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# Yields of the Field Experiments 1980

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## 80/R/AG/6 Agdell

### Rothamsted Research

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80/R/AG/6

AGDELL

Object: To study, by crop yields and soil analyses, the residual values of phosphate and potash applied in the period 1848-1951 and further dressings since 1964.

The eleventh year of revised scheme, s. beans, w. wheat.

For previous years see 'Details' 1967 and 1973, and 74-79/R/AG/6.

Treatments: All combinations of:-

Whole plots

1. OLDRESD Fertilisers and organic manures applied to roots every fourth year, in the period 1848-1948:

NONE	None
PKNAMG	P K Na Mg
NPKNAMGC	N P K Na Mg C

N: 48 kg N as sulphate of ammonia  
P: 41 kg P as superphosphate  
K: 224 kg K as sulphate of potash  
Na: 16 kg Na as sulphate of soda  
Mg: 11 kg Mg as sulphate of magnesia  
C: Castor meal at 2240 kg supplying about 112 kg N

2. RN CROP Rotation 1848-1951 and crop in 1980:

F/WHEAT	With fallow: Roots (turnips or swedes), s. barley, fallow, w. wheat 1848-1951. W. wheat (after s. beans 1979)
L/BEANS	With legume: Roots, s. barley, legume (clover or beans), w. wheat 1848-1951. S. beans (after grass 1979)

Half plots

3. 1964RESD Residues of 1964 treatments:

P  
K

Quarter plots

4. PREVCROP Previous cropping 1958-69 on P-test half plots, 1958-70 on K-test half plots:

ARABLE	Arable or fallow
GRASS	Grass

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Sixteenth plots

5. P<sub>2</sub>O<sub>5</sub> 64 K<sub>2</sub>O 64

Rates of 1964 treatments (kg):  
P<sub>2</sub>O<sub>5</sub> to P-test      K<sub>2</sub>O to K-test  
half plots              half plots

0	0
500	315
1000	630
2000	1260

Thirty second plots

6.

On P-test half plots:  
To RN CROP F/WHEAT. Residues of P<sub>2</sub>O<sub>5</sub> applied  
1970-72 (total, kg) and 1979 (kg):

P<sub>2</sub>O<sub>5</sub> 729

(0)0  
(375)150

To RN CROP L/BEANS. Residues of P<sub>2</sub>O<sub>5</sub> applied  
1970-72 (total, kg) and a fresh dressing in 1980  
(kg):

P<sub>2</sub>O<sub>5</sub> 720

(0)0  
(375)150

On K-test half plots:  
To RN CROP F/WHEAT. Residues of K<sub>2</sub>O applied  
1973-76 (total, kg) and 1979 (kg):

K<sub>2</sub>O 769

(0)0  
(870)300

To RN CROP L/BEANS. Residues of K<sub>2</sub>O applied  
1973-76 (total, kg) and a fresh dressing in 1980  
(kg):

K<sub>2</sub>O 760

(0)0  
(870)300

Standard applications:

W. wheat: Manures: 'Nitro-Chalk' at 580 kg. Weedkillers: Glyphosate at 1.5 kg in 220 l. Mecoprop with bromoxynil and ioxynil (as 'Brittox' at 3.5 l) in 900 l.

W. beans: Weedkillers: Trietazine with simazine (as 'Remtal SC' at 2.5 l) in 250 l. Permethrin at 0.13 kg in 900 l. Pirimicarb at 0.14 kg in 250 l.

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Seed: Wheat: Flanders, sown at 200 kg.  
Beans: Minden, sown at 220 kg.

Cultivations, etc.:-

Wheat: Glyphosate applied: 27 Sept, 1979. Disc harrowed twice, seed sown: 15 Oct. N applied: 15 Apr, 1980. 'Brittox' applied: 25 Apr. Combine harvested: 21 Aug.

Beans: Test P and K applied: 17 July, 1979. Ploughed: 18 July. Heavy spring-tine cultivated: 31 July, 10 Aug. Rotary harrowed: 4 Mar, 1980. Seed sown: 5 Mar. Weedkiller applied: 21 Mar. Permethrin applied: 6 May. Pirimicarb applied: 16 July. Combine harvested: 18 Sept.

SPRING BEANS P PLOTS

GRAIN TONNES/HECTARE

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

	OLDRES D	NONE	PKNAMG	NPKNAMG
	P205 720	(0)0	(375)150	(0)0 (375)150
PREVCROP	P205 64			
ARABLE	0	2.13	2.52	1.41 1.61 0.99 1.76
	500	1.50	1.42	1.34 1.75 1.57 1.78
	1000	1.43	1.49	2.77 2.34 0.78 0.42
	2000	2.30	1.82	2.12 2.42 1.56 1.14
GRASS	0	1.67	2.21	1.79 2.50 1.74 1.53
	500	2.55	3.11	1.55 1.90 1.61 1.54
	1000	1.59	1.74	2.06 2.48 1.75 1.68
	2000	2.62	3.12	2.57 2.43 0.98 1.18

GRAIN MEAN DM% 78.9

SPRING BEANS K PLOTS

GRAIN TONNES/HECTARE

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

	OLDRES D	NONE	PKNAMG	NPKNAMG
	K20 760	(0)0	(870)300	(0)0 (870)300
PREVCROP	K20 64			
ARABLE	0	0.94	2.68	1.39 1.18 1.20 1.00
	315	1.00	1.43	1.35 1.75 1.13 1.00
	630	1.01	1.27	1.03 0.83 0.92 0.84
	1260	1.90	2.60	1.41 2.12 1.42 1.20
GRASS	0	1.01	1.85	1.12 1.41 0.62 1.46
	315	1.78	2.96	1.34 1.77 0.48 1.24
	630	1.20	2.82	1.42 1.70 1.69 2.10
	1260	0.93	2.23	1.84 2.41 1.13 1.97

GRAIN MEAN DM% 78.6

PLOT AREA HARVESTED (OLDRES D NONE) 0.00117

PLOT AREA HARVESTED (REMAINDER) 0.00132

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WINTER WHEAT P PLOTS

GRAIN TONNES/HECTARE

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

	OLDRES D	NONE		PKNAMG		NPKNAMGC	
	P205 729	(0)0	(375)150	(0)0	(375)150	(0)0	(375)150
PREVCROP	P205 64						
ARABLE	0	4.28	5.20	4.21	4.66	5.64	6.26
	500	4.26	5.07	5.36	5.61	6.56	5.50
	1000	5.30	5.54	4.64	5.30	4.94	5.74
	2000	4.54	4.80	6.04	6.20	6.29	6.64
GRASS	0	4.54	5.85	3.48	4.89	5.12	5.40
	500	4.46	4.16	5.89	6.25	4.67	4.94
	1000	4.87	5.43	5.43	5.50	5.11	6.60
	2000	5.07	5.73	6.39	6.36	4.88	5.33

GRAIN MEAN DM% 82.3

WINTER WHEAT K PLOTS

GRAIN TONNES/HECTARE

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

	OLDRES D	NONE		PKNAMG		NPKNAMGC	
	K20 769	(0)0	(870)300	(0)0	(870)300	(0)0	(870)300
PREVCROP	K20 64						
ARABLE	0	5.59	4.27	5.80	5.13	5.37	6.03
	315	4.73	4.56	5.22	5.76	5.73	6.16
	630	4.60	4.97	4.57	4.84	5.89	5.73
	1260	4.79	4.97	5.09	5.22	6.00	5.70
GRASS	0	4.58	4.42	5.73	5.43	6.07	5.99
	315	5.13	5.15	5.92	5.99	6.15	6.35
	630	4.99	5.89	5.74	5.71	4.54	6.05
	1260	5.52	5.52	5.99	5.92	5.69	6.22

GRAIN MEAN DM% 82.4

PLOT AREA HARVESTED (OLDRES D NONE) 0.00120

PLOT AREA HARVESTED (REMAINDER) 0.00134