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97/R/WW/1 Prediction of Weed Competition - W. Wheat

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97/R/WW/1

WINTER WHEAT

PREDICTION OF WEED COMPETITION

Object: To predict the yield response of winter wheat to competition from three contrasting weed species - Great Harpenden I.

Sponsors: J.W. Cussans, P.J.W. Lutman.

Design: 3 randomised blocks of 3 x 6 plots.

Whole plot dimensions: 3.0 x 8.0.

Treatments: All combinations of:-

1. WEED SP	Weed species:		
SM	<i>Stellaria media</i> (chickweed)		
AM	<i>Alopecurus myosuroides</i> (black-grass)		
GA	<i>Galium aparine</i> (cleavers)		
2. WEED DEN	Average weed density, plants per m ² :		
	SM	AM	GA
0	0	0	0
2	62.7	93.8	8.3
4	124.2	126.9	13.7
8	245.6	175.7	28.0
16	500.6	447.2	53.8
32	737.2	666.4	99.0

NOTE: Target weed densities, plants per m²: SM, AM: 0, 40, 80, 160, 320 and 640, GA: 0, 3, 6, 12, 24 and 48 respectively.

Experimental diary:

28-Aug-96 : B : PK as (0:20:32) at 1400 kg.
23-Sep-96 : B : Roundup at 1.5 l with Vassgro Non-ionic at 0.5 l in 200 l.
02-Oct-96 : B : Ploughed and furrow pressed.
08-Oct-96 : B : Harrowed.
 : T : Weeds broadcast.
 : B : Rotary harrowed, Mercia, dressed Sibutol,
 drilled at 380 seeds per m².
16-Dec-96 : T : WEED SP AM, WEED SP SM WEED DEN 0, WEED SP GA
 WEED DEN 0: Starane 2 at 1.0 l in 200 l.
24-Jan-97 : T : WEED SP SM, WEED SP GA, WEED SP AM WEED DEN 0: Topik
 240 EC at 0.25 l in 220 l.
11-Mar-97 : B : 34.5% N at 118 kg.
14-Apr-97 : B : 34.5% N at 463 kg. Clayton Turret at 1.5 l in 200 l.
16-Jun-97 : B : Folicur at 0.5 l with Mallard 750 EC at 0.3 l and
 Pointer at 0.5 l in 300 l.
13-Aug-97 : B : Hand harvested.

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NOTE: Weed and crop densities were assessed at emergence, in autumn and in spring. Biomass of crop and weeds was assessed on five occasions. Nitrogen content of grain and straw was measured.

GRAIN TONNES/HECTARE

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

WEED DEN	0	2	4	8	16	32	Mean
WEED SP							
SM	6.69	7.15	6.92	6.48	6.17	5.85	6.54
AM	7.74	6.60	5.35	5.62	4.73	3.46	5.58
GA	7.72	6.50	6.33	5.94	5.31	4.46	6.04
Mean	7.38	6.75	6.20	6.02	5.40	4.59	6.06

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

WEED SP	WEED DEN	WEED SP WEED DEN
0.177	0.251	0.435

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	32	0.532	8.8

GRAIN MEAN DM% 89.4

PLOT AREA HARVESTED 0.00020