

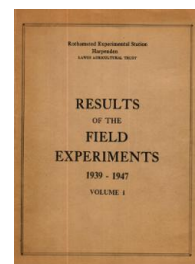
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BD/1 Highfield Grazing

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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).

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Highfield Grazing Experiment

Live weight increase: lb. per acre

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

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2

Grazing days per acre

Plot	1		2		3		4		5		6		7		8	
	No Manure	Cake 1938,41, 44	No Manure	Cake 1938,40, 43,46	No Manure	Cake 1938,40, 43,46	No Manure	Cake 1938,40, 43,46	No Manure	Cake 1938,40, 43,46	No Manure	Cake 1938,40, 43,46	No Manure	Cake 1938,40, 43,46	No Manure	Cake 1938,40, 43,46
1937	74	74	74	74	62	63	62	63	62	63	66	66	66	66	66	66
1938	74	74	74	74	65	65	65	65	65	65	62	62	62	62	62	62
1939	107	110	114	114	113	120	113	120	113	120	126	126	126	126	126	126
1940	344	356	342	342	343	362	343	362	343	362	379	379	379	379	379	379
1941	96	122	112	112												
1942	288	308	314	314												
1943	115	121	121	121	119	153	119	153	119	153	147	147	147	147	147	147
1944	339	355	366	366	358	457	358	457	358	457	358	358	358	358	358	358
1945	96	96	125	125	106	102	106	102	106	102	117	117	117	117	117	117
1946	288	288	373	373	338	316	338	316	338	316	374	374	374	374	374	374
1947	92	133	112	112	113	92	113	92	113	92	127	127	127	127	127	127
	198	293	303	303	346	285	346	285	346	285	389	389	389	389	389	389
	122	155	132	132	131	115	131	115	131	115	149	149	149	149	149	149
	259	259	267	267	268	257	268	257	268	257	301	301	301	301	301	301
					154	106	154	106	154	106	149	149	149	149	149	149
					218	202	218	202	218	202	238	238	238	238	238	238

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