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Rothamsted Research (1997) *96/R/WW/1 Prediction of Weed Competition - W. Wheat ; Yields Of The Field Experiments 1996*, pp 103 - 104 - DOI: <https://doi.org/10.23637/ERADOC-1-51>

96/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 - Delafield.

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. SPECIES	Weed species:		
SM	<i>Stellaria media</i> (chickweed)		
AM	<i>Alopecurus myosuroides</i> (black-grass)		
GA	<i>Galium aparine</i> (cleavers)		
2. DENSITY	Average weed density, plants per m ² :		
	SM	AM	GA
0	0	0	0
2	3.8	19.9	2.1
4	10.9	28.8	3.8
8	29.8	57.7	4.1
16	90.3	92.8	9.6
32	130	183	24.9

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:

01-Aug-95 : B : Straw baled.
 14-Sep-95 : B : Ploughed and furrow pressed.
 03-Oct-95 : T : Weeds broadcast.
 : B : Rotary harrowed, Mercia, dressed Sibutol, drilled at 380 seeds per m².
 16-Jan-96 : T : **SPECIES** AM: Ally at 30 g in 220 l.
 : T : **DENSITY** 0: Panther at 2.0 l in 220 l.
 08-Mar-96 : B : 34.5% N at 116 kg.
 15-Apr-96 : B : 34.5% N at 463 kg.
 08-Aug-96 : B : Hand harvested.

Previous crops: Linseed 1994, set-aside 1995.

NOTE: Weed and crop densities were assessed in November and March. Assessments of weed and crop growth and leaf area were taken in November, March, April, May and June. Soil nitrogen and water content were measured in March. Weed seed production was estimated in July and at harvest grain and straw were sampled for nitrogen content.

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GRAIN TONNES/HECTARE

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

DENSITY SPECIES	0	2	4	8	16	32	Mean
SM	7.97	8.44	8.42	8.06	7.25	6.89	7.84
AM	8.14	8.00	7.83	7.71	6.78	7.23	7.61
GA	8.17	7.88	8.39	7.80	7.54	7.38	7.86
Mean	8.09	8.11	8.21	7.86	7.19	7.17	7.77

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

SPECIES	DENSITY	SPECIES DENSITY
0.186	0.263	0.456

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	34	0.559	7.2

GRAIN MEAN DM% 88.5

PLOT AREA HARVESTED 0.00020