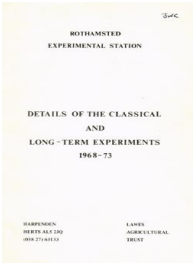
ROTHAMSTED RESEARCH

Details of the Classical and Long-term Experiments 1968-73



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W/RN/4 Market Garden - Beans, Potatoes, Sugar Beet

Rothamsted Research

Rothamsted Research (1977) *W/RN/4 Market Garden - Beans, Potatoes, Sugar Beet ;* Details Of The Classical And Long-Term Experiments 1968-73, pp 50 - 52 **- DOI: https://doi.org/10.23637/ERADOC-1-193**

MARKET GARDEN
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(W/RN/4)

The study of the effects of bulky organic materials, mainly on Market Garden crops over the period 1942-1967 are described in *Details 1967*, pp. 115-122. Tick beans were grown in 1968 and 1969 without further treatment and since then farm crops have been grown for a study of direct and residual effects of phosphate on the same site.

Corrections and additions to the 1967 report are:

(a) p.118 Table 58. Symbols and treatments 1964 should read: N1 = 0.45, N2 = 0.9 cwt for carrots; N1 = 0.90, N2 = 1.8 cwt for red beet and leeks as 'Nitro-Chalk'.

(b) Same Table 1965: Add Series A carrots 0.45 N v. 0.90 cwt N as 'Nitro-Chalk'.

(c) Same Table 1967: Series B should read Quarter in place of Eighth plots.

(d) The following additional note should be added at the foot of the table:

(6) $N' = N_3 + N_2 - N_1 - N_0$
$N'' = N_3 - N_2 - N_1 + N_0$
$N''' = N_3 - N_2 + N_1 - N_0$

(e) substitute the following for the paragraph on Liming on p 120:

Liming

From 1943 to 1945 ground chalk at 29 cwt/acre was applied before planting cabbages. From 1948 to 1951 attempts were made to correct the acidity developed due to the application of sulphate of ammonia. A uniform dressing of chalk was given to all plots: Series A: 11 cwt in 1948 and 22 cwt in 1950. Series B: 22 cwt in 1949 and a few plots received further small dressings in 1951. From 1952 to 1967 20 cwt of ground chalk was given before every crop of red beet with the following exceptions:

(i) In 1955 this was applied to spring cabbages also.
(ii) From 1958 the quantity was increased to 23 cwt except 1963 when 20 cwt was applied.
(iii) No chalk was applied in 1965.
(iv) In 1967 40 cwt of ground chalk was applied to 16 only of the 40 plots in Series B used for fertiliser and continuous FYM experiment.

Cropping

	Series A	Series B
1968 and 1969	Beans	Beans
1970	Sugar beet	Barley
1971	Barley	Potatoes
1972	Potatoes	Sugar beet
1973	Barley	Barley

No yields were taken in 1973 because of bird damage.

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Treatments

No fresh treatments were applied in 1968, 1969 and 1973.

Barley 1970 and 1971	0 v. 63 kg $P_2 0_5$
Sugar beet 1970 and 1972	0 v. 126 kg $P_2 0_5$
Potatoes 1971 and 1972	0 v. 188 kg $P_2 0_5$

Applied to whole plots with confounding of certain two and three factor interactions.

Basal manuring (kg/ha)

Beans 1968 and 1969	None		
Sugar beet 1970	190 N	320 $K_2 0$	100 Mg0
1972	190 N	500 $K_2 0$	95 Mg0

Boron was applied as a spray in June 1972 – 6.7 $B_2 0_3$

Barley 1970 and 1971	63 N	63 $K_2 0$	
1973	70 N		
Potatoes 1971	250 N	250 $K_2 0$	100 Mg0
1972	250 N	250 $K_2 0$	100 Mg0

Materials: Superphosphate, muriate of potash, Epsom Salts and 'Solubor'.

Liming

1969	Series A:	2.8 t ground magnesian limestone
	Series B:	5.6 t ground magnesian limestone
1970-72	2.5 t ground chalk	

Weedkillers

Beans 1968	Simazine
1969	Paraquat and simazine
Barley	Ioxynil with mecoprop
Sugar beet	Phenmedipham
Potatoes 1971	Linuron
1972	Linuron with paraquat

Other sprays

Beans	Demeton-S-methyl
Sugar beet	Demeton-S-methyl
Potatoes	Mancozeb and demeton-S-methyl

Varieties

Beans	Tarvin
Barley	Julia (dressed with ethirimol 1973)
Sugar beet	Klein E
Potatoes	Pentland Crown

Areas harvested

1968 and 1969	Beans 0.00166
1970	Sugar beet 0.00162 – Barley 0.00073
1971	Barley and potatoes – 0.00074
1972	Potatoes 0.00147 – Sugar beet 0.00127

Soil series Cottenham

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References

1. Johnston, A.E. and Wedderburn, R.W.M. (1975)
The Woburn Market Garden Experiment, 1942-69. I. A history of the experiment, details of the treatments and the yields of the crops.
Rothamsted Experimental Station. Report for 1974, Part 2, 79-101.

2. Johnston, A.E. (1975)
The Woburn Market Garden Experiment 1942-69. II. The effect of the treatments on soil pH, soil carbon, nitrogen, phosphorous and potassium.
Rothamsted Experimental Station. Report for 1974, Part 2, 102-130.

3. Johnston, A.E., Mattingley, G.E.G., and Poulton, P.R. (1976)
Effect of phosphate residues on Soil P values and crop yields. I. Experiments on barley, potatoes and sugar beet on sandy loam soils at Woburn.
Rothamsted Experimental Station. Report for 1975, Part 2, 5-35.

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