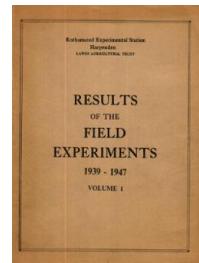


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Yields of the Field Experiments 1939-1947 Volume 1

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BD/1 Highfield Grazing

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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).

Plot	Starch Equivalent: lb. per acre							
	No Manure	1 1938, 41, Cake 44	2 1938, 41, Equivalent Manures	3 1938, 41, Equivalent Manures	4 1938, 40, Equivalent Manures	5 1938, 40, Equivalent Manures	6 1938, 40, Equivalent Manures	7 1939, 42, Equivalent Manures
1937	Cattle	779	763	710	544	576	594	672
	Sheep	116	142	117	134	112	101	86
1938	Cattle							639
	Sheep							653
1939	Cattle	864	1033	985	917	1022	1059	670
	Sheep	746	724	807	746	774	848	664
1940	Cattle	680	847	719				
	Sheep	601	560	631				
1941	Cattle							
	Sheep							
1942	Cattle	780	849	768	747	1108	792	769
	Sheep	716	852	811	598	713	629	646
1943	Cattle	870	872	1086	822	775	813	1027
	Sheep	689	728	936	822	656	783	976
1944	Cattle							655
	Sheep							655
1945	Cattle	811	1231	1037	1182	1017	1408	993
	Sheep	445	680	743	716	551	674	650
1946	Cattle	1296	1627	1312	1079	1006	1174	976
	Sheep	646	631	568	696	624	731	655
1947	Cattle							655
	Sheep							655

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Highfield Grazing Experiment

Plot	Live weight increase: lb. per acre							
	1 Manure No 44	2 Cake 1938, 41, 44	3 Equivalent Manures	4 Manure No 46	5 Manure No 44	6 Cake 1938, 40, 46	7 Manure No 45	8 Cake 1939, 42, Equivalent Manures
1937	Cattle Sheep	181 3	176 13	151 6	105 14	118 6	126 4	140 0
1938	Cattle Sheep	193 114	274 100	231 123	205 115	237 107	242 130	126 105
1939	Cattle Sheep	135 91	178 74	133 95				
1940	Cattle Sheep							
1941	Cattle Sheep							
1942	Cattle Sheep							
1943	Cattle Sheep							
1944	Cattle Sheep							
1945	Cattle Sheep							
1946	Cattle Sheep							
1947	Cattle Sheep							

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2

Plot	Grazing days per acre							
	1 No Manure	2 Cake 1938, 41, 44	3 Equivalent Manures	4 No Manure	5 1938, 40, 43, 46	6 Cake 1938, 40, 43, 46, Equivalent Manures	7 No Manure	8 1939, 42 Equivalent Manures
1937	Cattle	74	74	74	62	63	66	66
	Sheep	74	74	74	65	65	62	62
1938	Cattle						83	83
	Sheep						253	253
1939	Cattle	107	110	114	113	120	126	126
	Sheep	344	356	342	343	362	358	358
1940	Cattle	96	122	112			121	126
	Sheep	283	308	314			361	312
1941	Cattle						145	145
	Sheep						434	434
1942	Cattle	115	121	121	106	102	117	
	Sheep	339	355	366	338	316	374	
1943	Cattle	96	96	125				
	Sheep	283	288	373				
1944	Cattle						97	129
	Sheep						348	385
1945	Cattle	92	133	112	92	127	93	125
	Sheep	198	293	303	285	389	286	369
1946	Cattle	122	155	132	131	115		99
	Sheep	259	259	267	268	257	301	303
1947	Cattle						108	165
	Sheep						309	307

Bd/1.4