Yields of the Field Experiments 1974

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

74/R/CS/24

PK AND TAKE-ALL

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

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The seventh year, winter wheat (after continuous barley 1968-73).

For previous years see 68/C/16(t), 69/R/CS/24, 70/R/CS/24(t) and
71-73/R/CS/24.

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

Whole plot dimensions: 5.33 x 20.1. Sub-plot area harvested: 0.00265.

Treatments: All combinations of:-
    Whole plots: 1. Phosphate (kg P) as superphosphate: P

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

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

30	30
120	120

Sub plots: 3. Residues of nitrogen fertiliser applied annually
                  1970-73 (kg N) as 'Nitro-Chalk':   N RESID

(37.5)	(37.5)
(75.0)	(75.0)
(113)	(113)
(150)	(150)

Basal applications: Manures: 'Nitro-Chalk' at 500 kg. Weedkillers:
    Aminotriazole ('Weedazol' at 22.5 1 in 220 1), and Dicamba with
    mecoprop and MCPA ('Banlene Plus' at 5.6 1 in 370 1).

Seed: Cappelle, sown at 200 kg.

175

74/R/CS/24

Cultivations, etc.:- Six-yearly dressing of P applied: 10 Sept, 1973.
   Aminotriazole applied: 12 Sept. Ploughed: 10 Oct. Spring-tine
   cultivated and annual P and K applied: 15 Oct. Power harrowed: 20 Oct.
   Seed sown: 22 Oct. N applied: 16 Apr, 1974. 'Banlene Plus'
   applied: 7 May. Combine harvested: 30 Aug.

NOTE: Samples were taken in May and July for estimation of root-rotting
      diseases. Soil samples were taken in autumn for P and K analyses.

Standard error per plot.
   Grain, tonnes/hectare: 0.558 or 9.0% (37 d.f.)

176

74/R/CS/24

TABLES OF MEANS

GRAIN: TONNES/HECTARE

	0	15 A	P 60 A	90 S	360 S	Mean
K						
30	4.90	5.96	6.34	6.28	6.47	5.99
120	5.28	6.11	6.75	6.92	6.99	6.41
N RESID						
(37.5)	5.44	5.47	6.26	6.70	6.64	6.10
(75.0)	4.45	5.86	6.27	6.62	6.59	5.96
(113)	5.93	6.39	6.61	6.80	6.93	6.53
(150)	4.54	6.43	7.03	6.28	6.77	6.21
Mean	5.09	6.04	6.54	6.60	6.73	6.20

N RESID

	(37.5)	(75.0)	(113)	(150)
K				
30	5.69	5.95	6.13	6.19
120	6.52	5.97	6.94	6.22

STANDARD ERRORS OF DIFFERENCES

K	N RESID	P	K N RESID	K N RESID P	K P N RESID P
C.125	0.176	0.197	0.251	0.279	0.395	0.586

74/R/CS/24

GRAIN: TONNES/HECTARE

K	30					120				
P	0	15 A	60 A	90 S	360 S	0	15 A	60 A	90 S	360 S
N RESID										
(37.5)	4.80	5.31	6.07	6.23	6.02	6.08	5.62	6.46	7.16	7.25
(75.0)	4.95	5.68	5.95	6.63	6.54	3.95	6.04	6.60	6.61	6.64
(113)	4.89	6.29	6.43	6.35	6.69	6.98	6.49	6.80	7.26	7.17
(150)	4.98	6.56	6.90	5.89	6.63	4.10	6.29	7.15	6.66	6.90

Mean D.M. % 83.0

178

74/R/CS/24

STRAW: TONNES/HECTARE

	0	15 A	P 60 A	90 S	360 S	Mean
K						
30	3.99	4.23	4.11	4.28	4.43	4.21
120	4.73	4.91	4.95	5.09	4.65	4.87
N RESID						
(37.5)	4.14	4.57	4.32	4.82	4.44	4.46
(75.0)	4.40	4.30	4.51	4.64	4.25	4.42
(113)	4.95	4.68	4.45	4.76	4.70	4.71
(150)	3.96	4.72	4.83	4.52	4.77	4.56
Mean	4.36	4.57	4.53	4.69	4.54	4.54

N RESID

	(37.5)	(75.0)	(113)	(150)
K				
30	4.07	4.00	4.48	4.29
120	4.84	4.85	4.94	4.83

179

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74/R/CS/24

STRAW: TONNES/HECTARE

K	30					120				
P	0	15 A	60 A	90 S	360 S	0	15 A	60 A	90 S	360 S
N RESID										
(37.5)	3.65	3.96	4.22	4.26	4.24	4.62	5.17	4.42	5.37	4.64
(75.0)	3.92	3.98	3.65	4.26	4.16	4.87	4.62	5.37	5.03	4.35
(113)	4.89	4.30	4.11	4.12	4.95	5.01	5.06	4.79	5.39	4.45
(150)	3.50	4.67	4.44	4.47	4.39	4.42	4.78	5.21	4.58	5.15

Mean D.M. % 85.6

180

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