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## Yields of the Field Experiments 1953

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### 53/BA/2 Four-course Rotation - Rothamsted

#### Rothamsted Research

Rothamsted Research (1954) *53/BA/2 Four-course Rotation - Rothamsted* ; Yields Of The Field Experiments 1953, pp 20 - 22 - DOI: <https://doi.org/10.23637/ERADOC-1-173>

FOUR COURSE ROTATION EXPERIMENT

The 24th year

Direct and residual effects of organic manures and phosphatic fertilizers - Hoosfield 1953.

For details of treatments and rotation see "Results of the Field Experiments 1939-47" Vol. I, Section Ba/3.

Area of each plot: Potatoes (whole plot): 0.0242 acre. Barley and ryegrass: 0.0244 acre. Wheat: 0.0233 acre.

Manures (cwt per acre) applied 1952-53

Treatment	Organic manures and phosphates				Supplementary fertilizers		
	Organic matter	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N as Sulph. of amm.	P <sub>2</sub> O <sub>5</sub> as Super	K <sub>2</sub> O as Mur. of potash
Dung	50	2.131*	0.820	1.066	-	0.380	1.934
Adco	50	1.012	0.600	0.750	0.788	0.600	2.250
Straw	112	0.496	0.108	0.312	1.304†	1.092	2.688
Super			1.2		0.36†		0.6†
Rock phosphate			1.2		0.36†		0.6†

\*In excess of the standard rate (1.800 cwt N).

†Yearly dressings totalling to the standard rate in the 5 year period.

Cultivations, etc.:

Potatoes.

Ploughed: Sept 1, 1952. Supplementary fertilizers to dung and adco plots applied: Jan 20, 1953. Dung and adco applied: Jan 21. Straw and first dressing to straw plots applied, all plots ploughed: Jan 26. Ridged: Mar 31. Spring fertilizers, including second and third dressing to straw plots, and sulphate of ammonia to half plots, applied: Apr 1. Potatoes planted: Apr 2. Earthed up: June 27. Sprayed with copper fungicide 5½ lb per acre: July 28 and again Aug 8. Sprayed with sulphuric acid, 20% B.O.V.: Sept 26. Lifted: Oct 1. Variety: Majestic.

Barley.

Dung, adco and supplementary fertilizers and first dressing to straw plots applied: Jan 20, 1953. Straw applied, all plots ploughed: Jan 21. 19 cwt ground chalk per acre applied: Feb 25. Spring fertilizers and second and third dressing to straw plots applied: Feb 27. Seed drilled at 3 bushels per acre: Feb 28. Harvested: Aug 11. Variety: Plumage Archer.

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Ryegrass.

Dung and adco applied: Sept 13, 1952. Straw applied, all plots ploughed: Sept 15. Supplementary fertilizers to dung and adco plots, first dressing to straw plots, autumn fertilizers applied and seed sown at 112 lb per acre: Sept 19. Second dressing to straw plots applied: Jan 23, 1953. Sulphate of ammonia and third dressing to straw plots applied: Apr 7. Harvested: June 25. Variety: Western Wolths.

Wheat.

Ploughed: Aug 7, 1952. Supplementary fertilizers to dung and adco plots and first dressing to straw plots applied: Sept 16. Dung, adco and straw applied, ploughed all plots: Sept 17. Autumn fertilizers applied: Oct 8. Seed drilled at 3 bushels per acre: Oct 27. Second dressing to straw plots applied: Jan 23, 1953. Sulphate of ammonia and third dressing to straw plots applied: Apr 22. Harvested: Aug 20. Variety: Squareheads Master 13/4.

Summary of Results

Manure +	Year of Cycle	Potatoes					Percentage Ware		Barley (at 85% D.M.) Grain Straw cwt per acre	Ryegrass Dry Matter cwt per acre	Wheat Grain Straw cwt per acre	
		Total tubers, tons	Additional N Without	With	Mean	Resp. to Nitrogen	Additional N Without	With				Mean
Dung	I	8.33	10.40	9.36	+2.07	87.1	91.1	89.1	+4.0	31.9	20.7	37.6
	II	7.23	8.90	8.06	+1.67	87.5	91.1	89.3	+3.6	27.8	18.3	34.6
	III	8.03	5.77	6.90	-2.26	91.5	88.3	89.9	-3.2	24.4	14.9	27.6
	IV	6.04	8.68	7.36	+2.64	87.6	88.7	88.2	+1.1	21.9	12.3	28.6
	V	5.45	8.05	6.75	+2.60	81.2	82.6	81.9	+1.4	23.7	11.9	26.1
Adco (Straw compost)	I	10.09	12.04	11.06	+1.95	81.1	93.1	87.1	+12.0	28.1	34.1	52.0
	II	7.23	8.91	8.07	+1.68	84.4	83.4	83.9	-1.0	26.4	15.7	22.6
	III	5.31	6.40	5.86	+1.09	84.2	86.2	85.2	+2.0	21.7	12.5	21.8
	IV	6.17	7.40	6.78	+1.23	87.3	90.6	89.0	+3.3	24.5	13.9	26.5
	V	5.86	7.70	6.78	+1.84	86.8	86.6	86.7	-0.2	21.5	12.2	27.0
Straw	I	8.52	12.84	10.68	+4.32	89.6	93.4	91.5	+3.8	26.0	59.7	55.8
	II	6.84	7.66	7.25	+0.82	81.6	90.3	86.0	+8.7	13.3	14.7	28.1
	III	6.75	8.17	7.46	+1.42	88.5	91.0	89.8	+2.5	25.1	17.3	30.0
	IV	7.19	8.80	8.00	+1.61	88.4	89.2	83.8	+0.8	27.1	12.2	31.9
	V	6.99	8.41	7.70	+1.42	89.5	90.6	90.0	+1.1	22.0	12.2	26.5
Super-phosphate	I	9.07	9.18	9.12	+0.11	87.2	87.3	87.5	+0.6	30.9	32.7	31.9
	II	7.58	9.46	8.52	+1.83	86.2	85.4	85.8	-0.8	25.1	30.2	37.4
	III	8.41	8.34	8.62	+0.43	89.0	89.9	89.4	+0.9	26.9	26.7	30.8
	IV	7.19	9.11	8.15	+1.92	89.7	89.9	89.8	+0.2	24.3	30.3	33.2
	V	8.33	7.78	8.06	-0.55	94.0	89.3	91.6	-4.7	26.6	30.3	34.6
Rock phosphate	I	5.93	6.01	5.97	+0.03	83.3	86.6	85.0	+3.3	29.3	29.4	33.2
	II	4.87	6.00	5.44	+1.13	84.3	83.1	86.2	+3.8	25.7	23.5	31.2
	III	6.39	5.77	6.03	-0.62	89.6	80.1	84.8	-9.5	27.3	29.4	29.1
	IV	6.43	7.23	6.86	+0.75	89.5	91.7	90.6	+2.2	22.9	28.0	33.5
	V	5.10	6.48	5.79	+1.38	88.2	90.1	89.2	+1.9	29.0	26.9	29.7
Mean Dry Matter %										84.5		83.4

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+Note. All manures are supplemented by fertilizers as shown in table on page 53/Ba/2.1