

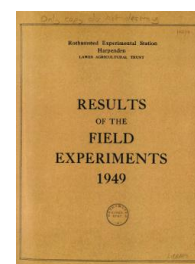
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Yields of the Field Experiments 1949

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49/BA/3 Four-course Rotation - Rothamsted

49/BA/3 Four-course Rotation - Rothamsted, Rothamsted Research (1950) Yields Of The Field Experiments 1949, pp 23 - 25

49/Ba/3.1

FOUR COURSE ROTATION

Hoosfield, 1949

Residual values of organic and phosphatic fertilizers

For details of the experiment, see 1932 Report, pp. 127-8.
The following alterations have been made:-

1. From 1935 onwards, clover ryegrass ley has been replaced by ryegrass alone, sown in autumn after ploughing barley stubble, with fertilizers applied as on wheat.
2. From 1935 onwards, lime has been applied every year at the rate of 10 cwt per acre to the potato break after the crop has been lifted.
3. Each plot of the potato break has been split from 1942 onwards, a random half of each plot receiving an additional 2 cwt per acre sulphate of ammonia.
4. Majestic potato seed has been used since 1942 in place of Ally.

Manures applied 1948-9

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 FYM)	1.589	0.546	2.061	0.211	0.654	0.939
Adco	50 (as Adco)	1.371	0.718	1.273	0.429	0.482	1.727
Straw	127 (as Straw)	1.270	0.283	2.773	0.530	0.917	0.227
Super			None		0.36	1.2	0.6
Rock phosphate			None		0.36	1.2*	0.6

* As mineral phosphate

49/Ba/3.2

Cultivations, etc.

Barley, Series 1.

Dung and Adco with supplementary artificials applied: Dec 1. Straw and first dressing of artificials applied: Dec 16. Ploughed on various days: Dec 2-20. Second dressing of artificials to straw plots: Dec 18. Ground lime applied (10 cwt per acre): Jan 25. Springtime harrowed: Feb 25. Spring artificials including third dressing to straw plots applied: Mar 2. Harrowed, seed drilled and harrowed in: Mar 3. Ring rolled: Apr 12. Thistles hand pulled: June 7. Harvested: Aug 8. Variety: Plumage Archer. Previous crop: Potatoes.

Ryegrass, Series 2.

Dung and Adco with supplementary artificials applied; straw with first dressing of supplementary artificials applied: Sept 16. Ploughed: Sept 10-16. Rolled and harrowed both ways: Sept 30. Harrowed twice: Oct 1, 12. Autumn artificials applied: Oct 15. Seeds not sown owing to wet state of land. Second dressing of artificials to straw plots, ploughed: Dec 20. Springtined: Feb 25. Harrowed and ring rolled: Mar 24. Sulphate of ammonia applied; third dressing of artificials applied to straw plots; seed sown, harrowed and rolled in: Mar 25. Crop failed but plots had become very weedy. Cut with mower: June 25. Ploughed in: June 25-29. Variety: Western Worths. Previous crop: Barley.

Potatoes, Series 3.

Ploughed: Sept 9-10. Dung and Adco with supplementary artificials applied: Dec 3. Ploughed various days: Dec 2-20. First dressing of artificials applied to straw plots: Dec 13. Straw applied and ploughed in: Dec 18. Second dressing of artificials applied to straw plots: Dec 21. Springtined: Feb 25. Bouted: Mar 31. Spring artificials, including third dressing to straw plots, and sulphate of ammonia to half ridges: Apr 9. Chain harrowed: Apr 27. Re-ridged: May 9. Harrowed ridges: May 16. Ridged twice: June 1, 28. Weeded: June 29-30. Earthed up: July 14. Sprayed to kill off haulm: Sept 9. Lifted: Sept 21. Variety: Majestic. Previous crop: Wheat.

Wheat, Series 4.

Ploughed: July 2-7, 1948. Harrowed twice, ploughing started: Sept 13. Dung and Adco with supplementary artificials applied; straw with first dressing of artificials applied and ploughed in; ploughing finished: Sept 17. Springtined: Oct 21. Harrowed: Oct 22. Autumn artificials applied, seed drilled: Oct 23. Second dressing of artificials applied to straw plots: Dec 22. Harrowed and rolled: Apr 11. Sulphate of ammonia applied, third dressing of artificials applied to straw plots: Apr 25. Harvested: Aug 8. Variety: Squareheads Master 13/4. Previous crop: Ryegrass

A summary of the results of 14 years of this Rotation can be found in the 1946 Report, p. 82.

49/Ba/3.3

Summary of Results, 1949
Potatoes

Manure	Year of Cycle	Wheat		Barley		Total tubers tons per acre		Percentage Ware		Resp. to N
		Grain	Straw	cwt per acre	Grain	Additional N	Mean	Without	With	
Manure as F.Y.M.	I	23.2	41.8	29.2	34.6	2.50	3.82	78.4	83.7	5.3
	II	20.4	36.6	24.2	26.1	3.48	3.50	84.8	86.3	1.5
	III	21.7	35.6	23.6	27.9	3.77	4.10	83.2	87.6	4.4
	IV	18.9	29.4	23.2	24.3	2.51	3.02	83.2	85.7	2.5
	V	19.4	30.7	21.4	24.0	3.52	3.50	86.6	84.7	-1.9
Manure as Adco	I	27.3	50.9	29.2	35.8	3.75	4.22	84.5	87.4	2.9
	II	23.5	39.6	26.4	29.4	2.28	2.88	81.9	85.5	3.6
	III	20.4	33.5	21.7	24.1	1.95	2.50	80.7	89.6	8.9
	IV	19.4	30.5	21.3	22.9	2.72	3.36	85.2	89.8	4.6
	V	18.9	26.8	23.5	25.2	2.95	2.96	82.0	84.3	2.3
Manure as Straw	I	20.8	31.6	26.7	30.6	2.75	3.46	76.9	86.0	9.1
	II	20.0	33.9	25.7	26.9	2.41	3.04	77.4	82.8	5.4
	III	21.9	40.0	21.6	22.7	3.60	4.06	83.8	84.8	1.0
	IV	21.4	36.4	25.2	25.6	3.42	3.32	86.1	86.9	0.8
	V	19.7	35.2	19.7	24.7	2.40	2.56	76.2	78.6	2.4
Super-phosphate	I	23.4	39.3	29.9	32.5	3.52	3.32	81.0	79.7	-1.3
	II	20.6	32.9	25.5	32.5	2.94	3.29	83.6	86.1	2.5
	III	23.5	40.4	26.3	31.4	3.97	4.08	86.8	87.3	0.5
	IV	22.3	34.1	26.5	32.1	3.30	3.69	87.1	87.4	0.3
	V	24.5	39.3	25.6	31.4	3.46	3.47	85.9	85.2	-0.7
Rock phosphate	I	23.7	37.1	23.4	29.8	2.53	2.46	86.3	84.8	-1.5
	II	22.8	34.9	25.8	31.6	2.89	3.02	80.6	88.0	7.4
	III	21.9	31.5	23.9	26.5	3.59	3.18	90.1	85.0	-5.1
	IV	21.5	32.8	25.0	30.0	2.97	2.93	89.9	87.8	-2.1
	V	21.1	33.9	25.7	27.6	2.99	3.27	87.9	88.0	0.1

Note: The ryegrass crop failed because of draught.