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Yields of the Field Experiments 1979

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79/S/RN/2 Rotation II - Wheat, Barley

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79/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 and of fresh dressings since - Saxmundham.

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

The tenth year of revised scheme, wheat, barley.

For previous years see 'Details' 1967 & 1973, and 74-78/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 1976, wheat and barley since 1977, and tests combinations of:

Whole plots

1. RESIDUE

Residues of previous treatments:-

		Approximate total dressing 1899-1964	Total dressing 1965-1967
(0)0	Plot 1	None	None
(D)0	Plot 2	400 tonnes FYM	None
(DP)0	Plot 3	400 tonnes FYM, 2.7 tonnes P205	None
(DP)D2	Plot 4	400 tonnes FYM, 2.7 tonnes P205	100 tonnes FYM
(DP)D2P1	Plot 5	400 tonnes FYM, 2.7 tonnes P205	100 tonnes FYM, 0.56 tonnes P205
(DP)P1	Plot 6	400 tonnes FYM, 2.7 tonnes P205	0.56 tonnes P205
(DP)P2	Plot 7	400 tonnes FYM, 2.7 tonnes P205	1.13 tonnes P205
(DP52)0	Plot 8	326 tonnes FYM, 4.3 tonnes P205 (until 1952 only)	None

Wheat in 1979 (after barley 1978) tests in addition to 1:-

Sub plots

2. P

Phosphate (total P205 applied in each period (kg)):

	1969-71	1973-75	1978 (to preceding wheat stubble)
(0)(0)0	0	0	0
(0)(3)0	0	378	0
(1)(3)1	126	378	120
(2)(3)1	252	378	120
(3)(3)0	378	378	0

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and some of the combinations of 2 with:-

3. N Nitrogen fertiliser (kg N as 'Nitro-Chalk') (in addition to autumn basal N):

40
80
120
160

Barley in 1979 (after wheat 1978) tests in addition to 1:

Sub plots

2. P Phosphate (total P₂O₅ applied in each period (kg)):

	1969-71	1973-75	1979 (to preceding wheat stubble)
(0)(0)0	0	0	0
(0)(3)0	0	378	0
(1)(3)1	126	378	120
(2)(3)1	252	378	120
(3)(3)0	378	378	0

and some of the combinations of 2 with:-

3. N Nitrogen fertiliser (kg N as 'Nitro-Chalk'):

30
60
90
120

Standard applications:

Both crops: Manures: K₂O at 150 kg as muriate of potash. Spring weedkillers: Ioxynil at 0.42 kg and mecoprop at 1.3 kg in 220 l applied with the fungicide. Fungicide: Tridemorph at 0.53 kg.

Wheat: Manures: N at 50 kg at drilling as 'Nitro-Chalk 25' combine drilled. Autumn weedkiller: Isoproturon at 3.1 kg in 220 l. Growth regulator: Chlormequat at 1.7 kg, applied with the spring weedkiller.

Seed: Wheat: Maris Huntsman, sown at 210 kg.
Barley: Julia, sown at 190 kg.

Cultivations, etc.:-

Both crops: K applied: 20 Sept, 1978. Ploughed: 22 Sept. Test N applied: 18 Apr, 1979. Combine harvested: 21 Aug.

Wheat: Seed sown: 4 Oct, 1978. Isoproturon applied: 5 Oct. Spring weedkiller, fungicide and growth regulator applied: 15 May, 1979.

Barley: Test P applied: 20 Sept, 1978. Seed sown: 18 Apr, 1979. Weedkiller and fungicide applied: 23 May.

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WHEAT

GRAIN TONNES/HECTARE

***** TABLES OF MEANS *****

RESIDUE	N P	40	80	120	160
(O)O (0)(0)0				3.23	3.34
(O)O (0)(3)0		3.46	3.94		
(O)O (1)(3)1		4.15		5.38	
(O)O (2)(3)1			5.15		6.37
(O)O (3)(3)0			4.80		5.11
(D)O (0)(0)0		2.71	4.61		
(D)O (0)(3)0				4.93	6.09
(D)O (1)(3)1			5.77		6.11
(D)O (2)(3)1		3.91		6.20	
(D)O (3)(3)0		3.45		5.32	
(DP)O (0)(0)0				6.12	6.03
(DP)O (0)(3)0		3.84	5.85		
(DP)O (1)(3)1		4.52		6.37	
(DP)O (2)(3)1			5.50		6.86
(DP)O (3)(3)0			5.74		6.53
(DP)D2 (0)(0)0		4.27	4.70		
(DP)D2 (0)(3)0				5.69	6.32
(DP)D2 (1)(3)1		4.38		6.43	
(DP)D2 (2)(3)1			6.20		6.49
(DP)D2 (3)(3)0			5.64		5.86
(DP)D2P1 (0)(0)0				6.16	6.96
(DP)D2P1 (0)(3)0		4.63	5.28		
(DP)D2P1 (1)(3)1		3.96		7.14	
(DP)D2P1 (2)(3)1			6.30		6.73
(DP)D2P1 (3)(3)0			6.49		6.80
(DP)P1 (0)(0)0				6.22	6.50
(DP)P1 (0)(3)0		5.18	5.16		
(DP)P1 (1)(3)1			5.85		7.39
(DP)P1 (2)(3)1		4.30		6.56	
(DP)P1 (3)(3)0		4.18		7.19	
(DP)P2 (0)(0)0		4.05	5.66		
(DP)P2 (0)(3)0				6.38	6.38
(DP)P2 (1)(3)1			5.70		7.10
(DP)P2 (2)(3)1		4.92		6.67	
(DP)P2 (3)(3)0		4.94		6.94	
(DP52)O (0)(0)0		4.13	5.32		
(DP52)O (0)(3)0				5.70	6.82
(DP52)O (1)(3)1			5.53		6.36
(DP52)O (2)(3)1		3.39		6.71	
(DP52)O (3)(3)0		4.13		6.20	

GRAIN MEAN DM% 79.4

79/S/RN/2

WHEAT

STRAW TONNES/HECTARE

***** TABLES OF MEANS *****

RESIDUE	N P	40	80	120	160
(O)O	(0)(0)0			1.87	1.99
(O)O	(0)(3)0	2.31	2.04		
(O)O	(1)(3)1	2.78		3.46	
(O)O	(2)(3)1		3.27		3.89
(O)O	(3)(3)0		3.17		2.93
(D)O	(0)(0)0	1.96	2.59		
(D)O	(0)(3)0			2.91	3.45
(D)O	(1)(3)1		3.55		4.02
(D)O	(2)(3)1	1.91		4.31	
(D)O	(3)(3)0	1.89		3.73	
(DP)O	(0)(0)0			3.61	4.03
(DP)O	(0)(3)0	2.18	3.69		
(DP)O	(1)(3)1	2.67		3.92	
(DP)O	(2)(3)1		3.44		3.94
(DP)O	(3)(3)0		3.61		4.59
(DP)D2	(0)(0)0	2.56	2.85		
(DP)D2	(0)(3)0			3.03	4.11
(DP)D2	(1)(3)1	2.82		4.15	
(DP)D2	(2)(3)1		3.61		4.10
(DP)D2	(3)(3)0		3.46		3.59
(DP)D2P1	(0)(0)0			4.25	4.06
(DP)D2P1	(0)(3)0	2.94	3.44		
(DP)D2P1	(1)(3)1	2.72		4.65	
(DP)D2P1	(2)(3)1		3.27		4.44
(DP)D2P1	(3)(3)0		4.37		4.67
(DP)P1	(0)(0)0			3.86	3.68
(DP)P1	(0)(3)0	3.12	3.15		
(DP)P1	(1)(3)1		3.42		5.34
(DP)P1	(2)(3)1	3.12		4.16	
(DP)P1	(3)(3)0	2.19		4.27	
(DP)P2	(0)(0)0	2.31	3.68		
(DP)P2	(0)(3)0			4.09	4.19
(DP)P2	(1)(3)1		3.31		4.21
(DP)P2	(2)(3)1	2.79		4.14	
(DP)P2	(3)(3)0	2.88		4.59	
(DP52)O	(0)(0)0	2.64	3.25		
(DP52)O	(0)(3)0			3.55	4.38
(DP52)O	(1)(3)1		3.55		4.02
(DP52)O	(2)(3)1	2.00		3.95	
(DP52)O	(3)(3)0	2.81		3.85	

STRAW MEAN DM% 89.5

SUB PLOT AREA HARVESTED 0.00075

79/S/RN/2

BARLEY

GRAIN TONNES/HECTARE

***** TABLES OF MEANS *****

RESIDUE	N P	30	60	90	120
(O)O	(0)(0)0	1.54	1.69		
(O)O	(0)(3)0			1.85	3.53
(O)O	(1)(3)1		3.62		4.65
(O)O	(2)(3)1	2.02		3.62	
(O)O	(3)(3)0	1.80		3.91	
(D)O	(0)(0)0			3.03	3.40
(D)O	(0)(3)0	2.59	3.21		
(D)O	(1)(3)1	2.85		4.85	
(D)O	(2)(3)1		3.65		5.20
(D)O	(3)(3)0		4.05		4.61
(DP)O	(0)(0)0	1.91	3.12		
(DP)O	(0)(3)0			4.60	4.27
(DP)O	(1)(3)1		3.49		4.40
(DP)O	(2)(3)1	2.75		4.66	
(DP)O	(3)(3)0	2.20		4.11	
(DP)D2	(0)(0)0			5.02	4.92
(DP)D2	(0)(3)0	2.67	3.85		
(DP)D2	(1)(3)1		3.71		4.94
(DP)D2	(2)(3)1	2.37		5.32	
(DP)D2	(3)(3)0	2.21		4.53	
(DP)D2P1	(0)(0)0	2.09	4.25		
(DP)D2P1	(0)(3)0			4.10	5.13
(DP)D2P1	(1)(3)1		3.55		4.88
(DP)D2P1	(2)(3)1	2.36		4.96	
(DP)D2P1	(3)(3)0	3.01		4.99	
(DP)P1	(0)(0)0	1.77	4.25		
(DP)P1	(0)(3)0			5.09	4.77
(DP)P1	(1)(3)1	2.52		5.12	
(DP)P1	(2)(3)1		4.01		5.40
(DP)P1	(3)(3)0		3.71		5.08
(DP)P2	(0)(0)0			4.39	4.78
(DP)P2	(0)(3)0	2.37	2.67		
(DP)P2	(1)(3)1	2.09		4.36	
(DP)P2	(2)(3)1		4.14		5.75
(DP)P2	(3)(3)0		3.83		4.32
(DP52)O	(0)(0)0			3.71	3.60
(DP52)O	(0)(3)0	2.05	3.74		
(DP52)O	(1)(3)1	1.83		3.45	
(DP52)O	(2)(3)1		3.70		4.94
(DP52)O	(3)(3)0		2.94		4.37

GRAIN MEAN DM% 78.0

79/S/RN/2

BARLEY

STRAW TONNES/HECTARE

***** TABLES OF MEANS *****

RESIDUE	N P	30	60	90	120
(O)O	(0)(0)0	1.07	1.27		
(O)O	(0)(3)0			1.44	2.55
(O)O	(1)(3)1		2.28		3.00
(O)O	(2)(3)1	1.40		2.56	
(O)O	(3)(3)0	0.76		2.84	
(D)O	(0)(0)0			2.39	2.76
(D)O	(0)(3)0	1.98	1.90		
(D)O	(1)(3)1	1.68		3.36	
(D)O	(2)(3)1		2.21		3.50
(D)O	(3)(3)0		2.58		3.39
(DP)O	(0)(0)0	1.15	1.86		
(DP)O	(0)(3)0			3.23	3.21
(DP)O	(1)(3)1		2.35		3.04
(DP)O	(2)(3)1	1.28		3.50	
(DP)O	(3)(3)0	1.31		2.63	
(DP)D2	(0)(0)0			3.24	3.82
(DP)D2	(0)(3)0	1.36	2.60		
(DP)D2	(1)(3)1		2.43		3.60
(DP)D2	(2)(3)1	1.47		3.82	
(DP)D2	(3)(3)0	1.26		3.53	
(DP)D2P1	(0)(0)0	1.49	2.88		
(DP)D2P1	(0)(3)0			2.81	3.62
(DP)D2P1	(1)(3)1		2.44		3.54
(DP)D2P1	(2)(3)1	1.44		3.97	
(DP)D2P1	(3)(3)0	1.22		3.44	
(DP)P1	(0)(0)0	1.20	3.09		
(DP)P1	(0)(3)0			3.68	3.56
(DP)P1	(1)(3)1	0.89		3.56	
(DP)P1	(2)(3)1		2.87		3.83
(DP)P1	(3)(3)0		2.20		3.87
(DP)P2	(0)(0)0			2.93	3.52
(DP)P2	(0)(3)0	2.06	1.67		
(DP)P2	(1)(3)1	1.40		3.20	
(DP)P2	(2)(3)1		2.78		3.84
(DP)P2	(3)(3)0		2.63		3.26
(DP52)O	(0)(0)0			2.62	2.99
(DP52)O	(0)(3)0	1.24	2.43		
(DP52)O	(1)(3)1	1.11		2.23	
(DP52)O	(2)(3)1		2.54		3.36
(DP52)O	(3)(3)0		1.78		3.45

STRAW MEAN DM% 78.3

SUB PLOT AREA HARVESTED 0.00075