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Yields of the Field Experiments 1965

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65/R/LM/C/1 and 65/W/WAC/C/1 Levels of K and Mg - Barley, Potatoes and Sugar Beet

Rothamsted Research

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65/C/1.1

LEVELS OF K AND Mg

(LM and WAC)

K and Mg - Rothamsted (R) Sawyers I the seventh year, barley 1965, and Woburn (W) Stackyard Series C the sixth year, potatoes and sugar beet 1965.

Design: Sawyers I (R): 8 randomised blocks of 9 plots.
Stackyard Series C (W): 2 randomised blocks of 9 plots, per crop.

Area of each plot:		Area harvested:
Sawyers I (R):	0.0212	0.0141
Stackyard Series C (W):	0.0011	0.0011

Treatments: All combinations of:-

1. Mg: None (Mg 0), 29 (Mg 1), 58 lb Mg (Mg 2) applied as magnesium sulphate on Sawyers I (R) and as kieserite on Stackyard Series C (W).

2. K: Sawyers I (R): (in lb K, as sulphate of potash.)

	K0	K1	K2
1962	24	95	165
1963	none	71	142
1964	none	91	182
1965	none	68	136

Stackyard Series C (W): None (K0), 95 (K1), 190 lb (K2), applied in 1962, 1963, 1964 and 1965. All K as sulphate of potash.

The K and Mg dressings on Stackyard Series C (W) were applied half in winter and half in spring.

In addition magnesium-free calcium carbonate was applied to blocks on Sawyers I (R) in 1959 and 1962 as follows:

1959:	10, 40 cwt (CA1, CA2)
1962:	38, 76 cwt (CA1, CA2)

Basal dressings: Sawyers I (R): 0.5 cwt P₂O₅ as triple superphosphate in seedbed, 0.5 cwt N as 'Nitro-Chalk' combine drilled.

Stackyard Series C (W): 1.5 cwt P₂O₅ as triple superphosphate, half dug in in winter, half applied in spring. 1.5 cwt N as ammonium nitrate in the seedbed. 10 cwt magnesium-free calcium carbonate.

65/c/1.2

Cultivations, etc.:

Sawyers I (R): Ploughed: Nov 21, 1964. Fertilisers applied:
Feb 26, 1965. Seed drilled at 160 lb: Mar 17. Sprayed with
mecoprop/2,4-D (Methoxone Extra at 6 pints in 40 gals):
May 15. Combine harvested: Sept 6. Variety: Maris Badger.

Stackyard Series C (W):

Potatoes: First dressing of P, K and Mg applied, plots dug:
Nov 25, 1964. Magnesium-free calcium carbonate applied:
Dec 22. Second dressing of P, K and Mg and all N applied,
plots rotary cultivated, potatoes planted: Apr 9, 1965.
Sprayed with dimethoate at 6 oz in 40 gals: May 21. Sprayed
with Bordeaux mixture at 7 lb plus malathion and DDT Kil (at
12 fluid oz in 50 gals): July 16. Sprayed with Bordeaux
mixture at 10 lb in 40 gals: Aug 5. Lifted: Sept 9.
Variety: King Edward.

Sugar beet: First dressing of P, K and Mg applied, plots dug:
Nov 25, 1964. Magnesium-free calcium carbonate applied:
Dec 22. Second dressing of P, K and Mg and all N applied,
plots rotary cultivated, seed drilled at 7 lb: Apr 9, 1965.
Sprayed with DDT at 15 oz in 40 gals: May 14. Sprayed with
dimethoate at 6 oz in 40 gals: May 21. Singled: June 2.
Sprayed with malathion and DDT (Kil at 12 fluid oz in 50 gals):
July 16. Lifted: Oct 14. Variety: Klein E.

NOTE: For details of previous years' results see 'Results'
60/ci/3, 61/c/7, 62/c/6, 63/c/1, 64/c/1.

Erratum to 'Results' 63/c/1.1 and 64/c/1.4. The rates of application
of magnesium-free calcium carbonate as follows:

1959: 10, 40 cwt (CA1, CA2)
1962: 38, 76 cwt (CA1, CA2),

and not as stated.

Standard errors per plot.

Sawyers I (R):

Barley, Grain:

Sub plot: 1.96 or 4.8% (48 d.f.)

Stackyard Series C (W):

Potatoes, Total tubers: 0.283 or 2.0% (8 d.f.)

Sugar beet, Roots: 0.763 or 7.1% (8 d.f.)

Total sugar: 2.37 or 7.0% (8 d.f.)

Tops: 0.903 or 4.2% (8 d.f.)

65/C/1.3

SUMMARY OF RESULTS

Sawyers I (R)

BARLEY

GRAIN

	K0	K1	K2	MG0	MG1	MG2	Mean
		(± 0.57)*			(± 0.57)*		
CA1	40.3	42.7	41.4	40.7	41.5	42.2	41.5
CA2	35.9	41.8	41.1	39.2	39.4	40.1	39.6
					(± 0.69)		(± 0.40)
		K0		37.6	38.0	38.6	38.1
		K1		41.8	41.9	43.0	42.2
		K2		40.5	41.4	41.9	41.3
		Mean (± 0.40)		39.9	40.5	41.2	40.5

Mean D.M. %: 69.9

* For use in horizontal and interaction comparisons only.

65/C/1.4

Sawyers I (R)

BARLEY

STRAW

	K0	K1	K2	MG0	MG1	MG2	Mean
CA1	35.6	42.0	42.3	40.0	39.8	40.2	40.0
CA2	37.8	42.9	44.2	41.4	42.2	41.3	41.6
	K0			35.9	36.2	37.9	36.7
	K1			43.2	42.2	41.9	42.4
	K2			42.8	44.5	42.5	43.3
	Mean			40.7	41.0	40.8	40.8

Mean D.M. %: 86.1

65/C/1.5

Stackyard Series C (W)

POTATOES, TOTAL TUBERS

	MGO	MG1	MG2	Mean
		(±0.200)		(±0.116)
K0	6.35	6.65	5.20	6.07
K1	15.97	18.26	16.97	17.07
K2	17.96	20.79	20.39	19.71
Mean (±0.116)	13.43	15.23	14.18	14.28

SUGAR BEET, ROOTS

	MGO	MG1	MG2	Mean
		(±0.539)		(±0.311)
K0	6.01	6.05	7.35	6.47
K1	11.88	12.47	12.87	12.41
K2	12.88	12.89	13.97	13.24
Mean (±0.311)	10.25	10.47	11.40	10.71

65/C/1.6

Stackyard Series C (W)

SUGAR BEET, SUGAR %

	MG0	MG1	MG2	Mean
K0	15.1	15.3	15.0	15.1
K1	15.6	15.9	16.0	15.8
K2	15.9	15.5	16.6	16.0
Mean	15.5	15.6	15.9	15.6

SUGAR BEET, TOTAL SUGAR

	(±1.68)			(±0.97)
K0	18.1	18.4	22.1	19.5
K1	37.0	39.7	41.2	39.3
K2	40.9	40.0	46.4	42.4
Mean (±0.97)	32.0	32.7	36.5	33.8

SUGAR BEET, TOPS

	(±0.639)			(±0.369)
K0	16.77	17.46	19.15	17.79
K1	24.21	24.90	23.42	24.18
K2	22.42	20.74	24.31	22.49
Mean (±0.369)	21.13	21.03	22.29	21.49