

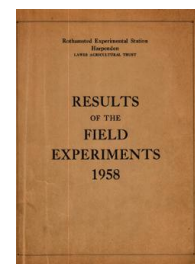
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58/R/BA/1 Three-course Rotation

Rothamsted Research

Rothamsted Research (1959) *58/R/BA/1 Three-course Rotation* ; Yields Of The Field Experiments 1958, pp 19 - 25 - DOI: <https://doi.org/10.23637/ERADOC-1-181>

58/Ba/1.1

THREE COURSE ROTATION EXPERIMENT

7th year of revised scheme

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

Area of each plot (acres): Potatoes (sub plot), 0.0093; barley, 0.0200; sugar beet, 0.0204.

Cultivations, etc.:

Potatoes.

Straw applied, all plots ploughed: Dec 11 - 31, 1957. Fertilizers applied: Apr 15, 1958. Potatoes machine planted: Apr 17. Earthed up: July 7. Sprayed four times with copper fungicide; at 5 lb in 40 gallons per acre: July 12; at 3 lb and 1 pint of spreader in 40 gallons per acre: Aug 1, 6 and 16. Sprayed with sulphuric acid, 20% BOV at 100 gallons per acre: Sept 9. Lifted: Sept 23. Variety: Majestic.

Barley.

Ground chalk applied at 23 cwt per acre: Nov 23, 1957. Straw applied, all plots ploughed: Dec 11 - 31. Fertilizers applied: Mar 21, 1958. Seed drilled at $2\frac{3}{4}$ bushels per acre: Mar 22. Sprayed with MCPA at 4 pints in 40 gallons per acre: June 4. Harvested: Aug 26. Variety: Plumage Archer.

Sugar beet.

Straw applied, all plots ploughed: Dec 11 - 31, 1957. Fertilizers applied, seed drilled at 19 lb per acre: Apr 14, 1958. Singled: June 5. Sprayed with demeton methyl at 12 oz in 40 gallons per acre: July 7. Lifted: Nov 24. Variety: Klein E.

Summary of Results

Potatoes

Treatments applied:	1953, 1955 and 1957 1958	Total tubers: tons per acre											
		0	0.4N	St + 0.2N	St + 0.6N	K _s	K _s + 0.4N	0	0.4N	St + 0.2N	St + 0.6N	K _s	K _s + 0.4N
1950	1952 1954 1956 & 1958	-	-	-	-	-	-	-	-	-	-	-	-
Ar	1951	-	-	-	-	-	-	-	-	-	-	-	-
Ar	Ar	0	0.4N	0	0	0	0	0	0	0	0	0	0
Ar	Ar	11.00	10.23	8.30	8.64	11.00	10.23	8.30	8.64	11.00	10.23	8.30	8.64
Ar	Ar	9.80	10.46	8.16	8.40	9.80	10.46	8.16	8.40	9.80	10.46	8.16	8.40
St1 St2	St1 St2	0	0.4N	0	0	0	0	0	0	0	0	0	0
St1 St2	St1 St2	11.07	10.99	7.92	9.26	11.07	10.99	7.92	9.26	11.07	10.99	7.92	9.26
St1 St2	St1 St2	0	0.4N	0	0	0	0	0	0	0	0	0	0
St1 St2	St1 St2	11.59	11.25	9.05	9.33	11.59	11.25	9.05	9.33	11.59	11.25	9.05	9.33
St1 St2	St1 St2	St+ 0.2N	St+ 0.6N	St+ 0.2N	St+ 0.6N	St+ 0.2N	St+ 0.6N	St+ 0.2N	St+ 0.6N	St+ 0.2N	St+ 0.6N	St+ 0.2N	St+ 0.6N
St1 St2	St1 St2	11.52	11.90	9.10	8.94	11.52	11.90	9.10	8.94	11.52	11.90	9.10	8.94
St1 St2	St1 St2	K _s	K _s + 0.4N	K _s	K _s + 0.4N	K _s	K _s + 0.4N	K _s	K _s + 0.4N	K _s	K _s + 0.4N	K _s	K _s + 0.4N
St1 St2	St1 St2	11.19	12.02	8.86	9.53	11.19	12.02	8.86	9.53	11.19	12.02	8.86	9.53
Ad	Ad	0	0	0	0	0	0	0	0	0	0	0	0
Ad	Ad	11.25	11.69	8.48	9.13	11.25	11.69	8.48	9.13	11.25	11.69	8.48	9.13
Ad	Ad	St+ 0.6N	St+ 0.4N	St+ 0.6N	St+ 0.4N	St+ 0.6N	St+ 0.4N	St+ 0.6N	St+ 0.4N	St+ 0.6N	St+ 0.4N	St+ 0.6N	St+ 0.4N
Ad	Ad	11.35	11.65	9.78	10.00	11.35	11.65	9.78	10.00	11.35	11.65	9.78	10.00
Ad	Ad	K _s + 0.4N	K _s	K _s + 0.4N	K _s	K _s + 0.4N	K _s	K _s + 0.4N	K _s	K _s + 0.4N	K _s	K _s + 0.4N	K _s
Ad	Ad	10.04	11.91	12.88	12.48	10.04	11.91	12.88	12.48	10.04	11.91	12.88	12.48
Ad	Ad	9.71	10.48	9.60	9.43	9.71	10.48	9.60	9.43	9.71	10.48	9.60	9.43
Ad	Ad	12.33	11.98	9.15	8.52	12.33	11.98	9.15	8.52	12.33	11.98	9.15	8.52

Potatoes

Treatments applied:	1953, 1955 and 1957 1958	0	0.4N	St + 0.2N	St + 0.6N	K _s	K _s + 0.4N
	1952 1954 1956 & 1958	-	-	-	-	-	-
1950	1951	-	-	-	-	-	-
Ar	Ar	0	0.4N	0	0	0	0
Ar	St1 St2	0	0.4N	0	0	0	0
St1 St2	Ar	0	0.4N	0	0	0	0
St1 St2	St+ 0.2N St+ 0.6N K K _s + 0.4N 0	0	0.4N	0	0	0	0
Ad	Ad	0	0.4N	0	0	0	0
Ad	St+ 0.6N K _s + 0.4N	0	0.4N	0	0	0	0

Percentage ware (1½" riddle)

82.8	87.0	88.2	90.9	82.5	83.2	87.1	88.4	89.3	87.6	88.3	85.8
83.9	87.6	85.2	86.8	86.4	88.1	87.2	87.3	88.2	86.8	85.4	87.4
92.1	91.1	92.1	91.1	81.1	86.4	87.7	90.5	89.4	89.4	88.2	86.8
90.7	91.0	89.4	89.4	88.4	89.4	88.2	86.8	85.4	87.4	85.4	87.4
87.7	90.5	87.7	90.5	84.2	87.5	88.2	86.8	85.4	87.4	85.4	87.4
89.4	92.9	89.4	92.9	88.6	90.1	88.6	90.1	87.3	88.4	88.6	90.1
87.3	88.4	87.3	88.4	87.3	88.4	87.3	88.4	87.3	88.4	87.3	88.4

58/Ba/1.4

Treatments applied:		Barley						
		1953, 1955 and 1957	0	0.4N	St + 0.2N	St + 0.6N	K _s	K _s + 0.4N
1950	1951	1952 1954 1956 & 1958						
Grain (at 85% dry matter): cwt per acre								
	Ar	0		20.0				
		0.4N	27.1					
Ar		0		21.2				
		0.4N	25.8					
	St1 St2	0		23.7		21.7		19.5
		0.4N	22.8		28.2		26.7	
St1 St2		0		22.3				
		0.4N	22.4					
		St+ 0.2N		23.5				
		St+ 0.6N	26.8					
		K _s		22.6				
		K _s + 0.4N	29.4					
	Ad	0		21.5		21.0		20.9
Ad		0.4N	30.0					
		St+ 0.6N	30.0					
		K _s + 0.4N	24.8					
Straw (at 85% dry matter): cwt per acre								
	Ar	0		19.0				
		0.4N	26.1					
Ar		0		19.1				
		0.4N	25.2					
	St1 St2	0		20.7		24.4		16.5
		0.4N	29.3		32.2		30.7	
St1 St2		0		19.5				
		0.4N	25.2					
		St+ 0.2N		21.1				
		St+ 0.6N	25.3					
		K _s		21.0				
		K _s + 0.4N	27.3					
	Ad	0		19.5		17.8		19.1
Ad		0.4N	29.5					
		St+ 0.6N	32.6					
		K _s + 0.4N	25.2					

Mean dry matter % as harvested Grain: 81.2
Straw: 79.3

58/Ba/1.5

Treatments applied:		Sugar beet					
1953, 1955 and 1957		0	0.4N	St + 0.2N	St + 0.6N	K _s	K _s + 0.4N
1950	1951	1952 1954 1956 & 1958					
Roots (washed): tons per acre							
	Ar	0	14.20				
		0.4N	15.47				
Ar		0	13.46				
		0.4N	15.51				
	St1 St2	0	12.57	15.25	13.95		
		0.4N	16.80	17.53	15.84		
St1 St2		0	13.57				
		0.4N	15.20				
		St+ 0.2N	12.12				
		St+ 0.6N	16.29				
		K _s	13.56				
		K _s + 0.4N	17.08				
	Ad	0	13.99	13.70	14.78		
Ad		0.4N	15.11				
		St+ 0.6N	14.06				
		K _s + 0.4N	16.72				
Sugar percentage							
	Ar	0	17.4				
		0.4N	17.2				
Ar		0	17.7				
		0.4N	17.4				
	St1 St2	0	17.4	17.3	17.3	18.0	
		0.4N	17.4	17.3	17.6		
St1 St2		0	17.6				
		0.4N	17.4				
		St+ 0.2N	17.6				
		St+ 0.6N	17.1				
		K _s	17.8				
		K _s + 0.4N	17.3				
	Ad	0	17.4	17.4	16.6		
Ad		0.4N	17.7				
		St+ 0.6N	17.8				
		K _s + 0.4N	17.0				

Treatments applied:	1953, 1955 and 1957	1952 1954 1956 & 1958	Sugar beet				
			0	0.4N	St + 0.2N	St + 0.6N	K _s
			58/Ba/1.6				
			Total sugar: cwt per acre				
	Ar	0		49.6			
		0.4N	53.3				
Ar		0		47.8			
		0.4N	54.1				
	St1 St2	0		43.7		52.8	50.3
		0.4N	58.6		60.7		55.7
St1 St2		0		47.8			
		0.4N	52.9				
		St+ 0.2N		42.7			
		St+ 0.6N	55.8				
		K		48.2			
		K _s + 0.4N	59.0				
	Ad	0		48.6		47.7	49.1
Ad		0.4N	53.5				
		St+ 0.6N	50.0				
		K _s + 0.4N	56.7				
			Tops: tons per acre				
	Ar	0		10.18			
		0.4N	9.44				
Ar		0		8.28			
		0.4N	10.64				
	St1 St2	0		7.93		11.80	9.16
		0.4N	11.41		10.58		10.93
St1 St2		0		9.68			
		0.4N	10.10				
		St+ 0.2N		7.74			
		St+ 0.6N	10.21				
		K		9.29			
		K _s + 0.4N	11.67				
	Ad	0		9.94		9.33	9.53
Ad		0.4N	11.06				
		St+ 0.6N	9.40				
		K _s + 0.4N	13.33				

58/Ba/1.7

Treatments applied:	1953, 1955 and 1957		Sugar beet				
			0	0.4N	St + 0.2N	St + 0.6N	K _s
1950	1951	1952 1954 1956 & 1958					
Plant number: thousands per acre							
	Ar	0		32.4			
		0.4N	32.2				
Ar		0		32.1			
		0.4N	32.0				
	St1 St2	0		31.5		32.5	34.2
		0.4N	32.6		31.3		33.1
St1 St2		0		32.1			
		0.4N	31.0				
		St+ 0.2N		31.7			
		St+ 0.6N	31.2				
		K _s		31.6			
		K _s + 0.4N	32.9				
	Ad	0		33.2		32.4	31.1
Ad		0.4N	32.4				
		St+ 0.6N	33.1				
		K _s + 0.4N	33.0				