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Yields of the Field Experiments 1956

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56/R/BA/3 and 56/W/BA/3 Six-course Rotation

Rothamsted Research

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56/Ba/3.1

SIX COURSE ROTATION EXPERIMENT

The 27th year

Seasonal effects of fertilizers - Rothamsted Long Hoos IV and Woburn Stackyard 1956.

For history, treatments etc., see "Details of the Classical and Long Term Experiments", 1956.

Area of each plot: Rothamsted, 0.0250 acres. Woburn, 0.0266 acres.

Cultivations, etc.:

Rothamsted

Sugar beet.

Ploughed: Sept 6, 1955 and Nov 24. Fertilizers applied, seed drilled at 18 lb per acre: Mar 29, 1956. Singled: May 24 - 30. Lifted: Dec 5. Variety: Klein E.

Barley.

Sugar beet tops spread: Nov 22, 1955. Ploughed: Nov 24. Ground chalk applied at 20 cwt per acre: Dec 2. Seed drilled at 3 bushels per acre: Mar 14, 1956. Fertilizers applied: Mar 15. Clover seed undersown: Apr 23. Harvested: Sept 12. Variety: Plumage Archer.

Clover.

Seed undersown in barley at 40 lb per acre: Apr 26, 1955. Autumn fertilizers applied: Oct 27. Sulphate of ammonia applied: Apr 9, 1956. Cut: July 13. Variety: Late flowering Montgomery Red.

Wheat.

Ploughed: July 28, 1955 and Oct 12. Autumn fertilizers applied: Oct 17. Seed drilled at $2\frac{3}{4}$ bushels per acre: Oct 18. Sulphate of ammonia applied: Apr 24, 1956. Harvested: Aug 22. Variety: Yeoman.

Potatoes.

Ploughed: Sept 6, 1955 and Oct 17. Ridged: Mar 26, 1956. Fertilizers applied, potatoes planted: Mar 27. Earthed up: June 23. Sprayed with copper fungicide at 3 lb in 80 gallons per acre: July 25. Sprayed with sulphuric acid, 20% BOV, 80 gallons per acre: Sept 13. Lifted: Oct 8. Variety: Majestic.

Rye.

Ploughed: Oct 3, 1955. Ground chalk applied at 20 cwt per acre: Oct 4. Autumn fertilizers applied: Oct 15. Seed drilled at 3 bushels per acre: Oct 17. Sulphate of ammonia applied: Apr 24, 1956. Harvested: Aug 21. Variety: King II.

56/Ba/3.2

Woburn

Sugar beet.

Ploughed: Sept 1, 1955 and Dec 12. Fertilizers applied: Apr 6, 1956.
Seed drilled at 12 lb per acre: Apr 9. Re-drilled thin places:
May 12. Dusted with 5% DDT: May 19. Sprayed with parathion,
 $\frac{1}{2}$ pint in 40 gallons per acre: May 25. Singled: June 6 - 7.
Lifted: Oct 23. Variety: Klein E.
Note: The DDT and parathion were applied to control leaf miner
(Pegomyia beta).

Barley.

Beet tops spread, ploughed: Oct 31, 1955. Fertilizers applied:
Mar 13. Seed drilled at $2\frac{1}{2}$ bushels per acre: Mar 15. Sprayed
with MCPA, 2 pints in 20 gallons per acre: May 7. Harvested:
Aug 14. Variety: Herta.

Clover.

Autumn fertilizers applied: Oct 13, 1955. Undersown crop failed
during winter. Whole block ploughed: Mar 9, 1956. Sulphate of
ammonia applied: Mar 27. Seed drilled at 40 lb per acre: Mar 28.
Cut: July 6. Variety: Crimson Clover.

Wheat.

Ploughed: July 19, 1955. Autumn fertilizers applied: Oct 12, 1955.
Seed drilled at 3 bushels per acre: Oct 15. Sulphate of ammonia
applied: Apr 26, 1956. Sprayed with DNOC, 6 lb in 80 gallons
per acre: May 1. Harvested: Aug 23. Variety: Yeoman.

Potatoes.

Ploughed: Sept 1, 1955 and Dec 12. Ridged, fertilizers applied,
potatoes planted: Apr 4, 1956. Earthed up: June 18. Sprayed with
copper fungicide, 5 lb in 40 gallons per acre: July 23. Sprayed with
arsenious compound, 1 gallon in 40 gallons per acre: Sept 4.
Lifted: Oct 4. Variety: Majestic.

Rye.

Ploughed: Oct 6, 1955. Ground chalk applied at 20 cwt per acre:
Oct 13. Seed drilled at $2\frac{1}{2}$ bushels per acre: Oct 15. Seed
re-drilled at $2\frac{1}{2}$ bushels per acre: Nov 16. Sulphate of ammonia
applied: Apr 24, 1956. Harvested: Aug 23. Variety: King II.
Note: A poor plant was obtained from the first sowing because of
a defective drill.

Note: In 1956 at Woburn the nitrogen levels were doubled on all crops
except clover.

56/Ba/3.3

Summary of ResultsMean yields per acre and responses in yield per cwt of N, P₂O₅ and K₂O

	Rothamsted	Woburn	Rothamsted	Woburn
Sugar Beet, roots (washed): tons per acre			Barley, grain: cwt per acre	
Mean	11.59	10.76	*	
Response to: N	+5.27	+8.97	25.3	34.0
P	-2.55	+2.21	+16.9	+23.6
K	+0.07	+0.64	-0.3	-1.0
Mean dry matter % as harvested:			-3.7	-2.7
			80.9	
Sugar Beet, sugar percentage			Barley, straw: cwt per acre	
Mean	18.4	18.1	*	
Response to: N	-0.4	0.0	26.9	29.2
P	0.0	-0.1	+26.3	+25.1
K	+0.1	+0.2	+0.5	-1.2
Mean dry matter % as harvested:			-6.4	-2.3
			81.4	
Sugar Beet, total sugar: cwt per acre			Clover, hay, dry matter: cwt per acre	
Mean	42.6	38.9	21.3	19.1
Response to: N	+18.5	+32.1	+5.3	-5.5
P	-9.1	+7.7	-11.7	+12.4
K	+0.6	+2.6	-2.5	+12.9
Mean dry matter % as harvested:			79.7	
Sugar Beet, tops: tons per acre			Wheat, grain: cwt per acre	
Mean	9.22	6.41	*	
Response to: N	+6.32	+8.08	27.7	19.1
P	-4.37	+2.65	+6.1	+11.3
K	-0.31	+0.46	+5.7	-1.0
Mean dry matter % as harvested:			+1.6	-0.2
			78.1	
Sugar Beet, plant number: thousands per acre			Wheat, straw: cwt per acre	
Mean	28.1	**	*	
Response to: N	-2.1		37.6	23.2
P	-3.7		+14.5	+10.9
K	+1.1		+10.5	-2.5
Mean dry matter % as harvested:			-0.6	-1.2
			79.9	

*(at 85% dry matter)

** not recorded.

56/Ba/3.4

Mean yields per acre and responses in yield per cwt of N, P₂O₅ and K₂O

	Rothamsted	Woburn	Rothamsted	Woburn
Potatoes, total tubers: tons per acre			Rye, grain: cwt per acre	
Mean	9.03	10.87	*	
Response to: N	+6.19	+5.33	28.8	30.7
P	+1.83	+2.61	+19.1	+15.5
K	+0.42	-0.04	+2.0	+1.9
Mean dry matter % as harvested:			-4.7	-5.7
			76.6	
Potatoes, percentage ware			Rye, straw: cwt per acre	
Mean	(1) 91.0	(2) 83.3	*	
Response to: N	+7.3	+6.2	36.4	35.1
P	-17.1	-13.8	+23.1	+17.6
K	+0.2	-9.8	+2.3	+0.6
Mean dry matter % as harvested:			-6.9	-6.4
			80.7	

*(at 85% dry matter)

Riddle: (1) 1½"; (2) 1⅝".