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75/ R/B/9 - Mildew Control in Systematic & Balanced Designs - Barley

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75/R/B/9

SPRING BARLEY

MILDEW CONTROL IN SYSTEMATIC AND BALANCED DESIGNS

Object: To study the effects of tridemorph sprays, applied at different times, in systematic and balanced designs and to assess the magnitude of interference between plots - Little Hoos.

Sponsors: J.F. Jenkyn, A. Bainbridge, G.V. Dyke.

Designs: Systematic: 4 'blocks' of 6 plots.
Serially balanced: 9 'blocks' of 4 plots (+ 2 flanking plots).

Whole plot dimensions: 4.27 x 7.62.

Treatments: To systematic design: Times of applying tridemorph:	TRIDEMOR
None	0
Once, on 22 May	1
Once, on 4 June	2
Once, on 13 June	3
Repeated three times at above dates	R

Plots arranged in linear sequence:

ROR123 ROR321 123ROR 321ROR

Serially balanced design:

Fungicide sprays as above but omitting level 3.

These were applied to 36 plots in one line on the field in an order such that each of the 36 possible sets of 3 adjacent treatments occurred exactly once (but omitting sets with the same treatment on 2 successive plots). The effects of treatments to neighbouring plots (lefthand neighbour - LHN, righthand neighbour - RHN) are estimated in the analysis. (See Dyke and Shelley, *Journal of Agricultural Science, Cambridge*, in the press.)

In this experiment, 'left' was north, 'right' was south.

The analysis presented assumes a Fourier curve with 4 terms, 2 sine and 2 cosine, to represent positional variation.

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- NOTES: (1) The surrounds of both designs to a distance of 17 m were sown with seed dressed with organomercury and ethirimol, and were sprayed with tridemorph at 1.6 kg in 450 l on 20 June.
- (2) Tridemorph was applied at 0.53 kg in 340 l on each occasion to plots.

Basal applications: Manures: (20:14:14) at 440 kg combine drilled. Weedkillers: Paraquat at 0.42 kg ion in 220 l. Dicamba with mecoprop and MCPA ('Banlene Plus' at 5.6 l in 220 l).

Seed: Julia, dressed with organomercury only, sown at 160 kg.

Cultivations, etc.: - Ploughed: 14 Nov, 1974. Paraquat applied: 27 Feb, 1975. Spring-tine cultivated: 1, 2 and 25 Mar. Sown: 26 Mar. 'Banlene Plus' applied: 20 May. Combine harvested: 6 Aug. Previous crops: Potatoes 1973, winter wheat 1974.

NOTE: Mildew was assessed on 10 June and 7 July.

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BARLEY

SYSTEMATIC DESIGN

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

TRIDEMOR	-	1	2	3	R	MEAN
	5.50	5.82	5.90	5.82	6.01	5.84

GRAIN MEAN DM% 87.8

SERIALLY BALANCED DESIGN

GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

GRAND MEAN 5.80

TRIDEMOR	-	1	2	R
	5.31	5.87	6.03	6.00

LHN	-	1	2	R
TRIDEMOR				
-		5.35	5.38	5.20
1	6.00		5.75	5.85
2	6.05	6.20		5.83
R	6.16	5.71	6.14	

RHN	-	1	2	R
TRIDEMOR				
-		5.34	5.31	5.29
1	5.77		6.07	5.77
2	6.02	6.00		6.06
R	5.83	6.13	6.05	

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

TABLE	TRIDEMOR	TRIDEMOR LHN	TRIDEMOR RHN
SED	0.070	0.173	0.179

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

STRATUM	DF	SE	CV%
WP	12	0.145	2.5

GRAIN MEAN DM% 88.1

326

PLOT AREA HARVESTED 0.00163