

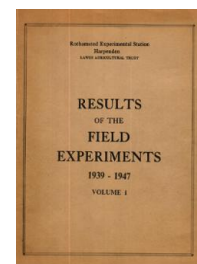
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# Yields of the Field Experiments 1939-1947 Volume 1

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## BB/1 Long Period Cultivation

### Rothamsted Research

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LONG PERIOD CULTIVATION EXPERIMENT

Long Hoos V, 1934-39

This experiment was completed in 1939. The results were reported by E.W. Russell and B.A. Keen in "Studies in Soil Cultivation - X. The results of a six-year cultivation experiment". J. Agric. Sci., 31, (1941), 326.

The experiment was designed to compare the effects on crop yield and weed infestation of continued ploughing, rotary cultivation with the Simar implement and stirring the soil with a cultivator, and also to investigate the value of cyanamide as a weed-killer. The crops grown in rotation were wheat, mangolds, barley, there being four blocks of twelve plots each under each crop. The twelve treatments were made up of all combinations of:-

Ploughing (P), Simaring (S) or Cultivating (C)  
Shallow cultivation (4 ins.) (Sh) or deep cultivation (8 ins.) (D)  
Cyanamide (Cy) or Nitrochalk (N)

On two of the four blocks the treatments were continued on the same plots in successive years, while on the other two blocks cycles of cultivations and manuring were used.

Area of each plot, 0.015 acre.

A basal dressing of 0.75 cwt. P<sub>2</sub>O<sub>5</sub> per acre (as superphosphate) and 1.0 cwt. K<sub>2</sub>O per acre (as muriate of potash) was given to all plots growing mangolds.

Details of the experiment are as given in the 1934 Report, p. 175.

Crop Notes

	Wheat	Mangolds	Barley
Variety	Wilhelmina	Yellow Globe	Plumage Archer
Previous crop	Barley	Wheat	Mangolds
Date sown	24/10/38	April 25	March 20
Harvested	Aug. 18	Oct. 25	Aug. 29

Standard errors per plot:

Wheat Grain, 0.950 cwt. per acre or 3.6%, 11 d.f.  
Mangolds Roots, 1.539 tons per acre or 6.6%, 11 d.f.  
Barley Grain, 1.313 cwt. per acre or 6.9%, 11 d.f.

Bb/1.2

		Continuous			1939				Cycle B			
1938		P	S	C	Mean	C	P	S	S	C	P	
1939		P	S	C		P	S	C	P	S	C	Mean
Wheat Grain: cwt. per acre												
		±0.67			±0.39	±0.95			±0.95			±0.39
N	D	31.3	25.0	24.3	26.9	22.5	27.3	21.4	29.3	26.6	22.8	25.0
	Sh	28.6	26.5	22.8	26.0	27.6	26.6	24.7	27.5	25.0	22.3	25.6
Cy	D	29.8	23.8	23.6	25.7	27.6	25.9	26.6	29.5	23.7	25.8	26.5
	Sh	25.4	24.5	26.6	25.5	29.3	26.2	24.6	23.7	21.0	23.9	24.8
Wheat Straw: cwt. per acre												
N	D	45.4	36.5	34.0	38.6	52.9	51.6	41.9	46.7	40.7	34.6	44.7
	Sh	42.5	39.4	34.0	38.6	43.8	44.7	43.8	42.1	39.5	33.4	41.2
Cy	D	46.3	36.6	35.0	39.3	41.5	45.4	40.7	44.8	34.3	38.0	40.8
	Sh	43.7	35.6	40.7	40.0	45.0	39.3	42.7	34.3	31.3	38.8	38.6
Mangolds Roots: tons per acre												
		±1.09			±0.63	±1.54			±1.54			±0.63
N	D	24.98	22.29	23.56	23.61	25.30	25.19	23.85	28.26	23.21	27.16	25.50
	Sh	26.20	23.21	21.88	23.76	26.46	23.50	24.72	24.20	21.94	26.99	24.64
Cy	D	24.46	23.30	23.07	23.61	28.03	23.74	23.91	29.48	25.30	22.63	25.52
	Sh	24.93	21.13	19.01	21.69	24.72	26.99	24.96	22.87	21.12	24.61	24.21
Mangolds Tops: tons per acre												
N	D	5.72	5.37	6.15	5.75	6.27	5.57	6.04	5.80	5.28	6.62	5.93
	Sh	5.86	5.98	5.69	5.84	5.75	6.04	5.80	5.57	4.87	6.44	5.74
Cy	D	6.09	5.92	5.69	5.90	5.75	5.80	5.80	7.08	5.69	5.11	5.87
	Sh	6.56	5.51	5.40	5.82	5.46	6.04	5.98	5.80	4.99	5.57	5.64
Barley Grain: cwt. per acre												
		±0.93			±0.54	±1.31			±1.31			±0.54
N	D	19.8	22.6	17.1	19.8	23.6	21.5	19.2	23.6	22.6	18.8	21.6
	Sh	22.6	18.6	15.7	19.0	22.1	24.1	19.9	24.7	16.4	20.4	21.3
Cy	D	23.6	20.6	16.4	20.2	23.1	21.7	20.5	25.2	20.1	21.7	22.0
	Sh	21.5	16.2	14.1	17.3	22.5	19.2	16.8	19.3	18.0	20.8	19.4
Barley Straw: cwt. per acre												
N	D	24.3	26.2	22.0	24.2	25.1	23.7	23.8	28.6	25.0	24.1	25.0
	Sh	27.2	23.2	16.8	22.4	22.1	25.8	27.7	28.7	21.9	23.7	25.0
Cy	D	25.7	24.6	21.6	24.0	27.4	24.1	25.3	28.1	22.8	25.3	25.5
	Sh	25.2	20.0	17.5	20.9	25.1	22.6	21.5	24.8	18.6	22.8	22.6

Standard errors are based on 11 d.f.

Bb/1.3

Long Period Cultivation Experiment

Mean of Nitrochalk and Cyanamide  
1939

1938 1939	Continuous				Cycle A			Cycle B			Mean
	P	S	C	Mean	C	P	S	S	C	P	
	P	S	C	Mean	P	S	C	P	S	C	Mean
Wheat Grain: cwt. per acre											
D		$\pm 0.48$		$\pm 0.27$		$\pm 0.67$			$\pm 0.67$		$\pm 0.27$
Sh	30.6	24.4	24.0	26.3	25.0	26.6	24.0	29.4	25.2	24.3	25.8
Mean	28.8	25.0	24.4	26.1	26.7	26.5	24.3	27.5	24.1	23.7	25.5
Wheat Straw: cwt. per acre											
D		$\pm 0.34$				$\pm 0.48$			$\pm 0.48$		
Sh	45.8	36.6	34.5	39.0	47.2	48.5	41.3	45.8	37.5	36.3	42.8
Mean	44.4	37.0	36.0	39.2	45.8	45.2	42.2	42.0	36.4	36.2	41.3
Mangolds: Roots: tons per acre											
D		$\pm 0.77$		$\pm 0.44$		$\pm 1.09$			$\pm 1.09$		$\pm 0.44$
Sh	24.72	22.80	23.32	23.61	26.66	24.46	23.88	28.87	24.26	24.90	25.50
Mean	25.14	22.48	21.88	23.17	26.12	24.85	24.36	26.20	22.90	25.35	24.96
Mangolds Tops: tons per acre											
D	5.90	5.64	5.92	5.82	6.01	5.68	5.92	6.44	5.48	5.86	5.90
Sh	6.21	5.74	5.54	5.83	5.60	6.04	5.89	5.68	4.93	6.00	5.69
Mean	6.06	5.69	5.73	5.83	5.80	5.86	5.90	6.06	5.20	5.93	5.79
Barley Grain: cwt. per acre											
D		$\pm 0.66$		$\pm 0.38$		$\pm 0.93$			$\pm 0.93$		$\pm 0.38$
Sh	21.7	21.6	16.8	20.0	23.4	21.6	19.8	24.4	21.4	20.2	21.8
Mean	21.8	19.5	15.8	19.0	22.8	21.6	19.1	23.2	19.3	20.4	21.1
Barley Straw: cwt. per acre											
D	25.0	25.4	21.8	24.1	26.2	23.9	24.6	28.4	23.9	24.7	25.3
Sh	26.2	21.6	17.2	21.7	23.6	24.2	24.6	26.8	20.2	23.2	23.8
Mean	25.6	23.5	19.5	22.9	24.9	24.0	24.6	27.6	22.0	24.0	24.5

Standard errors are based on 11 d.f.

Year of Observation and Location

Year	Location 1			Location 2			Location 3		
	1	2	3	1	2	3	1	2	3
1950	10.2	12.5	15.8	8.7	11.0	14.3	9.5	11.8	15.1
1951	11.5	13.8	17.1	9.0	11.3	14.6	10.2	12.5	15.8
1952	12.8	15.1	18.4	9.3	11.6	14.9	10.5	12.8	16.1
1953	14.1	16.4	19.7	9.6	11.9	15.2	10.8	13.1	16.4
1954	15.4	17.7	21.0	9.9	12.2	15.5	11.1	13.4	16.7
1955	16.7	19.0	22.3	10.2	12.5	15.8	11.4	13.7	17.0
1956	18.0	20.3	23.6	10.5	12.8	16.1	11.7	14.0	17.3
1957	19.3	21.6	24.9	10.8	13.1	16.4	12.0	14.3	17.6
1958	20.6	22.9	26.2	11.1	13.4	16.7	12.3	14.6	17.9
1959	21.9	24.2	27.5	11.4	13.7	17.0	12.6	14.9	18.2
1960	23.2	25.5	28.8	11.7	14.0	17.3	12.9	15.2	18.5
1961	24.5	26.8	30.1	12.0	14.3	17.6	13.2	15.5	18.8
1962	25.8	28.1	31.4	12.3	14.6	17.9	13.5	15.8	19.1
1963	27.1	29.4	32.7	12.6	14.9	18.2	13.8	16.1	19.4
1964	28.4	30.7	34.0	12.9	15.2	18.5	14.1	16.4	19.7
1965	29.7	32.0	35.3	13.2	15.5	18.8	14.4	16.7	20.0
1966	31.0	33.3	36.6	13.5	15.8	19.1	14.7	17.0	20.3
1967	32.3	34.6	37.9	13.8	16.1	19.4	15.0	17.3	20.6
1968	33.6	35.9	39.2	14.1	16.4	19.7	15.3	17.6	20.9
1969	34.9	37.2	40.5	14.4	16.7	20.0	15.6	17.9	21.2
1970	36.2	38.5	41.8	14.7	17.0	20.3	15.9	18.2	21.5