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## Yields of the Field Experiments 1967

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

#### Rothamsted Research

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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	Total P2O5	Old Symbol	When applied	Total P2O5	New Symbol
None	0	(1)	None	0	(O)
Superphosphate annually	1.5	(2)	Annually	1.5	(A1)
Superphosphate annually	3.0	(3)	Annually	3.0	(A2)
Nitrophosphate I 1960	3.0	(6)	Annually	6.0*	(A3)
Nitrophosphate II 1960	3.0	(7)	Annually	9.0*	(A4)
Superphosphate in 1962,1965	1.5	(4)	1969, 1972	1.5	(T1)
Superphosphate in 1962,1965	3.0	(5)	1969, 1972	3.0	(T2)
Nitrophosphate III 1960	3.0	(8)	1967	3.0*	(R2)
Basic slag 1960	3.0	(10)	1967	6.0*	(R3)
Potassium metaphosphate 1960	3.0	(11)	1967	9.0*	(R4)
Gafsa in 1960	3.0	(9)	None	0	(G1)
Superphosphate in 1960	3.0	(12)	None	0	(S1)

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



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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.

K<sub>2</sub>O 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 R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub>): 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