ROTHAMSTED RESEARCH

Yields of the Field Experiments 1978

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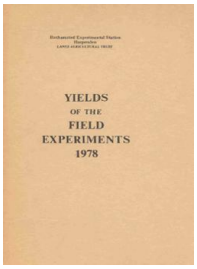

78/R/CS/24 P K and Take-all - Wheat

Rothamsted Research

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78/R/CS/24

PK AND TAKE-ALL

Object: To study the effects of different amounts of phosphate and potassium fertiliser on the yields and incidence of take-all (Gaeumannomyces graminis) in continuous wheat - West Barnfield II.

Sponsors: G.E.G. Mattingly, D.B. Slope.

The 11th year, continuous winter wheat (after continuous barley 1968-1973).

For previous years see 'Details' 1973 and 74-77/R/CS/24.

Design: 4 randomised blocks of 10 plots, split into 2.

Whole plot dimensions: 5.33 x 20.1.

Treatments: All combinations of:-

Whole plots

1. P Phosphate (kg P) as superphosphate:

0	None
15 A	15 annually
60 A	60 annually
90 S	90 six-yearly, last applied autumn 1973
360 S	360 six-yearly, last applied autumn 1973

2. K Potassium (kg K) annually as muriate of potash:

30
120

Sub plots

3. N Nitrogen fertiliser, applied cumulatively to test applications 1970-1973 (basal application only in 1974-1977) (kg N):

50
100
150
200

Basal applications: Autumn weedkiller: Glyphosate at 1.7 kg in 220 l. Spring weedkillers: Mecoprop, bromoxynil and ioxynil ('Brittox' at 2.8 l in 220 l).

Seed: Cappelle sown at 200 kg.

Cultivations, etc.:- Autumn weedkiller applied: 10 Oct, 1977. Ploughed: 25 Oct. Spring-tine cultivated: 26 Oct. P and K applied, power harrowed, seed sown: 18 Nov. Rolled: 19 Apr, 1978. N applied: 24 Apr. Spring weedkiller applied: 11 May. Combine harvested: 30 Aug.

NOTE: The crop was sampled in July for take-all and eyespot assessments.

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78/R/CS/24

GRAIN TONNES/HECTARE

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

K / P	30	120	MEAN
0	3.49	3.57	3.53
15 A	4.20	4.65	4.43
60 A	4.74	5.18	4.96
90 S	4.31	4.55	4.43
360 S	4.64	4.83	4.74
MEAN	4.28	4.56	4.42

N / P	50	100	150	200	MEAN
0	3.40	2.98	3.85	3.89	3.53
15 A	3.79	4.73	4.68	4.51	4.43
60 A	4.48	4.86	5.20	5.29	4.96
90 S	3.98	4.57	4.78	4.39	4.43
360 S	4.07	4.92	5.25	4.71	4.74
MEAN	3.94	4.41	4.75	4.56	4.42

N / K	50	100	150	200	MEAN
30	3.86	4.37	4.43	4.44	4.28
120	4.03	4.46	5.07	4.67	4.56
MEAN	3.94	4.41	4.75	4.56	4.42

P	N / K	50	100	150	200
0	30	3.38	3.14	3.48	3.96
	120	3.41	2.83	4.22	3.82
15 A	30	3.98	4.48	4.17	4.18
	120	3.60	4.97	5.19	4.84
60 A	30	4.27	4.49	4.91	5.28
	120	4.68	5.23	5.48	5.30
90 S	30	3.75	4.79	4.43	4.27
	120	4.21	4.35	5.14	4.51
360 S	30	3.91	4.94	5.19	4.54
	120	4.24	4.91	5.31	4.88

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	P	K	N	P K
SED	0.133	0.084	0.119	0.188

TABLE	P N	K N	P K N
SED	0.266	0.170	0.395

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP+BLOCK.WP.SP	37	0.377	8.5

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STRAW TONNES/HECTARE

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

K / P	30	120	MEAN
0	2.39	2.65	2.52
15 A	2.71	3.46	3.08
60 A	3.24	4.08	3.66
90 S	2.70	3.23	2.97
360 S	3.22	3.72	3.47
MEAN	2.85	3.43	3.14

N / P	50	100	150	200	MEAN
0	2.58	1.95	2.92	2.64	2.52
15 A	2.89	3.42	3.14	2.88	3.08
60 A	3.11	3.62	4.02	3.89	3.66
90 S	2.51	3.03	3.28	3.04	2.97
360 S	2.69	3.57	4.01	3.61	3.47
MEAN	2.76	3.12	3.48	3.21	3.14

N / K	50	100	150	200	MEAN
30	2.60	2.85	3.00	2.96	2.85
120	2.91	3.39	3.95	3.47	3.43
MEAN	2.76	3.12	3.48	3.21	3.14

P	N / K	50	100	150	200
0	30	2.37	2.00	2.69	2.51
	120	2.79	1.89	3.15	2.77
15 A	30	3.01	2.96	2.41	2.45
	120	2.76	3.88	3.88	3.30
60 A	30	2.66	3.04	3.69	3.57
	120	3.57	4.20	4.36	4.20
90 S	30	2.46	3.08	2.39	2.89
	120	2.56	2.98	4.18	3.20
360 S	30	2.50	3.17	3.84	3.37
	120	2.89	3.97	4.17	3.86

GRAIN MEAN DM% 84.1

STRAW MEAN DM% 91.0

PLOT AREA HARVESTED 0.00270

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