	67	52	31	29
	276	339	264						
1947	62	59	48						
				343	215	373	278	388	328
				46	81	73	66	63	56
							319	378	290
							38	48	90

Ba/1.3

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