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# Yields of the Field Experiments 1972

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## 72/R/SN/2 Rotation II - Potatoes, Barley, Sugar Beet

### Rothamsted Research

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72/S/RN/2

ROTATION II

Object: To measure, by crop yields and soil analysis, the residual value of P applied as FYM or superphosphate in the periods 1899 - 1964 and 1965 - 1967 - Saxmundham.

Sponsors: G.E.G. Mattingly, A.E. Johnston.

The fourth year of revised scheme, potatoes, barley, sugar beet.

For previous years see 'Details' 1967, 68/A/10(t), 69/S/RN/2(t) and 70 - 71/S/RN/2.

Whole plot dimensions: 3.56 x 5.49. Sub plot area harvested:  
Potatoes - 0.00078, sugar beet - 0.00100, barley - 0.00056.

Basal applications:

Potatoes: Manures as previously. Weedkiller: Linuron at 0.84 kg plus paraquat at 0.84 kg ion in 450 l. Fungicide: Mancozeb at 2.7 kg in 450 l on 4 occasions. Insecticide: Menazon ('Saphi-Col' at 0.7 l in 450 l) on 3 occasions.

Barley: Manures: 100 kg N and 64 kg K<sub>2</sub>O as (25:0:16). Weedkiller: Dichlorprop plus MCPA ('Mephetol Plus') at 5.6 l in 450 l. Fungicide: Tridemorph 0.52 kg in 450 l.

Sugar beet: Manures as previously. Insecticide: DDT at 1.0 kg in 560 l. Menazon ('Saphi-Col' at 0.7 l in 450 l) on 4 occasions.

Seed: Potatoes: King Edward.

Barley: Julia sown at 170 kg (15 cm spacing between rows).

Sugar beet: Klein E rubbed and graded, sown at 6.7 kg.

Cultivations, etc.:

Potatoes: Ploughed: 29 Oct, 1971. Test P and basal NK applied, plots rotary cultivated, potatoes planted: 20 Apr, 1972. Weedkiller applied: 23 May. Insecticide and fungicide applied: 28 June, 11 July, 27 July. Fungicide applied: 16 Aug. Lifted: 21 Sept.

Barley: Ploughed: 29 Oct, 1971. Seed drilled, basal NK applied: 27 Mar, 1972. Weedkiller and fungicide applied: 16 May. Harvested by hand: 15 Aug.

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Sugar beet: Ploughed: 29 Oct, 1971. Test P and basal NK applied,  
seed drilled: 6 Apr, 1972. Insecticides applied: DDT: 1 May,  
menazon: 9 May, 28 June, 11 July, 27 July. Singled: 15 May.  
Lifted: 26 Sept.

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TABLES OF MEANS

POTATOES

TOTAL TUBERS: TONNES/HECTARE

Plot	Treatment 1966 and 1967	PO*	1972			Mean
			P1	P2	P3	
1	PO	24.0	36.0	34.6	41.3	32.0
2	PO	36.3	44.2	43.6	43.3	40.7
3	PO	38.2	46.5	44.5	48.0	43.5
4	D	41.7	45.3	52.3	44.2	45.0
5	DP1	45.8	46.8	46.8	37.5	44.5
6	P1	42.4	44.2	49.7	44.2	44.6
7	P2	44.2	45.6	45.6	46.8	45.3
8	PO	40.8	39.8	45.9	49.7	43.4
Mean		39.2	43.8	45.4	44.4	42.4

SUGAR BEET

ROOTS (WASHED): TONNES/HECTARE

1	PO	14.4	27.4	33.8	32.9	24.6
2	PO	25.9	28.5	32.3	29.5	28.4
3	PO	33.6	32.7	33.3	33.8	33.4
4	D	35.2	36.3	38.5	38.4	36.7
5	DP1	35.4	37.5	41.3	37.6	37.4
6	P1	40.4	31.9	41.8	34.0	37.7
7	P2	39.0	42.1	33.2	39.7	38.6
8	PO	33.6	32.8	33.9	36.2	34.0
Mean		32.2	33.6	36.0	35.2	33.8

\* Duplicated treatment

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SUGAR BEET

Plot	Treatment 1966 and 1967	1972				Mean
		PO*	P1	P2	P3	
		SUGAR %				
1	PO	15.8	16.6	16.7	16.6	16.3
2	PO	16.5	16.8	17.1	16.6	16.7
3	PO	16.7	16.8	16.5	17.1	16.8
4	D	16.9	17.4	16.5	16.8	16.9
5	DP1	17.0	17.2	17.0	16.9	17.0
6	P1	17.3	17.5	17.4	16.7	17.2
7	P2	17.2	17.2	17.1	17.2	17.2
8	PO	17.3	17.4	16.9	16.9	17.1
Mean		16.8	17.1	16.9	16.8	16.9

TOTAL SUGAR: TONNES/HECTARE

1	PO	2.26	4.55	5.63	5.45	4.03
2	PO	4.27	4.80	5.52	4.89	4.75
3	PO	5.61	5.49	5.49	5.78	5.60
4	D	5.96	6.30	6.37	6.45	6.21
5	DP1	6.02	6.45	7.01	6.35	6.37
6	P1	6.98	5.57	7.28	5.69	6.50
7	P2	6.72	7.22	5.67	6.81	6.63
8	PO	5.81	5.70	5.71	6.11	5.83
Mean		5.46	5.76	6.09	5.94	5.74

\* Duplicated treatment

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SUGAR BEET

Plot	Treatment 1966 and 1967	1972				Mean
		PO*	P1	P2	P3	
TOPS: TONNES/HECTARE						
1	PO	18.8	35.5	40.0	34.8	29.6
2	PO	31.1	37.1	30.5	39.1	33.8
3	PO	37.1	40.0	37.3	35.5	37.4
4	D	43.2	35.5	38.2	42.0	40.4
5	DPI	35.3	41.8	46.8	42.0	40.2
6	P1	38.7	32.8	42.7	35.9	37.7
7	P2	38.9	38.7	38.2	35.0	37.9
8	PO	35.8	33.7	36.4	33.5	35.0
Mean		34.8	36.9	38.8	37.2	36.5

PLANT NUMBER: THOUSANDS/HECTARE						
1	PO	76.2	77.7	85.7	91.7	81.5
2	PO	92.2	77.7	75.7	74.7	82.5
3	PO	88.7	88.7	85.7	79.7	86.3
4	D	96.7	90.7	98.7	100.7	96.7
5	DPI	88.7	102.7	102.7	82.7	93.1
6	P1	109.1	90.7	104.6	88.7	100.5
7	P2	89.7	99.7	86.7	107.6	94.7
8	PO	94.7	91.7	83.7	79.7	88.9
Mean		92.0	89.9	90.4	88.2	90.5

\* Duplicated treatment

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BARLEY AFTER POTATOES

Plot	Treatment 1966 and 1967	1971				Mean
		PO*	P1	P2	P3	
GRAIN: TONNES/HECTARE						
1	PO	3.34	6.01	6.46	6.09	5.05
2	PO	5.56	6.03	6.68	6.32	6.03
3	PO	6.00	5.36	5.66	6.02	5.81
4	D	5.87	5.44	5.66	5.78	5.72
5	DP1	6.04	5.32	5.69	5.60	5.74
6	P1	5.33	6.20	5.84	5.83	5.70
7	P2	5.39	5.32	5.48	5.58	5.43
8	PO	5.54	5.57	5.69	5.64	5.60
Mean		5.39	5.65	5.90	5.86	5.64

STRAW: TONNES/HECTARE						
1	PO	3.49	5.94	6.68	6.61	5.24
2	PO	5.88	7.08	7.24	6.93	6.60
3	PO	6.36	5.97	6.03	6.96	6.34
4	D	6.34	6.72	6.39	6.63	6.49
5	DP1	7.13	7.25	7.06	6.71	7.05
6	P1	7.34	6.81	7.26	7.21	7.19
7	P2	6.79	7.18	7.90	6.78	7.09
8	PO	6.91	6.60	7.34	7.07	6.97
Mean		6.28	6.69	6.99	6.86	6.62

Mean D.M. %: Grain: 82.5  
Straw: 64.5

\* Duplicated treatment

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BARLEY AFTER SUGAR BEET

Plot	Treatment 1966 and 1967	PO*	1971			Mean
			P1	P2	P3	
GRAIN: TONNES/HECTARE						
1	PO	3.44	4.37	5.51	5.34	4.42
2	PO	4.85	5.32	5.22	6.32	5.31
3	PO	5.67	5.51	5.94	5.58	5.67
4	D	5.73	6.08	5.25	5.55	5.67
5	DP1	6.06	6.18	5.62	5.42	5.87
6	P1	5.62	5.39	6.57	6.27	5.89
7	P2	5.52	5.95	6.17	5.95	5.82
8	PO	5.75	5.12	6.18	6.22	5.80
Mean		5.33	5.49	5.81	5.83	5.56

STRAW: TONNES/HECTARE						
1	PO	3.24	4.14	5.41	5.15	4.23
2	PO	4.63	5.10	5.05	6.13	5.11
3	PO	5.72	6.10	5.90	5.88	5.86
4	D	6.16	6.32	5.41	6.15	6.04
5	DP1	6.93	7.76	6.05	5.50	6.63
6	P1	6.65	5.23	6.75	7.25	6.50
7	P2	5.92	6.68	7.03	7.23	6.56
8	PO	6.10	5.46	6.52	6.52	6.14
Mean		5.67	5.85	6.01	6.23	5.89

Mean D.M. %: Grain: 81.7  
Straw: 56.1

\* Duplicated treatment