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Annals - Winter Wheat

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92/R/WW/1

WINTER WHEAT

EYESPOT TYPES AND YIELD

Object: To compare the effects of eyespot (*Pseudocercospora herpotrichoides*) caused by the R- and the W-type of the fungus on the yield of w. wheat - Great Field I/II.

Sponsors: G.L. Bateman, J.F. Jenkyn.

Design: 4 randomised blocks of 14 plots.

Whole plot dimensions: 3.0 x 12.0.

Treatments: All combinations of:

1. **EYE TYPE** Eyespot types:

RYE	Rye
WHEAT	Wheat

2. **INOCDATE** Dates of inoculation of eyespot types:

AUTUMN	Autumn
SPRING	Spring
AUT+SPR	Autumn and spring

3. **FUNGICIDE** Prochloraz in spring:

NONE	None
PROCHLOR	Prochloraz

plus two extra treatments:

NO INOC	No inoculation, prochloraz in spring:
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NONE EX	None
PROCH EX	Prochloraz

Experimental diary:

06-Aug-91 : B : Straw chopped.
05-Sep-91 : B : Gramoxone 100 at 3.0 l in 200 l.
18-Sep-91 : B : Heavy spring-tine cultivated.
20-Sep-91 : B : Heavy spring-tine cultivated.
25-Sep-91 : B : Discd, rotary harrowed, Talon drilled at 240 kg, rolled.
29-Nov-91 : B : Stefes IPU at 1.0 l and Stomp 400 at 2.5 l in 200 l.
 : B : Draza at 5.5 kg.
18-Feb-92 : B : PK as (0:18:36) at 940 kg.
01-Apr-92 : T : **FUNGICIDE** PROCHLOR and PROCH EX: Sportak 45 at 0.90 l in 200 l.
09-Apr-92 : B : New 5C Cycocel at 2.3 l in 200 l.
13-Apr-92 : B : 34.5% N at 440 kg.
01-Sep-92 : B : Combine harvested.

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Previous crops: W. oilseed rape 1990 and 1991.

NOTE: Plant samples were taken in July and assessed for eyespot and sharp eyespot. The eyespot was cultured and identified as the R-type or W-type of the fungus.

GRAIN TONNES/HECTARE

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

EYE TYPE	RYE	WHEAT	Mean
FUNGCIDE			
NONE	7.42	7.19	7.30
PROCHLOR	7.67	7.77	7.72
Mean	7.54	7.48	7.51

INOCDATE	AUTUMN	SPRING	AUT+SPR	Mean
FUNGCIDE				
NONE	7.24	7.39	7.29	7.30
PROCHLOR	7.65	7.28	8.23	7.72
Mean	7.44	7.33	7.76	7.51

INOCDATE	AUTUMN	SPRING	AUT+SPR	Mean
EYE TYPE				
RYE	7.24	7.61	7.78	7.54
WHEAT	7.65	7.05	7.74	7.48
Mean	7.44	7.33	7.76	7.51

FUNGCIDE	INOCDATE	AUTUMN	SPRING	AUT+SPR
NONE	EYE TYPE			
	RYE	7.33	7.47	7.45
PROCHLOR	WHEAT	7.15	7.30	7.12
	RYE	7.15	7.75	8.11
	WHEAT	8.14	6.81	8.35

NO INOC	NONE EX	PROCH EX	Mean
	7.98	8.12	8.05

GRAND MEAN 7.59

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

FUNGCIDE	EYE TYPE	INOCDATE	FUNGCIDE
			EYE TYPE
0.241	0.241	0.295	0.341
FUNGCIDE	EYE TYPE	FUNGCIDE	NO INOC
INOCDATE	INOCDATE	EYE TYPE	
		INOCDATE	
0.417	0.417	0.590	0.590

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GRAIN TONNES/HECTARE

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	39	0.834	11.0
MEAN DM%	76.0		
PLOT AREA HARVESTED	0.00136		

92/R/WW/2

WINTER WHEAT

SUMMER PYRETHROIDS

Object: To assess the effect of a summer application of pyrethroids on populations of non-target beneficial insects and any subsequent consequences on summer aphid populations - Bones Close.

Sponsor: N. Carter.

Design: 4 randomised blocks of 4 plots.

Whole plot dimensions: 9.0 X 15.0.

Treatments:

INSCTCDE	Insecticides applied at GS 61:
NONE	None
DELTFULL	Deltamethrin at full standard rate
DELTHALF	Deltamethrin at half standard rate
DIMETH	Dimethoate

Experimental diary:

14-Aug-91 : B : Straw chopped.
15-Aug-91 : B : PK as (0:16:36) at 1040 kg.
23-Aug-91 : B : Deep tine cultivated with vibrating tines, 60 cm apart and 45 cm deep.
26-Aug-91 : B : Ploughed and rolled.
12-Sep-91 : B : Sting CT at 1.5 l in 200 l.
26-Sep-91 : B : Rotary harrowed twice, Mercia drilled at 160 kg.
28-Oct-91 : B : Stefes IPU at 1.0 l and Stomp 400 at 2.5 l in 200 l.
06-Mar-92 : B : 34.5% N at 120 kg.
02-Apr-92 : B : 34.5% N at 460 kg.
20-May-92 : B : Dorin at 1.0 l and Chiltern Olé at 1.5 l in 200 l.
22-Jun-92 : T : **INSCTCDE** DELTFULL: Decis at 0.25 l in 260 l.
 : T : **INSCTCDE** DELTHALF: Decis at 0.125 l in 260 l.
 : T : **INSCTCDE** DIMETH: Power Dimethoate at 0.84 l in 520 l.
07-Aug-92 : B : Combine harvested.

Previous crops: W. beans 1990, w. barley 1991.

92/R/WW/2

GRAIN TONNES/HECTARE

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

INSCTCDE	
NONE	5.01
DELTFULL	5.38
DELTHALF	5.06
DIMETH	5.41
Mean	5.21

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

INSCTCDE
0.190

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	9	0.269	5.2

GRAIN MEAN DM% 87.4

PLOT AREA HARVESTED 0.00345

92/R/WW/3

WINTER WHEAT

N AND CROP PHYSIOLOGY

Object: To study the relationship between N supply to crops of different size and their nitrate contents, N uptakes, growth rates and yield - Fosters West.

Sponsor: R.J. Darby.

Design: 3 randomised blocks of 16 plots.

Whole plot dimensions: 3.0 x 17.0.

Treatments: All combinations of:-

1. **SOW DATE** Dates of sowing:

 EARLY Second week in September
 LATE Third week in October

2. **AUT N** Autumn nitrogen:

 NONE None
 50 50 kg N

3. **SPRING N** Spring nitrogen:

 NONE None
 N1 Half optimum N
 N2 Optimum N
 N2L Optimum N three weeks later

Experimental diary:

- 06-Sep-91 : B : Ploughed and furrow pressed.
- 12-Sep-91 : B : Rotary harrowed.
- 12-Sep-91 : T : **SOW DATE EARLY:** Rotary harrowed, Mercia, drilled at 160 kg. Rolled.
- 14-Oct-91 : T : **SOW DATE LATE:** Rotary harrowed, Mercia, drilled at 160 kg.
- 15-Oct-91 : B : Rolled.
- 29-Oct-91 : T : **AUT N 50:** 46% N (as urea) at 109 kg.
- 27-Nov-91 : B : Stefes IPU at 2.5 l and Stomp 400 at 3.3 l in 300 l.
- 16-Mar-92 : T : **SPRING N N1:** 27% N at 111 kg.
 N2: 27% N at 222 kg.
- 09-Apr-92 : T : **SPRING N N1:** 27% N at 304 kg.
 N2: 27% N at 607 kg.
 N2L: 27% N at 222 kg.
- 29-Apr-92 : T : **SPRING N N2L:** 27% N at 607 kg.
- 19-May-92 : B : Dorin at 1.0 l and Chiltern Olé at 1.5 l in 300 l.
- 22-Jun-92 : B : Mistral at 0.50 l and Radar at 0.50 l in 300 l.
- 04-Aug-92 : B : Combine harvested.

Previous crops: Potatoes 1990, s. wheat 1991.

92/R/WW/3

NOTE: Soils were sampled to 90 cm depth for ammonium and nitrate contents on three occasions between mid-October and late February. Stem nitrate concentrations were measured at fortnightly intervals from November to April. Lodging was assessed in June and July. Components of yield were measured after hand harvesting in late July.

GRAIN TONNES/HECTARE

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

AUT N	NONE	50	Mean			
SOW DATE						
EARLY	7.24	7.35	7.29			
LATE	6.96	6.47	6.72			
Mean	7.10	6.91	7.01			
SPRING N	NONE	N1	N2	N2L	Mean	
SOW DATE						
EARLY	6.07	7.79	6.99	8.31	7.29	
LATE	5.54	7.44	6.40	7.51	6.72	
Mean	5.80	7.62	6.69	7.91	7.01	
SPRING N	NONE	N1	N2	N2L	Mean	
AUT N						
NONE	5.10	7.76	7.22	8.32	7.10	
50	6.51	7.47	6.17	7.49	6.91	
Mean	5.80	7.62	6.69	7.91	7.01	
SOW DATE	AUT N	SPRING N	NONE	N1	N2	N2L
EARLY	NONE		5.12	7.77	7.56	8.50
	50		7.03	7.82	6.42	8.12
LATE	NONE		5.08	7.76	6.88	8.14
	50		6.00	7.11	5.92	6.87

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

SOW DATE	AUT N	SPRING N	SOW DATE
			AUT N
0.095	0.095	0.134	0.134
SOW DATE	AUT N	SOW DATE	
SPRING N	SPRING N	AUT N	SPRING N
0.189	0.189	0.268	

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	30	0.328	4.7

GRAIN MEAN DM% 86.1

92/R/WW/3

STRAW TONNES/HECTARE

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

AUT N	NONE	50	Mean			
SOW DATE						
EARLY	6.91	8.40	7.66			
LATE	6.66	7.46	7.06			
Mean	6.78	7.93	7.36			
SPRING N	NONE	N1	N2	N2L	Mean	
SOW DATE						
EARLY	5.70	8.28	8.78	7.87	7.66	
LATE	4.70	7.64	7.97	7.93	7.06	
Mean	5.20	7.96	8.37	7.90	7.36	
SPRING N	NONE	N1	N2	N2L	Mean	
AUT N						
NONE	3.88	7.58	8.39	7.28	6.78	
50	6.51	8.35	8.35	8.52	7.93	
Mean	5.20	7.96	8.37	7.90	7.36	
SOW DATE	AUT N	SPRING N	NONE	N1	N2	N2L
EARLY	NONE		3.95	7.66	8.69	7.34
	50		7.44	8.91	8.87	8.40
LATE	NONE		3.81	7.50	8.10	7.23
	50		5.58	7.78	7.84	8.64

STRAW MEAN DM% 81.9

PLOT AREA HARVESTED 0.00322

92/R/WW/4

WINTER WHEAT

APHID IMMIGRATION

Object: To determine the role of immigration of cereal aphids in relation to forecasting outbreaks in summer - Black Horse I N.

Sponsor: N. Carter.

Design 4 blocks of 4 plots, with external dummy plots and arranged to allow estimation of the effects of neighbouring plots.

Whole plot dimensions: 9.0 x 9.0.

Treatments:

1. INSCTCDE	Time of insecticide application:
NONE	None
MAR	Late March
MARIMME	Late March and at 10 day intervals from start of immigration until early growth stage
MARIMML	Late March and at 10 day intervals from start of immigration until late growth stage

Experimental diary:

14-Aug-91 : B : Straw chopped.
01-Sep-91 : B : Deep-tine cultivated with vibrating tines, 60 cm apart and 45 cm deep.
16-Sep-91 : B : Ploughed and furrow pressed.
25-Sep-91 : B : Rotary harrowed, Mercia drilled at 160 kg.
26-Sep-91 : B : Rolled.
03-Dec-91 : B : Stefes IPU at 1.0 l and Stomp 400 at 2.5 l in 200 l.
17-Feb-92 : B : PK as (0:18:36) at 940 kg.
27-Feb-92 : B : 34.5% N at 120 kg.
03-Apr-92 : B : 34.5% N at 320 kg.
09-Apr-92 : T : **INSCTCDE** MAR, MARIMME, MARIMML: Aphox at 0.28 kg in 200 l.
20-May-92 : B : Ally at 0.06 kg and Dorin at 1.0 l in 200 l.
20-May-92 : T : **INSCTCDE** MARIMME, MARIMML: Aphox at 0.28 kg in 200 l.
04-Jun-92 : T : **INSCTCDE** MARIMME, MARIMML: Aphox at 0.28 kg in 200 l.
22-Jun-92 : T : **INSCTCDE** MARIMML: Aphox at 0.28 kg in 200 l.
23-Jun-92 : B : Mistral at 0.50 l and Radar at 0.50 l in 200 l.
30-Jul-92 : B : Combine harvested.

Previous crops: W. barley 1990, w. oilseed rape 1991.

NOTE: Plant samples were taken in spring and summer to assess aphid populations and in mid-July to count the number of ears.

92/R/WW/4

GRAIN TONNES/HECTARE

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

INSC TCDE	
NONE	8.32
MAR	8.58
MARIMME	8.73
MARRIML	8.50
Mean	8.53

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

INSC TCDE
0.180

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	9	0.255	3.0
GRAIN MEAN DM%	85.1		
PLOT AREA HARVESTED	0.00207		