

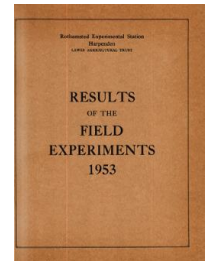
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53/BA/1 Three-course Rotation - Rothamsted

Rothamsted Research

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53/Ba/1.1

THREE COURSE ROTATION EXPERIMENT

2nd year of revised scheme

For details of rotation, treatments etc., see "Results of the Field Experiments 1952", Section 52/Ba/1.

Area of each plot: Potatoes (sub-plot) - 0.0092 acre; Barley - 0.0200 acre; Sugar beet - 0.0205 acre.

Cultivations, etc.:

Potatoes: Straw applied, ploughed all plots: Jan 22, 1953.
Fertilizers applied: Mar 25. Ridged: Mar 27. Potatoes planted with mechanical dropper: Apr 11. Earthed up ridges: June 25. Sprayed with copper fungicide, $5\frac{1}{2}$ lb per acre: July 28 and again Aug 8. Haulm destroyed mechanically: Sept 17. Lifted: Sept 28. Variety: Majestic.

Barley: Straw applied, ploughed all plots: Jan 22, 1953. Seed drilled at 3 bushels per acre, fertilizers applied: Feb 28. Harvested: Aug 11. Variety: Plumage Archer.

Sugar beet: Straw applied, ploughed all plots: Jan 22, 1953. Fertilizers applied: Mar 18. Seed drilled at 18 lb per acre: Mar 26. Sprayed with D.D.T. emulsion, 3 pints in 10 gallons: May 11. Singled: May 31. Lifted: Nov 12. Variety: Klein E.

Treatment symbols

Ar Complete artificials only.
St1 Straw ploughed in in autumn, artificials applied in spring.
St2 Straw ploughed in in autumn, artificials applied half in autumn, half in spring.
Ad Adco ploughed in in autumn with supplementary artificials.
St $53\frac{1}{3}$ cwt cut straw in autumn.
Nitrogen dressing: 0.2, 0.4, 0.6 cwt N as sulphate of ammonia.
K Muriate of potash equivalent to K_2O in straw.
 K^S 0.5 cwt K_2O as muriate of potash.

Potatoes

Treatments applied	1950	1951	1952	Total tubers: tons per acre													
				0	K	0.4N	St + 0.2N	St + 0.6N	K _s	K _s	K _s + 0.4N						
				-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ar		Ar	0	8.49	8.24	9.92	10.79										
			0.4N														
			0	7.54	8.44	10.04	10.28										
			0.4N														
St1 St2		St1 St2	0	9.60	8.68	11.54	11.88	9.31	9.21	11.40	12.03	10.38	9.17	9.55	10.77		
			0.4N														
			0	9.70	9.85	9.75	10.28										
			0.4N														
Ad			St+0.2N	9.17	8.88	10.67	10.62										
			St+0.6N														
			K _s 0.4N	10.43	10.09	9.36	9.99										
			0			10.33	9.60	10.09	8.78								
Ad		Ad	0														
			0.4N	8.34	9.31												
			St+0.6N	8.29	7.76												
			K _s 0.4N	11.30	11.15												

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53/Ba/1.4

Barley

Treatments applied			1953	0	0.4N	St + 0.2N	St + 0.6N	K _s	K _s + 0.4N
1950	1951	1952	Grain: cwt per acre						
	Ar	0		31.2					
		0.4N	28.6						
Ar		0		30.2					
		0.4N	31.5						
	St1 St2	0		27.4		31.4		27.3	
		0.4N	21.9		26.0		26.3		
St1 St2		0		30.4					
		0.4N	30.3						
		St+0.2N		30.7					
		St+0.6N	30.6						
		K _s		31.3					
		K _s 0.4N	26.0						
	Ad	0		28.0		30.0		31.4	
Ad		0.4N	35.2						
		St+0.6N	28.5						
		K _s 0.4N	22.3						
Straw: cwt per acre									
	Ar	0		44.8					
		0.4N	31.9						
Ar		0		41.3					
		0.4N	33.7						
	St1 St2	0		40.2		41.4		36.8	
		0.4N	25.9		30.0		29.6		
St1 St2		0		41.9					
		0.4N	37.1						
		St+0.2N		46.5					
		St+0.6N	38.0						
		K _s		40.8					
		K _s 0.4N	39.7						
	Ad	0		35.9		41.7		39.4	
Ad		0.4N	27.7						
		St+0.6N	30.2						
		K _s 0.4N	25.5						

53/Ba/1.5

Treatments applied			Sugar beet					
		1953	0	0.4N	St + 0.2N	St + 0.6N	K _s	K _s + 0.4N
1950	1951	1952						
Roots (washed): tons per acre								
Ar	Ar	0		15.84				
		0.4N	12.07					
	Ar	0		15.12				
		0.4N	12.45					
St1 St2	St1 St2	0		16.04		14.25		14.53
		0.4N	12.09		12.31		14.62	
	St1 St2	0		15.19				
		0.4N	13.73					
St+0.2N			14.82					
St+0.6N		12.81						
K _s 0.4N	K _s 0.4N	K		15.39				
		K _s 0.4N	13.05					
	Ad	0		15.63		13.64		16.11
		0.4N	12.31					
Ad	St+0.6N	13.36						
	K _s 0.4N	12.83						

Sugar percentage								
Ar	Ar	0		17.98				
		0.4N	18.64					
	Ar	0		18.44				
		0.4N	18.60					
St1 St2	St1 St2	0		18.81		18.67		18.52
		0.4N	18.64		18.52		18.58	
	St1 St2	0		18.29				
		0.4N	18.18					
K _s 0.4N	K _s 0.4N	St+0.2N		18.44				
		St+0.6N		18.38				
	K _s 0.4N	K		17.74				
		K _s 0.4N	18.23					
Ad	Ad	0		18.34		18.55		17.74
		0.4N	18.26					
	Ad	St+0.6N	17.86					
		K _s 0.4N	18.35					

53/Ba/1.6

Sugar beet

Treatments applied			1953	0	0.4N	St + 0.2N	St + 0.6N	K _s	K _s + 0.4N
1950	1951	1952							
Total sugar: cwt per acre									
Ar	Ar	0	57.0						
		0.4N	45.0						
	Ar	0	55.9						
		0.4N	46.5						
St1 St2	St1 St2	0	60.2			53.3		53.7	
		0.4N	45.0	45.4		54.1			
	St1 St2	0	55.4						
		0.4N	49.8						
		St+0.2N	54.6						
		St+0.6N	47.1						
		K _s	54.6						
		K _s 0.4N	47.6						
		Ad	Ad	0	57.2		50.6		57.2
				0.4N	45.0				
Ad	St+0.6N		47.6						
	K _s 0.4N		47.1						
Tops: tons per acre									
Ar	Ar	0	8.33						
		0.4N	5.91						
	Ar	0	7.31						
		0.4N	5.76						
St1 St2	St1 St2	0	7.44			7.81		7.22	
		0.4N	5.63	5.70		7.94			
	St1 St2	0	7.70						
		0.4N	6.68						
		St+0.2N	7.73						
		St+0.6N	6.92						
		K _s	7.73						
		K _s 0.4N	6.13						
		Ad	Ad	0	8.82		6.79		8.64
				0.4N	6.22				
Ad	St+0.6N		6.94						
	K _s 0.4N	5.87							

53/Ba/1.7

Treatments applied			Sugar beet					
1953		1953	0	0.4N	St + 0.2N	St + 0.6N	K _s	K _s + 0.4N
1950	1951	1952						
Plant number: thousands per acre								
	Ar	0	26.9					
		0.4N	29.2					
Ar		0	29.6					
		0.4N	28.2					
	St1 St2	0	28.4	28.4	27.3			28.0
		0.4N	28.4	28.9			28.5	
St1 St2		0	27.9					
		0.4N	28.3					
		St+0.2N	25.9					
		St+0.6N	27.5					
		K	26.7					
		K _s 0.4N	27.7					
	Ad	0	28.2		27.3			28.3
Ad		0.4N	29.6					
		St+0.6N	28.6					
		K _s 0.4N	29.0					
Noxious nitrogen: mg. per 100 g.								
	Ar	0	15.0					
		0.4N	15.0					
Ar		0	15.0					
		0.4N	15.0					
	St1 St2	0	15.0	15.0	15.0			15.0
		0.4N	15.0	15.0			15.0	
St1 St2		0	15.0					
		0.4N	15.0					
		St+0.2N	25.0					
		St+0.6N	15.0					
		K	25.0					
		K _s 0.4N	15.0					
	Ad	0	15.0		25.0			15.0
Ad		0.4N	15.0					
		St+0.6N	15.0					
		K _s 0.4N	25.0					