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67/R/RP/B/6 Residual Phosphate Rotation

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67/B/6.1

RESIDUAL PHOSPHATE ROTATION

(RP)

The long term and residual effects of phosphate fertilisers -
Great Field IV and Sawyers I, revised 1967, the 8th year.

For treatments and results 1960 - 1965, see 'Details 1967'.

Design: Great Field IV: 1 randomised block of 12 plots per crop.
Sawyers I: 2 randomised blocks of 12 plots per crop.

Rotation: Potatoes, barley, swedes (Barley 1967 followed potatoes 1965 -
whole area fallow in 1966).

Area of each plot:

Great Field IV: 0.0193. Area harvested: Potatoes and barley -
0.0129, swedes - 0.0096.

Sawyers I: 0.0212. Area harvested: Potatoes and barley -
0.0141, swedes - 0.0106.

Treatments, (cwt P2O5):

1st and 2nd Crop rotations
1960 - 65.

All superphosphate as
granular superphosphate

3rd and 4th Crop rotations
1967 - 72.

All treatments as
granular superphosphate
24.4% P2O5

Material and

crop year

applied

None

Superphosphate annually

Superphosphate annually

Nitrophosphate I 1960

Nitrophosphate II 1960

Superphosphate in 1962,1965

Superphosphate in 1962,1965

Nitrophosphate III 1960

Basic slag 1960

Potassium metaphosphate 1960

Gafsa in 1960

Superphosphate in 1960

Total

P2O5

Old

Symbol

When applied

Total

P2O5

New

Symbol

0

(1)

None

0

(O)

1.5

(2)

Annually

1.5

(A1)

3.0

(3)

Annually

3.0

(A2)

3.0

(6)

Annually

6.0*

(A3)

3.0

(7)

Annually

9.0*

(A4)

1.5

(4)

1969, 1972

1.5

(T1)

3.0

(5)

1969, 1972

3.0

(T2)

3.0

(8)

1967

3.0*

(R2)

3.0

(10)

1967

6.0*

(R3)

3.0

(11)

1967

9.0*

(R4)

3.0

(9)

None

0

(G1)

3.0

(12)

None

0

(S1)

* Allocated at random to old treatments 6 7 8 10 11 within each block.

67/B/6.2

Basal applications: Broadcast in spring before sowing or planting:

N as 'Nitro-Chalk':

To potatoes: 1.2 cwt, to swedes: 0.5 cwt, to barley (Sawyers I only): 0.6 cwt.

K2O as sulphate of potash:-

To potatoes: 1.5 cwt, to barley: 1.0 cwt, to swedes: 1.0 cwt.

Varieties: Potatoes - Majestic, barley - Maris Badger, swedes - Wilhelmsburger.

Cultivations, etc. (both fields): Ploughed: Great Field IV - Dec 8, 1965 - Jan 4, 1966, Sawyers I - Jan 7. Rotary cultivated: May 19. Granular superphosphate applied (treatments R2, R3 and R4): 1st half dressing - June 9, 2nd half dressing - Sept 9. Ploughed: Sept 15, 1966. Ground chalk applied at 23 cwt: Dec 28, 1966 - Jan 2, 1967.

Potatoes: Fertilisers applied: Apr 13, 1967. Plots rotary cultivated, potatoes planted: Apr 17. Sprayed with paraquat at 0.5 lb ion and linuron at 0.75 lb in 37 gals: May 18. Sprayed four times with mancozeb at 1.2 lb in 30 gals: June 29, July 20, Aug 4, Aug 24. Sprayed with undiluted BOV at 15 gals: Sept 7. Haulm destroyed mechanically: Sept 15. Lifted: Sept 19.

Barley: Fertilisers applied: Feb 8, 1967. Seed drilled at 140 lb: Mar 6. 'Nitro-Chalk' applied: Mar 21. Sprayed with mecoprop/2,4-D (Methoxone Extra at 6 pints in 30 gals): May 12. Combine harvested: Aug 22.

Swedes: Fertilisers applied: May 10, 1967. Seed drilled at 1.25 lb: May 11. Singled: June 14. Lifted: Nov 10.

Standard errors per plot.

Sawyers I

Potatoes, Total tubers: 0.724 or 4.9% (11 d.f.)

Barley, Grain: 3.18 or 8.2% (11 d.f.)

Swedes: 0.935 or 7.5% (11 d.f.)

67/B/6.3

SUMMARY OF RESULTS

POTATOES

Treat-ment	TOTAL TUBERS		PERCENTAGE WARE	
	Great Field IV Mean	Sawyers I Mean	Great Field IV Mean	Sawyers I Mean
		(± 0.512)		
O	15.73	14.04	97.2	97.7
A1	16.28	13.68	97.1	96.4
A2	17.77	14.30	96.3	97.2
A3	18.02	14.67	96.5	96.9
A4	19.40	15.20	97.4	96.7
T1	15.33	13.56	97.7	97.0
T2	16.96	14.27	97.9	97.4
R2	17.79	16.17	95.9	97.3
R3	20.32	16.62	96.9	95.7
R4	20.75	17.51	96.4	96.6
G1	16.36	13.09	98.8	96.9
S1	16.52	14.52	98.3	97.6
Mean	17.60	14.80	97.2	96.9

BARLEY

	GRAIN		STRAW	
		(± 2.25)		
O	17.3	25.7	17.3	14.4
A1	34.9	39.9	23.8	27.1
A2	33.4	39.4	25.7	25.4
A3	32.4	40.5	25.5	26.1
A4	23.6	44.0	19.1	30.4
T1	25.5	34.2	16.1	21.5
T2	35.6	39.6	24.9	22.6
R2	36.1	38.0	29.5	26.0
R3	21.2	48.8	18.5	34.9
R4	39.4	43.9	27.2	31.0
G1	28.8	37.3	22.1	23.4
S1	37.6	37.2	26.0	20.8
Mean	30.5	39.0	23.0	25.3
Mean D.M. %:	82.2	84.5	83.8	90.7

67/B/6.4

SWEDES, ROOTS

Treat-ment	Great Field IV Mean	Sawyers I Mean
		(± 0.661)
O	6.53	6.73
A1	10.28	11.18
A2	14.86	12.59
A3	15.83	14.33
A4	15.28	14.12
T1	11.39	8.27
T2	13.98	13.85
R2	16.02	16.37
R3	16.85	17.89
R4	16.99	17.40
G1	9.08	8.57
S1	11.53	8.73
Mean	13.22	12.50