

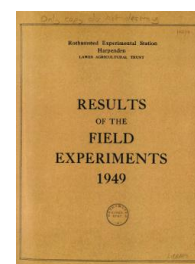
Thank you for using eradoc, a platform to publish electronic copies of the Rothamsted Documents. Your requested document has been scanned from original documents. If you find this document is not readable, or you suspect there are some problems, please let us know and we will correct that.



ROTHAMSTED
RESEARCH

Yields of the Field Experiments 1949

[Full Table of Content](#)



49/BA/1 Two-course Rotation - Rothamsted

49/BA/1 Two-course Rotation - Rothamsted, Rothamsted Research (1950) Yields Of The Field Experiments 1949, pp 14 - 18

49/Ba/1.1

TWO COURSE ROTATION

Cumulative Effects of Agricultural Salt

Rothamsted 1949

Object of the experiment: To test the cumulative effects of agricultural salt and muriate of potash, and to compare two methods of application of the salt.

Rotation: Sugar beet followed by barley.

System of replication: For each crop 4 blocks of 12 plots. Second order interactions partially confounded with blocks.

Area of each plot:

Series 1, Barley: 0.02072 acre

Series 2, Sugar beet: 0.02000 acre (harvested area, 0.01733 acre).

Treatments:

All combinations of:

- (1) Agricultural salt: None, $2\frac{1}{2}$, 5 and $7\frac{1}{2}$ cwt per acre applied to sugar beet.
- (2) Muriate of potash: None, the equivalent of half the single dressing of salt (approximately 1 cwt K_2O per acre), the equivalent of the single dressing of salt (approximately 2 cwt K_2O per acre), applied to sugar beet at sowing.
- (3) Time of application of salt: Before ploughing in winter, in seed bed at sowing.
- (4) Salt applied to sugar beet only, salt repeated at half rate on barley.

Note: treatment (3) applies to both sugar beet and barley crops; the barley receives no potash treatment.

Basal dressings, applied to all plots at sowing:

Barley: 0.3 cwt N per acre as sulphate of ammonia

Sugar beet: 0.8 cwt N per acre as sulphate of ammonia

0.6 cwt P_2O_5 per acre as superphosphate.

Cultivations, etc.:

Barley. Series 1. Long Hoos VII.

Agricultural salt applied: Dec 16. Ploughed: Dec 29-30. Spring-tined: Feb 25. Sulphate of ammonia applied: Feb 26. Harrowed: Mar 4. Seed drilled, agricultural salt applied, harrowed in: Mar 11. Hand cut thistles: June 14, 15, 21. Harvested: Aug 8, 9. Variety: Plumage Archer. Previous crop: Sugar beet.

Sugar beet. Series 2. Long Hoos V.

Agricultural salt applied: Sept 23. Ploughed twice: Sept 24-25, Dec 28-29. Springtime harrowed: Feb 26. Cultivated: Mar 30. Harrowed: Apr 1. Ring rolled: Apr 2. Agricultural salt and muriate

49/Ba/1.2

of potash applied, seed drilled: Apr 11. Sulphate of ammonia
applied: Apr 12. Superphosphate applied, harrowed in: Apr 13.
Rolled: Apr 14. Hoed: May 17 - July 2. Singled: May 31 - June 2.
Lifted: Nov 26-29. Variety: Klein E. Previous crop: Barley.

Standard errors per plot:

Barley, grain, 2.06 cwt per acre or 7.6%
Sugar beet, total sugar, 1.92 cwt per acre or 6.7%
tops, 0.609 tons per acre or 8.2%

All standard errors from 22 degrees of freedom.

49/Ba/1.3

Series 1: Barley

Salt applied 1948 cwt per acre	Muriate of potash applied in 1948 K ₂ O cwt per acre			Salt applied In seed		Salt in 1949 Half None Rate		Mean
	0.0	1.0	2.0	Winter	bed			
Grain: cwt per acre								
	(±1.03)			(±0.79)		(±0.60)		
0	26.0	28.2	27.1					27.1
2.5	27.0	27.6	28.4	27.6	27.5	28.3	27.1	27.7
5.0	26.2	26.4	25.1	26.1	25.7	25.9	25.9	25.9
7.5	26.6	29.7	27.4	28.1	27.7	28.7	27.1	27.9
Mean	26.4	28.0	27.0	27.3	27.0	27.6	26.7	27.1
	(±0.52)			(±0.48)				
Straw: cwt per acre								
0	29.2	30.4	30.6					30.1
2.5	31.1	32.9	32.1	34.2	29.9	31.5	32.6	32.0
5.0	28.3	27.5	28.1	27.0	29.0	28.2	27.7	28.0
7.5	28.9	33.9	29.9	34.0	27.8	33.5	28.3	30.9
Mean	29.4	31.2	30.2	31.7	28.9	31.1	29.5	30.2

49/Ba/1.4

Series 2: Sugar Beet

Salt applied 1949 cwt per acre	Muriate of potash applied in 1949 K ₂ O cwt per acre			Salt applied In seed		Mean
	0.0	1.0	2.0	Winter	bed	

Total Sugar: cwt per acre

	(±0.96)			(±0.73)		(±0.56)
0	21.0	26.7	27.6			25.1
2.5	28.4	28.7	30.3	29.1	29.2	29.2
5.0	29.4	30.1	31.9	30.7	30.5	30.6
7.5	29.7	29.3	28.7	30.2	28.4	29.3
Mean	27.3	28.7	29.7	30.0	29.4	28.5
	(±0.48)			(±0.44)		

Sugar percentage

0	14.70	14.73	14.85			14.76
2.5	14.78	15.12	15.24	15.16	14.93	15.04
5.0	15.12	14.76	15.13	15.16	14.86	15.01
7.5	14.83	15.20	14.56	14.98	14.75	14.87
Mean	14.86	14.96	14.95	15.10	14.85	14.92

Roots (washed): tons per acre

0	7.14	9.05	9.29			8.50
2.5	9.63	9.48	9.94	9.60	9.76	9.68
5.0	9.89	10.17	10.55	10.13	10.29	10.21
7.5	10.02	9.66	9.86	10.07	9.63	9.85
Mean	9.17	9.59	9.91	9.93	9.89	9.56

Tops: tons per acre

	(±0.304)			(±0.233)		(±0.176)
0	7.11	7.59	7.47			7.39
2.5	8.43	7.26	7.32	7.84	7.50	7.67
5.0	7.62	7.75	7.59	7.78	7.53	7.66
7.5	7.19	6.77	6.93	6.83	7.10	6.96
Mean	7.59	7.35	7.33	7.48	7.38	7.42
	(±0.152)			(±0.141)		

49/Ba/1.5

Series 2: Sugar Beet (contd.)

Salt applied 1949 cwt per acre	Muriate of potash applied in 1949 K ₂ O cwt per acre			Salt applied		Mean
	0.0	1.0	2.0	Winter	In seed bed	

Plant number: thousands per acre

0	23.6	25.6	25.1			24.8
2.5	24.7	25.5	24.9	24.7	25.3	25.0
5.0	26.6	25.2	25.8	26.4	25.3	25.9
7.5	25.1	24.3	24.0	26.0	23.0	24.5
Mean	25.0	25.2	24.9	25.7	24.5	25.0

Noxious nitrogen: mg. per 100 gm.

0	48.8	45.0	51.2			48.3
2.5	46.2	45.0	40.0	44.0	43.5	43.8
5.0	43.8	40.0	47.5	46.0	41.5	43.8
7.5	46.2	42.5	52.5	47.3	46.8	47.1
Mean	46.2	43.1	47.8	45.8	43.9	45.7