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Yields of the Field Experiments 1975

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75/ S/FN/2 - Rotation II - Barley

Rothamsted Research

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75/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.

Sponsor: C.E.G. Mattingly, A.E. Johnston.

The seventh year of revised scheme, barley.

For previous years see 'Details' 1967, 68/A/10(t), 69/S/RN/2(t) and 70-74/S/RN/2.

Whole plot dimensions: 5.49 x 39.8.

Treatments: From 1899-1964 the experiment tested farmyard manure and nitrogen and phosphate fertilisers applied to a rotation of crops. Since 1965 the treatments have been changed to evaluate old residues of P (from FYM and superphosphate) and new residues from treatments applied 1965-1967. All crops of the rotation - potatoes, barley, sugar beet, barley - were grown until 1974. The whole experiment was sown to barley in 1975 and tests combinations of:

Whole plots: 1. Residues of previous treatments:-

	Approximate total dressing 1899-1964	Total dressing 1965-1967	RESIDUE
Plot 1	None	None	(O)O
Plot 2	400 tonnes FYM	None	(D)O
Plot 3	400 tonnes FYM, 2.7 tonnes P ₂ O ₅	None	(DP)O
Plot 4	400 tonnes FYM, 2.7 tonnes P ₂ O ₅	100 tonnes FYM	(DP)D ₂
Plot 5	400 tonnes FYM, 2.7 tonnes P ₂ O ₅	100 tonnes FYM, 0.56 tonnes P ₂ O ₅	(DP)D ₂ P ₁
Plot 6	400 tonnes FYM, 2.7 tonnes P ₂ O ₅	0.56 tonnes P ₂ O ₅	(DP)P ₁
Plot 7	400 tonnes FYM, 2.7 tonnes P ₂ O ₅	1.13 tonnes P ₂ O ₅	(DP)P ₂
Plot 8	326 tonnes FYM, 4.3 tonnes P ₂ O ₅ (until 1952 only)	None	(DP ₅₂)O

75/S/RA/2

Barley after potatoes (1974) and after sugar beet (1974) tests in addition to 1:-

Sub plots: 2. Phosphate residues 1970-72 (total P2O5 applied (kg)):	P2O5(72)
None (2 sub plots/plot)	(0)
126	(126)
252	(252)
378	(378)

and some of the combinations of 2 with:-

3. Phosphate in 1974 and 1975 (kg P2O5):	P2O5 74'75
1974 1975	
None None	(0)0
63 63	(63)63
189 None	(189)0

Barley after barley (1974) after potatoes or sugar beet (1973) tests in addition to 1:-

Sub plots: 2. Phosphate residues 1969-71 (total P2O5 applied (kg)):	P2O5(71)
None (2 sub plots/plot)	(0)
126	(126)
252	(252)
378	(378)

and some of the combinations of 2 with:-

3. Phosphate in 1973, 74 and 75 (kg P2O5):	P2O573-5
1973 1974&75	
None None	(0)0
63 63	(63)63
189 None	(189)0

Standard applications: Manures: (25:0:16) at 320 kg. Weedkiller: Dichloroprop plus MCPA ('Mephetol Plus' at 5.6 l in 280 l). Fungicide: Tridemorph at 0.53 kg applied with the weedkiller.

Seed: Julia, dressed with ethirimol, sown at 170 kg.

Cultivation, etc.: Ploughed: 27 Nov, 1974. Test P applied: 29 Apr, 1975. NK applied and seed sown: 28 Apr. Weedkiller and fungicide applied: 11 June. Combine harvested: 21 Aug.

75/S/RN/2

BARLEY AFTER POTATOES

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

P205(72)	(0)			(126)		(252)		(378)	
P2057475	0	63	189	63	189	63	189	63	189
RESIDUE									
(O)0	3.60		3.71	4.86			4.73	4.56	
(D)0	4.37	5.08			5.24	5.57			5.47
(DP)0	4.93	5.11			5.34	5.54			4.96
(DP)D2	5.58		5.31	5.53			5.12	5.77	
(DP)D2P1	5.42	5.55			5.56	5.36			5.60
(DP)P1	5.22	5.22			4.73	5.36			5.33
(DP)P2	5.37		5.42	5.25			5.79	5.66	
(DP52)0	5.37		4.71	4.95			5.20	5.40	

STRAW TONNES/HECTARE

*** TABLES OF MEANS ***

P205(72)	(0)			(126)		(252)		(378)	
P2057475	0	63	189	63	189	63	189	63	189
RESIDUE									
(O)0	1.96		2.15	2.43			3.02	2.71	
(D)0	2.78	3.21			3.29	3.41			3.43
(DP)0	2.94	2.37			3.18	3.58			3.10
(DP)D2	3.47		3.52	3.47			3.36	3.67	
(DP)D2P1	3.40	3.33			3.67	3.03			4.00
(DP)P1	3.03	3.36			3.04	3.72			3.36
(DP)P2	3.69		3.41	3.21			3.66	3.88	
(DP52)0	3.36		3.18	3.31			3.34	3.51	

STRAW MEAN DM% 62.6

PLOT AREA HARVESTED 0.00060

75/S/RN/2

BARLEY AFTER BARLEY AFTER POTATOES

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

P205(71)	(0)	(63)63	(189)0	(126)	(189)0	(252)	(189)0	(378)	(189)0
P20573 5	(0)0	(63)63	(189)0	(63)63	(189)0	(63)63	(189)0	(63)63	(189)0
RESIDUE									
(O)0	2.18	4.27			3.05	4.17			3.06
(D)0	3.22		3.52	4.37			3.31	4.40	
(DP)0	4.82		4.54	4.94			5.16	4.30	
(DP)D2	4.95	5.30			4.81	5.12			4.77
(DP)D2P1	5.18		5.28	5.30			5.41	5.22	
(DP)P1	5.26		5.28	5.49			5.49	5.25	
(DP)P2	4.60	5.32			5.33	5.24			5.25
(DP52)0	5.08	4.95			4.53	5.60			4.91

STRAW TONNES/HECTARE

*** TABLES OF MEANS ***

P205(71)	(0)	(63)63	(189)0	(126)	(189)0	(252)	(189)0	(378)	(189)0
P20573 5	(0)0	(63)63	(189)0	(63)63	(189)0	(63)63	(189)0	(63)63	(189)0
RESIDUE									
(O)0	1.48	2.83			1.61	2.63			1.54
(D)0	2.04		1.99	2.40			1.80	2.39	
(DP)0	2.99		2.76	3.09			3.06	2.58	
(DP)D2	3.13	3.55			3.15	3.16			2.64
(DP)D2P1	3.40		3.15	3.61			3.32	3.17	
(DP)P1	3.54		3.44	3.27			3.48	3.43	
(DP)P2	3.17	1.98			3.31	3.49			3.20
(DP52)0	2.93	3.16			2.41	3.44			2.85

STRAW MEAN DM% 61.2

PLOT AREA HARVESTED 0.00060

75/S/RN/2

BARLEY AFTER SUGAR BEET

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

P205(72)	(0)		(126)		(252)		(378)	
P2057475	0	63	189	63	189	63	189	63
RESIDUE								
(O) 0	2.83	3.18			2.50	2.78		2.97
(D) 0	2.88		3.52	3.30			3.86	4.10
(DP) 0	4.22		4.14	4.39			3.99	4.43
(DP) D2	3.82	5.27			4.79	4.78		5.12
(DP) D2P1	5.09		4.54	4.76			5.01	4.60
(DP) P1	4.48		4.99	5.12			5.32	4.47
(DP) P2	4.63	4.37			5.00	5.20		4.92
(DP52) 0	3.47	4.94			4.75	4.61		5.01

STRAW TONNES/HECTARE

*** TABLES OF MEANS ***

P205(72)	(0)		(126)		(252)		(378)	
P2057475	0	63	189	63	189	63	189	63
RESIDUE								
(O) 0	1.48	1.88			1.54	1.67		1.26
(D) 0	1.52		1.98	1.99			2.23	2.50
(DP) 0	2.54		2.40	2.97			2.42	2.99
(DP) D2	2.17	3.12			2.94	2.75		3.18
(DP) D2P1	3.46		2.82	3.22			3.37	2.91
(DP) P1	2.92		3.19	3.61			3.74	2.85
(DP) P2	3.10	2.88			3.11	3.35		3.12
(DP52) 0	1.81	3.29			2.82	2.46		3.17

STRAW MEAN DM% 61.2

PLOT AREA HARVESTED 0.00060

75/S/RN/2

BARLEY AFTER BARLEY AFTER SUGAR BEET

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

P205(71)	(0)	(126)	(252)	(378)
P20573 5	(0)0	(63)63	(189)0	(63)63 (189)0 (63)63 (189)0 (63)63 (189)0
RESIDUE				
(O)0	2.00	2.08	3.52	3.08 4.18
(D)0	3.31	4.17	4.10	4.86 4.29
(DP)0	4.47	5.00	4.87	4.90 4.16
(DP)D2	5.23	5.84	5.48	5.74 6.20
(DP)D2P1	5.47	5.30	5.42	5.55 5.07
(DP)P1	4.95	5.07	5.37	5.25 5.21
(DP)P2	5.49	6.23	5.60	5.25 6.01
(DP52)0	4.32	4.86	5.47	5.38 5.21

STRAW TONNES/HECTARE

*** TABLES OF MEANS ***

P205(71)	(0)	(126)	(252)	(378)
P20573 5	(0)0	(63)63	(189)0	(63)63 (189)0 (63)63 (189)0 (63)63 (189)0
RESIDUE				
(O)0	1.51	1.39	1.82	1.88 2.00
(D)0	2.17	2.30	2.57	2.80 2.57
(DP)0	2.74	3.09	3.15	2.92 2.40
(DP)D2	3.23	3.70	3.28	3.56 3.79
(DP)D2P1	3.36	3.25	3.66	3.51 3.18
(DP)P1	3.35	3.10	3.38	3.15 3.22
(DP)P2	3.52	4.01	3.71	2.73 3.99
(DP52)0	3.05	3.03	3.40	3.30 3.22

STRAW MEAN DM% 61.0

PLOT AREA HARVESTED 0.00060