

Thank you for using eradoc, a platform to publish electronic copies of the Rothamsted Documents. Your requested document has been scanned from original documents. If you find this document is not readable, or you suspect there are some problems, please let us know and we will correct that.



ROTHAMSTED
RESEARCH

Yields of the Field Experiments 1977

[Full Table of Content](#)



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

Rothamsted Research

Rothamsted Research (1978) *77/R/CS/24 P K and Take-all - Wheat* ; Yields Of The Field Experiments 1977, pp 139 - 141 - DOI: <https://doi.org/10.23637/ERADOC-1-29>

77/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 tenth year, continuous winter wheat (after continuous barley 1968-1973).

For previous years see 'Details' 1973 and 74-76/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 RESID Residues of nitrogen fertiliser, applied annually 1970-1973 (kg N):

38
75
113
150

Basal applications: Manures: 'Nitro-Chalk' at 500 kg. Weedkillers: Dicamba with mecoprop and MCPA ('Banlene Plus' at 4.9 l in 220 l).

Seed: Cappelle, sown at 200 kg.

Cultivations, etc.: - Ploughed: 13 Sept, 1976. Heavy spring-tine cultivated: 3 Nov. P and K applied: 4 Nov. Seed sown: 5 Nov. N applied: 15 Apr, 1977. Weedkillers applied: 9 May. Combine harvested: 8 Sept.

NOTE: The crop was sampled in July to assess take-all.

77/R/CS/24

GRAIN TONNES/HECTARE

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

| P K | 0 | 15 A | 60 A | 90 S | 360 S | MEAN |
|--------------|-------|------|------|------|-------|------|
| 30 | 4.62 | 4.44 | 4.90 | 4.58 | 4.77 | 4.66 |
| 120 | 4.46 | 5.24 | 5.24 | 5.17 | 5.12 | 5.05 |
| MEAN | 4.54 | 4.84 | 5.07 | 4.88 | 4.95 | 4.85 |
| N RESID K | 38 | 75 | 113 | 150 | MEAN | |
| 30 | 4.62 | 4.62 | 4.73 | 4.67 | 4.66 | |
| 120 | 5.12 | 4.88 | 5.24 | 4.95 | 5.05 | |
| MEAN | 4.87 | 4.75 | 4.99 | 4.81 | 4.85 | |
| N RESID P | 38 | 75 | 113 | 150 | MEAN | |
| 0 | 4.85 | 4.09 | 4.87 | 4.33 | 4.54 | |
| 15 A | 4.74 | 4.92 | 4.96 | 4.75 | 4.84 | |
| 60 A | 4.85 | 5.03 | 5.06 | 5.34 | 5.07 | |
| 90 S | 4.99 | 4.78 | 4.91 | 4.83 | 4.88 | |
| 360 S | 4.92 | 4.93 | 5.13 | 4.91 | 4.95 | |
| MEAN | 4.87 | 4.75 | 4.99 | 4.81 | 4.85 | |
| N RESID K | 38 | 75 | 113 | 150 | | |
| 30 | 0 | 4.76 | 4.42 | 4.71 | 4.58 | |
| | 15 A | 4.33 | 4.64 | 4.40 | 4.39 | |
| | 60 A | 4.77 | 4.60 | 4.91 | 5.33 | |
| | 90 S | 4.42 | 4.76 | 4.46 | 4.67 | |
| | 360 S | 4.84 | 4.67 | 5.17 | 4.41 | |
| 120 | 0 | 4.94 | 3.76 | 5.03 | 4.09 | |
| | 15 A | 5.14 | 5.19 | 5.53 | 5.11 | |
| | 60 A | 4.94 | 5.46 | 5.22 | 5.36 | |
| | 90 S | 5.55 | 4.79 | 5.35 | 5.00 | |
| | 360 S | 5.00 | 5.19 | 5.08 | 5.21 | |

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

| TABLE | P | K | N RESID | P K |
|-------|--------------|--------------|-------------------|--------|
| SED | 0.137 | 0.087 | 0.123 | 0.194 |
| TABLE | P N RESID | K N RESID | P K N RESID | |
| SED | 0.274 | 0.174 | 0.407 | |

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

| STRATUM | DF | SE | CV% |
|----------------------|----|-------|-----|
| BLOCK.WP+BLOCK.WP.SP | 37 | 0.387 | 8.0 |
| GRAIN MEAN DM% 80.5 | | 140 | |

77/R/CS/24

STRAW TONNES/HECTARE

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

| P | 0 | 15 A | 60 A | 90 S | 360 S | MEAN |
|---------|---------|------|------|------|-------|------|
| K | | | | | | |
| 30 | 3.76 | 3.66 | 4.34 | 3.95 | 4.28 | 4.00 |
| 120 | 3.92 | 4.87 | 5.07 | 4.86 | 5.16 | 4.77 |
| MEAN | 3.84 | 4.27 | 4.70 | 4.40 | 4.72 | 4.39 |
| N RESID | 38 | 75 | 113 | 150 | MEAN | |
| K | | | | | | |
| 30 | 3.88 | 3.82 | 4.10 | 4.19 | 4.00 | |
| 120 | 4.84 | 4.73 | 4.69 | 4.83 | 4.77 | |
| MEAN | 4.36 | 4.28 | 4.39 | 4.51 | 4.39 | |
| N RESID | 38 | 75 | 113 | 150 | MEAN | |
| P | | | | | | |
| 0 | 4.31 | 3.43 | 4.05 | 3.56 | 3.84 | |
| 15 A | 4.21 | 4.42 | 4.07 | 4.36 | 4.27 | |
| 60 A | 4.53 | 4.56 | 4.60 | 5.11 | 4.70 | |
| 90 S | 4.38 | 4.16 | 4.46 | 4.61 | 4.40 | |
| 360 S | 4.38 | 4.81 | 4.77 | 4.91 | 4.72 | |
| MEAN | 4.36 | 4.28 | 4.39 | 4.51 | 4.39 | |
| | N RESID | 38 | 75 | 113 | 150 | |
| K | P | | | | | |
| 30 | 0 | 3.98 | 3.33 | 4.02 | 3.72 | |
| | 15 A | 3.57 | 3.79 | 3.37 | 3.90 | |
| | 60 A | 4.18 | 3.84 | 4.56 | 4.76 | |
| | 90 S | 3.68 | 3.73 | 4.09 | 4.29 | |
| | 360 S | 4.00 | 4.42 | 4.45 | 4.27 | |
| 120 | 0 | 4.65 | 3.53 | 4.09 | 3.41 | |
| | 15 A | 4.85 | 5.05 | 4.78 | 4.82 | |
| | 60 A | 4.88 | 5.20 | 4.65 | 5.46 | |
| | 90 S | 5.08 | 4.60 | 4.83 | 4.92 | |
| | 360 S | 4.77 | 5.20 | 5.09 | 5.56 | |

STRAW MEAN DM% 90.6

SUB PLOT AREA HARVESTED 0.00270