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Yields of the Field Experiments 1981

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81/S/RN/2 Rotation II - W. Wheat, W. Beans

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81/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 12th year of revised scheme, w. wheat, w. beans.

For previous years see 'Details' 1967 & 1973, and 74-80/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, s. barley, sugar beet, s. barley - were grown until 1974. The whole experiment was sown to s. barley in 1975 and 1976, alternating w. wheat and s. barley from 1977 to 1979, alternating w. beans and w. wheat in 1980 & 1981. Combinations of the following treatments are tested:

Whole plots

1. RESIDUE

Residues of previous treatments:-

		Approximate total dressing 1899-1964	Total dressing 1965-1967
(O)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

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W. wheat in 1981 tested in addition to 1:

Sub plots

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

	1969-71	1973-75	1978	1980
(0)(0)0	0	0	0	0
(0)(3)0	0	378	0	0
(1)(3)1	126	378	120	120
(2)(3)1	252	378	120	120
(3)(3)0	378	378	0	0

and some of the combinations of 2 with:-

3. N Nitrogen fertiliser in spring (kg N) in addition to 40 kg N at sowing:

80
120
160
200

NOTES: (1) Yields were not taken for w. beans.

(2) Plots with the combinations of RESIDUE (DP)D2, (DP)D2P1, (DP)P1, (DP)P2 with P(3)(3)(0) were used for N15 studies, yields not taken.

Standard applications: All crops: K₂O at 150 kg as muriate of potash.

W. wheat: Manures: Weedkillers: Isoproturon at 2.5 l in 220 l. Mecoprop with bromoxynil and ioxynil (as 'Brittox' at 3.5 l) in 220 l.

Fungicides: Carbendazim with maneb and tridemorph (as 'Cosmic' at 3.9 kg) applied with captafol at 1.0 kg and with the insecticide in 280 l. Carbendazim at 0.25 kg with maneb at 1.6 kg and captafol at 1.0 kg applied with the insecticide in 280 l. Insecticide: Pirimicarb at 0.14 kg.

W. beans: Fungicide: Benomyl at 0.56 kg in 280 l.

Seed: W. wheat: Hustler, sown at 170 kg.

W. beans: Throws MS, sown at 180 kg.

Cultivations, etc.:-

Both crops: Muriate of potash applied: 27 Aug, 1980. Ploughed: 29 Aug.

W. wheat: Seed sown, isoproturon applied: 24 Sept, 1980. 'Brittox' applied: 7 Apr, 1981. Test N applied: 13 Apr. 'Cosmic', captafol and insecticide applied: 28 May. Carbendazim, maneb, captafol and insecticide applied: 9 July. Combine harvested: 21 Aug.

W. beans: Test P applied: 27 Aug, 1980. Seed sown: 9 Oct. Benomyl applied: 25 Mar, 1981. Combine harvested: 21 Aug.

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WHEAT

GRAIN TONNES/HECTARE

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

RESIDUE	N P	80	120	160	200
(0)0	(0)(0)0			6.83	8.03
(0)0	(0)(3)0	7.85	7.26		
(0)0	(1)(3)1	7.13		8.48	
(0)0	(2)(3)1		8.19		8.32
(0)0	(3)(3)0		7.75		7.82
(D)0	(0)(0)0	7.49	8.29		
(D)0	(0)(3)0			8.19	8.13
(D)0	(1)(3)1		9.07		8.94
(D)0	(2)(3)1	8.13		8.81	
(D)0	(3)(3)0	7.92		8.86	
(DP)0	(0)(0)0			8.90	9.52
(DP)0	(0)(3)0	8.24	8.19		
(DP)0	(1)(3)1	8.22		8.97	
(DP)0	(2)(3)1		8.87		8.37
(DP)0	(3)(3)0		8.08		9.23
(DP)D2	(0)(0)0	8.20	8.62		
(DP)D2	(0)(3)0			9.37	10.02
(DP)D2	(1)(3)1	8.73		9.63	
(DP)D2	(2)(3)1		8.37		9.29
(DP)D2	(3)(3)0		8.73		8.73
(DP)D2P1	(0)(0)0			9.84	9.08
(DP)D2P1	(0)(3)0	8.92	9.97		
(DP)D2P1	(1)(3)1	9.23		9.71	
(DP)D2P1	(2)(3)1		8.42		10.41
(DP)D2P1	(3)(3)0		8.73		8.73
(DP)P1	(0)(0)0			10.07	9.23
(DP)P1	(0)(3)0	9.15	9.42		
(DP)P1	(1)(3)1		8.76		9.76
(DP)P1	(2)(3)1	8.45		8.96	
(DP)P1	(3)(3)0	8.73		8.73	
(DP)P2	(0)(0)0	8.52	8.06		
(DP)P2	(0)(3)0			8.68	9.10
(DP)P2	(1)(3)1		9.91		9.44
(DP)P2	(2)(3)1	8.36		10.18	
(DP)P2	(3)(3)0	8.73		8.73	
(DP52)0	(0)(0)0	8.45	8.22		
(DP52)0	(0)(3)0			9.29	9.39
(DP52)0	(1)(3)1		7.85		8.24
(DP52)0	(2)(3)1	7.95		9.40	
(DP52)0	(3)(3)0	8.01		9.67	

GRAIN MEAN DM% 83.5

PLOT AREA HARVESTED 0.00075