

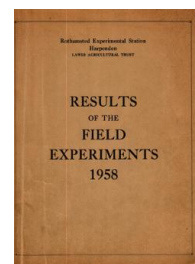
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58/R/BA/1 Three-course Rotation

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
	1952						
	1954						
	1956 & 1958						
1950	1951						
	Ar	0	8.30	8.64			
		0.4N	11.00	10.23			
Ar		0	8.16	8.40			
		0.4N	9.80	10.46			
St1 St2		0	7.92	9.26	9.60	9.43	9.71
		0.4N	11.07	10.99	12.88	12.48	12.33
St1 St2		0	9.05	9.33			
		0.4N	11.59	11.25			
		St+ 0.2N	9.10	8.94			
		St+ 0.6N	11.52	11.90			
		K _s	8.86	9.53			
		K _s + 0.4N	11.19	12.02			
Ad		0	8.48	9.13	9.78	10.00	9.15
		0.4N	11.25	11.69			
		St+ 0.6N	11.35	11.65			
		K _s + 0.4N	10.04	11.91			
Ad							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	0	0.4N	St + 0.2N	St + 0.6N	K	K + 0.4N
Ar		88.2	82.8	87.0	83.9	87.6	85.8
	St1 St2	85.2	82.5	83.2	87.1	88.4	88.3
St1 St2		84.0	82.5	83.2	87.1	88.4	88.3
		92.1	86.4	88.1	87.2	87.3	87.6
		90.7	81.1	86.4	89.3	87.6	85.8
		87.7	88.4	89.4	88.2	86.8	85.4
Ad		90.5	84.2	87.5	88.2	86.8	87.4
Ad		89.4	89.4	87.5	88.2	86.8	85.4
		88.6	87.3	88.4	88.2	86.8	85.4
		87.3	88.4	89.4	88.2	86.8	85.4

Percentage ware (1 1/2" riddle)

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		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	K + 0.4N
			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				