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93/R/CS/323 Cereal Sequence and Take-all - W. Barley, W. Oats, W. Triticale, W. Wheat

Rothamsted Research

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93/R/CS/323

CEREAL SEQUENCES AND TAKE-ALL

Object: To study the effects on take-all (*Gaeumannomyces graminis*) and yield of different cereals grown in various cereal sequences - West Barnfield II.

Sponsors: R.J. Gutteridge, D. Hornby, R.D. Prew.

The sixth year, w. barley, w. oats, w. triticale, w. wheat.

For previous years see 88-92/R/CS/323

Design: 3 randomised blocks of 26 plots.

Whole plot dimensions: 3.0 x 10.0.

CROPSEQ Crop sequences (1988, 1989, 1990, 1991, 1992 and 1993 respectively):

TTTTTT
OTTTOT
TOTTTO
TTOTTT
TTTOTT
WWWWWW
OWWWOW
WOWWWO
WWOWWW
WWWOWW
BBBBBB
OBBBOB
BOBBBO
BBOBBB
BBBOBB
WTWTWT
WBWBWB
TBTBTB
SBSBSB
WTTTIW
WWBBBW
TTBBBT
TIWWWT
BBWWWB
BTTTBT
WWSSSW

W = W. wheat
S = S. barley
B = W. barley
O = W. oats
T = W. triticale

93/R/CS/323

Experimental Diary:

05-Sep-92 : B : Scythe at 3.0 l in 200 l.
09-Sep-92 : B : Ploughed, to finish.
16-Sep-92 : B : Disced and rolled.
21-Sep-92 : B : PK as (0:18:36) at 300 kg..
28-Sep-92 : B : Sting CT at 2.0 l in 200 l.
01-Oct-92 : B : Re-ploughed.
06-Oct-92 : T : CROPSEQ Barley plots: Rotary harrowed, Magie, dressed
Cerevax, drilled at 350 seeds per square metre.
: T : CROPSEQ Oat plots: Rotary harrowed, Image, dressed
Ceresol, drilled at 350 seeds per square metre.
: T : CROPSEQ Triticale plots: Rotary harrowed, Lasko, dressed
Cerevax, drilled at 400 seeds per square metre.
: T : CROPSEQ Wheat plots: Rotary harrowed, Mercia, dressed
Cerevax, drilled at 380 seeds per square metre.
04-Mar-93 : B : 34.5%N at 90 kg.
15-Mar-93 : T : CROPSEQ Barley plots: Tigress at 2.5 l in 200 l.
15-Apr-93 : T : CROPSEQ Oats and triticale plots: 34.5% N at 368 kg.
: T : CROPSEQ Barley plots: 34.5% N at 435 kg.
: T : CROPSEQ Wheat plots: 34.5% N at 493 kg.
: T : CROPSEQ Wheat plots: Cheetah R at 2.0 l in 220 l.
: T : CROPSEQ Triticale plots: Hoegrass at 3.0 l in 220 l.
21-Apr-93 : B : Ally at 30 g and Starane 2 at 1.0 l in 200 l.
18-May-93 : B : Calirus at 2.0 l and Corbel at 0.50 l in 200 l.
08-Jun-93 : T : CROPSEQ Wheat plots: Halo at 2.0 l and Mistral at 0.50 l
in 200 l.
09-Jun-93 : T : CROPSEQ Oat plots: Mistral at 1.0 l in 200 l.
02-Aug-93 : T : CROPSEQ Barley plots: Combine harvested.
10-Aug-93 : B : CROPSEQ Wheat, oats, triticale plots: Combine
harvested.

NOTE: Plant samples were taken in April, June and July for take-all and eyespot assessments. Soil cores were taken after harvest to assess take-all infectivity.

93/R/CS/323

GRAIN TONNES/HECTARE

***** Tables of means *****

| CROPSEQ | |
|---------|------|
| TTTTTT | 5.39 |
| OTTTOT | 5.77 |
| TOTTTO | 7.30 |
| TTOTTT | 4.99 |
| TTTOTT | 5.42 |
| WWWWWW | 5.90 |
| OWWWOW | 8.16 |
| WOWWOW | 6.60 |
| WWOWWW | 5.96 |
| WWWOWW | 7.78 |
| BBBBBB | 4.21 |
| OBBBBB | 6.63 |
| BOBBBB | 5.97 |
| BBOBBB | 4.02 |
| BBBOBB | 5.58 |
| WTWTWT | 5.18 |
| WBWBWB | 5.76 |
| TBTBTB | 5.38 |
| SBSBSB | 4.82 |
| WWTTIW | 6.25 |
| WWBBBW | 6.07 |
| TTBBBT | 4.26 |
| TTWWWT | 3.92 |
| BBWWWB | 5.76 |
| BBTTTB | 5.78 |
| WWSSSW | 5.91 |
| Mean | 5.72 |

*** Standard errors of differences of means ***

CROPSEQ
0.661

***** Stratum standard errors and coefficients of variation *****

| Stratum | d.f. | s.e. | cv% |
|---------------------|---------|-------|------|
| BLOCK.WP | 50 | 0.810 | 14.2 |
| GRAIN MEAN DM% | 83.7 | | |
| PLOT AREA HARVESTED | 0.00228 | | |