

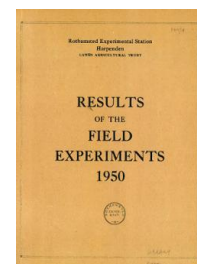
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50/BA/3 Four-course Rotation - Rothamsted

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Rothamsted Research (1951) *50/BA/3 Four-course Rotation - Rothamsted* ; Yields Of The Field Experiments 1950, pp 18 - 20 - DOI: <https://doi.org/10.23637/ERADOC-1-185>

FOUR COURSE ROTATION EXPERIMENT

Direct and residual effects of organics and phosphates - Hoosfield 1950.

For details of treatments and rotation etc. see Appendix Z.

Area of each plot: Potatoes; 0.0228 acre. Barley, Ryegrass and wheat; 0.0244 acre.

Manures applied 1949-50

Treatment	Organic fertilizers (cwt per acre)				Additional artificial fertilizers (cwt per acre)		
	Organic matter	N	P ₂ O ₅	K ₂ O	N as Sulph. of amm.	P ₂ O ₅ as Super	K ₂ O as mur. of potash
Dung	50 (as F.Y.M.)	1.560	0.650	2.602	0.240	0.550	0.398
Adco	50 (as Adco)	1.604	0.912	0.864	0.196	0.288	2.136
Straw	155 (as Straw)	0.962	0.300	1.565	0.838	0.900	1.435
Super			None		0.36	1.2	0.6
Rock phosphate			None		0.36	1.2*	0.6

* As mineral phosphate

Cultivations; etc.:

Potatoes,

Ploughed: Aug 26-29. First dressing of fertilizers applied to straw plots: Dec 6. Dung and Adco applied: Dec 12. Supplementary fertilizers to Adco and Dung applied, second dressing of fertilizers applied to straw plots: Dec 13. Straw applied and ploughed in: Dec 13-15. Cultivated: Mar 25. Cultivated, springtined and harrowed: Mar 27. Ridged, spring fertilizers including third dressing to straw plots, and sulphate of ammonia to half plots, applied; potatoes planted and covered in; rolled ridges: Apr 3. Chain harrowed: May 5. Grubbed: May 24. Weeded: June 21. Ridged: June 27. Sprayed with "Perenox": July 24. Sprayed with "Coppesan": Aug 18. Sprayed with B.O.V. 15% to kill off haulm. Lifted: Oct 12. Variety: Majestic. Previous crop: Wheat.

Barley,

Ploughed: Sept 23-24. First dressing of fertilizers applied to straw plots: Dec 6. Dung, Adco and supplementary fertilizers, and second dressing of fertilizers to straw plots applied: Dec 14. Straw applied, all plots ploughed: Dec 22-29. Ground chalk applied: Jan 18. Springtined: Mar 9 and again Mar 11. Spring fertilizers including third dressing to straw plots applied, harrowed, seed drilled and harrowed in, rolled: Mar 14. Harvested: Aug 10. Variety: Plumage Archer. Previous crop: Potatoes.

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Ryegrass,

Dung, Adco and supplementary fertilizers applied: Sept 13. First dressing of fertilizers applied to straw plots: Sept 14. Straw applied, ploughed all plots: Sept 13-16. Springtined: Oct 14. Harrowed: Oct 15. Autumn fertilizers applied: Oct 22. Second dressing of fertilizers applied to straw plots: Dec 6. Seeds not sown owing to wet state of land. Reploughed: Dec 6-8. Springtined twice: Mar 9. Harrowed, rolled, fertilizers including third dressing to straw plots applied, seeds sown: Mar 13. Harrowed in and rolled: Mar 14. Sprayed with D.N.O.C. to kill off weeds: May 4. Harvested: July 20. Variety: Western Wolths. Previous crop: Barley.

Wheat,

Ploughed: June 25-29. Dung, Adco and supplementary fertilizers, first dressing of fertilizers to straw plots applied: Sept 14. Ring rolled: Sept 15. Straw applied, all plots ploughed: Sept 16-19. Harrowed: Oct 15. Autumn fertilizers applied: Oct 22. Harrowed, seed drilled and harrowed in: Oct 29. Second dressing of fertilizers applied to straw plots: Dec 6. Rolled: Apr 6. Sulphate of ammonia applied: Apr 20. Third dressing of fertilizers applied to straw plots: Apr 21. Ring rolled: Apr 22. Sprayed to kill off weeds: May 4. Harvested: Aug 9. Variety: Squareheads Master 13/4. Previous crop: Ryegrass.

Summary of Results

Manure ⁺	Year of Cycle	Wheat [‡]		Barley		Ryegrass		Potatoes				Resp. to N	
		Grain cwt. per acre	Straw per acre	Grain cwt per acre	Straw per acre	Dry matter cwt per acre	Total clean tubers, tons per acre	Mean	Resp. to Nitrogen	Additional N Without	Percentage Ware Additional N With		Mean
Manure as F.Y.M.	I	25.8	47.1	18.7	26.2	18.6	10.55	11.71	11.13	1.16	94.3	94.4	0.2
	II	23.2	40.0	21.0	25.1	14.3	6.42	10.42	8.42	4.00	89.0	89.1	-0.2
	III	19.8	41.2	18.7	23.6	11.9	5.39	7.72	6.56	2.33	89.2	91.4	4.3
	IV	22.1	39.9	18.3	24.3	13.5	6.42	7.43	6.92	1.01	91.5	91.0	-1.1
	V	24.9	32.1	15.9	20.5	9.7	6.48	8.30	7.39	1.82	89.3	90.2	-1.8
Manure as Adco (straw compost)	I	26.4	45.2	18.0	27.2	14.4	7.68	10.88	9.28	3.20	91.0	90.6	0.8
	II	26.1	46.7	11.7	17.6	15.9	9.01	10.22	9.62	1.21	84.5	89.0	-9.1
	III	20.3	40.7	17.7	26.4	10.5	7.43	10.07	8.75	2.64	88.5	91.5	-6.0
	IV	21.2	37.2	18.5	27.2	13.6	7.10	7.31	7.20	0.21	88.6	89.4	-1.6
	V	21.3	36.2	18.3	25.5	10.1	6.35	6.12	6.24	-0.23	90.0	89.0	2.1
Manure as Straw	I	26.8	45.7	25.0	34.2	14.2	6.64	10.63	9.64	1.99	89.0	91.8	5.5
	II	22.2	39.7	18.3	25.7	10.6	6.02	8.45	7.24	2.43	87.5	91.8	8.6
	III	21.1	41.5	19.7	26.1	10.9	7.45	8.93	8.19	1.48	89.9	88.6	-2.5
	IV	22.2	38.6	22.8	29.5	11.7	7.77	9.41	8.59	1.64	88.4	90.4	3.5
	V	18.7	31.7	15.7	20.9	10.3	6.48	9.70	8.09	3.22	90.6	91.7	2.2
Super-phosphate	I	26.6	47.2	20.0	24.7	16.8	9.01	10.74	9.88	1.73	91.6	90.4	-2.3
	II	24.8	42.0	17.4	25.3	15.5	6.64	7.12	6.88	0.48	94.0	91.9	-4.2
	III	26.7	45.6	19.0	20.6	15.4	8.74	8.06	8.40	-0.68	95.3	93.4	-3.9
	IV	24.5	41.7	24.3	32.4	17.2	6.94	6.52	6.73	-0.42	82.1	85.0	5.8
	V	22.9	37.4	15.2	23.2	19.1	7.05	10.51	8.78	3.46	91.2	83.0	-16.3
Rock Phosphate	I	25.7	46.3	11.3	22.0	16.9	3.51	3.20	3.36	-0.31	84.7	84.6	-0.3
	II	23.6	41.3	7.0	20.5	14.4	4.91	6.44	5.68	1.53	81.6	84.4	5.6
	III	23.9	43.4	21.9	30.5	18.0	5.15	5.27	6.21	0.12	86.3	89.2	5.7
	IV	20.8	33.9	16.7	24.2	16.2	5.02	6.31	5.66	1.29	87.4	89.2	3.7
	V	25.0	40.4	16.1	24.8	16.6	5.90	5.90	5.90	0.00	89.1	89.2	3.2

+ Note. All manures are supplemented by fertilizers as shown in Table on page 50/Ba/3.1.

‡ Owing to varying conditions during harvesting wheat grain yields have been corrected to 83% Dry Matter, and wheat straw to 82%.

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