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Rothamsted Research

Rothamsted Research (1981) *80/R/B/1 Winter Barley Rhynchosporium Control in a Serially Balanced Design* ; Yields Of The Field Experiments 1980, pp 251 - 252 - DOI:

<https://doi.org/10.23637/ERADOC-1-31>

80/R/B/1

WINTER BARLEY

RHYNCHOSPORIUM CONTROL IN A SERIALY BALANCED DESIGN

Object: To study the effects of interference between plots of w. barley with different amounts of *Rhynchosporium secalis* - Gt. Knott III.

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

Design: 2 lines of 38 plots each. Each line is a serially balanced sequence such that each of 4 treatments has as neighbours all ordered pairs of the other 3 treatments, once each.

Whole plot dimensions: 3.9 x 9.14.

Treatments:

TREATMNT	Treatment with infected straw and times of applying fungicide:
0 INFSTR	No fungicide against <i>R. secalis</i> . Infected straw worked in to seedbed
CAPT A	Captafol in autumn
CAPT S	Captafol in spring
CAPT A+S	Captafol in autumn and in spring

- NOTES: (1) The effects of treatments to neighbouring plots (left - LHN, right - RHN) are estimated. In this experiment 'left' was South, 'right' was North. The analysis presented assumes a Fourier curve with 4 terms, 2 sine and 2 cosine to represent positional variation.
- (2) The area surrounding this experiment was sown with the *Rhynchosporium* resistant variety Athene at 160 kg on 18 Oct, 1979.
- (3) Straw was applied (at 645 kg) to '0 INFSTR' plots on 17 Oct, 1979. Captafol was applied at 1.34 kg in 340 l on 31 Dec and 10 Apr, 1980.

Basal applications: Manures: (10:23:23) at 250 kg, combine drilled. 'Nitro-chalk' at 540 kg. Weedkillers: Paraquat at 0.56 kg ion in 220 l. Methabenzthiazuron at 1.6 kg in 220 l. Fungicide: Ethirimol (as 'Milgo E' at 1.3 l) in 220 l.

Seed: Maris Otter, sown at 160 kg.

Cultivations, etc.:- Heavy spring-tine cultivated: 25 Sept, 1979. Paraquat applied: 15 Oct. Power harrowed: 17 Oct. Seed sown: 18 Oct. Methabenzthiazuron applied: 20 Oct. Fungicide applied: 5 Apr, 1980. N applied: 9 Apr. Combine harvested: 31 July. Previous crops: S. barley 1978, w. oats 1979.

NOTE: Leaf diseases were assessed during the season, and 1000 grain weights after harvest.

80/R/B/1

GRAIN TONNES/HECTARE

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

TREATMNT	O	INFSTR	CAPT A	CAPT S	CAPT A+S		
		6.46	6.73	6.91	6.79		
LHN	O	INFSTR	CAPT A	CAPT S	CAPT A+S		
TREATMNT							
O	INFSTR		6.43	6.52	6.41		
	CAPT A	6.82		6.56	6.80		
	CAPT S	7.07	6.95		6.71		
	CAPT A+S	7.05	6.57	6.76			
RHN	O	INFSTR	CAPT A	CAPT S	CAPT A+S		
TREATMNT							
O	INFSTR		6.55	6.50	6.33		
	CAPT A	6.86		6.69	6.63		
	CAPT S	6.92	6.90		6.91		
	CAPT A+S	7.02	6.81	6.54			
	RHN	O	INFSTR	CAPT A	CAPT S	CAPT A+S	
TREATMNT							
O	INFSTR	CAPT A		6.19	6.64	6.46	
	INFSTR	CAPT S		6.68	6.34	6.55	
	INFSTR	CAPT A+S		6.77	6.50	5.97	
	CAPT A	O	INFSTR	6.92		6.99	6.55
	CAPT A	CAPT S		6.72		6.71	6.25
	CAPT A	CAPT A+S		6.93		6.39	7.08
	CAPT S	O	INFSTR	7.46	7.03		6.71
	CAPT S	CAPT A		6.68	6.96		7.23
	CAPT S	CAPT A+S		6.62	6.72		6.78
	CAPT A+S	O	INFSTR	7.49	7.09	6.57	
	CAPT A+S	CAPT A		6.72	6.67	6.31	
	CAPT A+S	CAPT S		6.86	6.68	6.73	

GRAND MEAN 6.72

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

TABLE	TREATMNT	TREATMNT LHN	TREATMNT RHN	TREATMNT LHN RHN
SED	0.120	0.220	0.220	0.389

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

STRATUM	DF	SE	CV%
LINE.WP	31	0.356	5.3

GRAIN MEAN DM% 77.8

PLOT AREA HARVESTED 0.00195