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71/S/RN/2 Rotation II - Sugar Beet, Potatoes, Barley

Rothamsted Research

Rothamsted Research (1972) *71/S/RN/2 Rotation II - Sugar Beet, Potatoes, Barley* ; Yields Of The Field Experiments 1971, pp 44 - 49 - DOI: <https://doi.org/10.23637/ERADOC-1-97>

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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.

The third 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/S/RN/2.

Whole plot dimensions: 3.56 x 5.49. Sub plot area harvested: Potatoes - 0.00078, sugar beet: 0.00100, barley: 0.00050.

Basal applications:-

Potatoes: 251 kg N and 160 kg K₂O as (25:0:16). Weedkiller: Linuron at 0.84 kg plus paraquat at 0.84 kg ion in 449 l. Fungicide: Mancozeb at 2.69 kg in 449 l on 5 occasions. Insecticide: Menazon ('Saphicol' at 0.70 l in 449 l) applied with the first four applications of fungicide.
Barley: Manures as previously. Weedkiller: Mecoprop at 2.52 kg plus 2,4-D at 0.63 kg in 225 l.
Sugar beet: 188 kg N and 120 kg K₂O as (25:0:16). Insecticides: DDT at 0.34 kg in 281 l on 2 occasions. Menazon ('Saphicol' at 0.70 l in 449 l) on 5 occasions.

Cultivations, etc.:-

Potatoes: Ploughed: 20 Oct, 1970. Test P and basal NK applied, plots rotary cultivated, potatoes planted: 14 Apr, 1971. Weedkiller applied: 11 May. Insecticide and fungicide applied: 17 June, 30 June, 14 July, 27 July. Fungicide applied: 10 Aug. Lifted: 21 Sept. Variety: King Edward.
Barley: Ploughed: 20 Oct, 1970. Seed drilled at 168 kg and basal NK applied: 31 Mar, 1971. Weedkiller applied: 18 May. Harvested by hand: 11 Aug. Variety: Julia.
Sugar beet: Ploughed: 20 Oct, 1970. Test P and basal NK applied, seed drilled: 6 Apr, 1971. DDT applied: 19 May, 3 June. Singled: 28 May. Menazon applied: 17 June, 30 June, 14 July, 27 July, 10 Aug. Lifted: 12 Oct. Variety: Klein E.

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SUMMARY OF RESULTS

POTATOES

TOTAL TUBERS: TONNES/HECTARE

Plot	Treatment 1966 and 1967	1971				Mean
		P0*	P1	P2	P3	
1	P0	26.0	41.0	38.4	48.5	36.0
2	P0	37.2	44.5	54.6	52.9	45.3
3	P0	50.1	50.0	46.2	50.0	49.3
4	D	45.6	43.9	53.2	58.4	49.3
5	DP1	53.3	48.0	58.1	52.3	53.0
6	P1	54.5	54.6	50.9	50.9	53.1
7	P2	53.9	61.9	49.7	60.7	56.0
8	P0	49.3	50.9	54.9	50.0	50.9
Mean		46.2	49.3	50.8	53.0	49.1

SUGAR BEET

ROOTS (WASHED): TONNES/HECTARE

1	P0	20.3	35.7	41.2	37.7	31.0
2	P0	35.0	38.7	41.0	39.4	37.8
3	P0	43.7	51.2	45.8	45.6	46.0
4	D	45.8	44.8	42.4	47.0	45.2
5	DP1	44.3	50.1	42.2	48.4	45.9
6	P1	45.9	43.1	53.1	53.6	48.3
7	P2	45.1	42.8	49.5	45.4	45.6
8	P0	42.0	41.9	42.3	48.9	43.4
Mean		40.3	43.5	44.7	45.8	42.9

* Duplicated treatment

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SUGAR BEET

Plot	Treatment 1966 and 1967	1971				Mean
		PO*	P1	P2	P3	
		SUGAR %				
1	PO	16.0	16.7	16.6	16.9	16.5
2	PO	16.6	16.7	16.8	17.0	16.7
3	PO	17.0	16.7	17.1	17.1	17.0
4	D	17.0	17.0	17.1	16.5	16.9
5	DP1	17.0	16.8	16.9	17.0	16.9
6	P1	16.8	16.9	16.8	16.7	16.8
7	P2	17.0	16.9	17.2	16.5	16.9
8	PO	16.9	16.7	17.0	16.7	16.9
Mean		16.8	16.8	16.9	16.8	16.8

TOTAL SUGAR: TONNES/HECTARE

1	PO	3.25	5.94	6.85	6.37	5.14
2	PO	5.80	6.46	6.86	6.68	6.32
3	PO	7.44	8.57	7.82	7.82	7.82
4	D	7.79	7.59	7.22	7.77	7.63
5	DP1	7.53	8.40	7.14	8.21	7.76
6	P1	7.72	7.28	8.93	8.96	8.12
7	P2	7.68	7.24	8.50	7.50	7.72
8	PO	7.11	7.00	7.20	8.16	7.32
Mean		6.79	7.31	7.57	7.68	7.23

* Duplicated treatment

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SUGAR BEET

Plot	Treatment 1966 and 1967	1971				Mean
		PO*	P1	P2	P3	
TOPS: TONNES/HECTARE						
1	PO	26.2	38.4	51.3	37.5	35.9
2	PO	39.8	40.2	38.4	45.9	40.8
3	PO	41.7	44.1	42.9	43.6	42.8
4	D	43.5	45.9	40.5	40.5	42.8
5	DP1	47.8	51.1	41.4	41.1	45.8
6	P1	46.3	43.2	49.1	50.0	47.0
7	P2	43.1	46.3	45.0	47.9	45.1
8	PO	50.2	41.4	47.7	48.6	47.6
Mean		42.3	43.8	44.5	44.4	43.5

PLANT NUMBER: THOUSANDS/HECTARE						
1	PO	80.7	98.7	88.7	101.7	90.1
2	PO	92.2	90.7	99.7	91.7	93.3
3	PO	94.7	100.7	97.7	99.7	97.5
4	D	87.7	82.7	86.7	99.7	88.9
5	DP1	95.7	90.7	84.7	92.7	91.9
6	P1	91.7	90.7	95.7	101.7	94.3
7	P2	84.2	87.7	96.7	76.7	85.9
8	PO	97.2	89.7	90.7	91.7	93.3
Mean		90.5	91.4	92.6	94.4	91.9

* Duplicated treatment

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BARLEY AFTER POTATOES

Plot	Treatment 1966 and 1967	1970				Mean
		P0*	P1	P2	P3	
GRAIN: TONNES/HECTARE						
1	P0	2.40	4.13	3.68	4.27	3.37
2	P0	4.00	4.32	5.00	4.83	4.43
3	P0	4.40	4.51	4.52	4.60	4.49
4	D	4.82	4.79	4.62	4.76	4.76
5	DP1	5.02	5.07	4.76	4.01	4.78
6	P1	5.06	4.82	4.58	4.90	4.89
7	P2	5.00	5.07	4.49	5.16	4.94
8	P0	4.87	4.82	4.94	4.71	4.84
Mean		4.44	4.69	4.57	4.65	4.56

STRAW: TONNES/HECTARE

1	P0	2.82	4.42	4.97	4.90	3.99
2	P0	4.95	5.01	5.91	5.89	5.34
3	P0	5.28	5.17	5.06	5.71	5.30
4	D	5.93	5.45	5.75	6.00	5.81
5	DP1	5.65	6.04	5.42	5.48	5.65
6	P1	5.89	5.48	5.50	5.77	5.70
7	P2	5.73	5.46	5.32	5.57	5.56
8	P0	5.44	5.34	5.47	5.25	5.39
Mean		5.21	5.29	5.42	5.57	5.34

Mean D.M. %: Grain: 75.4
Straw: 51.4

* Duplicated treatment

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BARLEY AFTER SUGAR BEET

Plot	Treatment	1970				Mean
	1966 and 1967	PO*	P1	P2	P3	
	GRAIN: TONNES/HECTARE					
1	PO	1.42	2.80	4.02	4.21	2.77
2	PO	3.76	4.35	4.11	4.22	4.04
3	PO	4.58	4.51	3.56	4.09	4.27
4	D	4.60	4.64	4.98	4.55	4.67
5	DP1	4.77	4.20	5.34	4.65	4.74
6	P1	4.79	4.74	4.98	4.57	4.78
7	P2	4.81	4.81	4.38	4.62	4.69
8	PO	4.41	4.10	5.11	4.78	4.56
Mean		4.14	4.27	4.56	4.46	4.32

STRAW: TONNES/HECTARE						
1	PO	2.18	3.49	3.99	4.91	3.35
2	PO	4.38	5.15	4.22	4.92	4.61
3	PO	4.73	4.69	5.82	4.50	4.89
4	D	5.49	5.07	5.83	5.16	5.41
5	DP1	5.19	5.00	5.69	5.19	5.25
6	P1	5.22	5.09	5.56	4.72	5.16
7	P2	5.02	5.19	5.10	5.08	5.08
8	PO	4.97	4.66	5.32	4.81	4.94
Mean		4.65	4.79	5.19	4.91	4.84

Mean D.M. %: Grain: 74.6
Straw: 53.5

* Duplicated treatment