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92/R/BES/5 Weed Competition and Spring Beans - S. Beans

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92/R/BES/5

SPRING BEANS

WEED COMPETITION AND SPRING BEANS

Object: To study the competitive effects of cultivated oats (*Avena sativa*) and wild oats (*Avena fatua*) on the growth and yield of s. beans - Great Harpenden I.

Sponsor: P.J.W. Lutman.

Design: 3 randomised blocks of 16 plots.

Whole plot dimensions: 3.0 x 10.0.

Treatments: All combinations of:-

1. **SOWDATE** Time of drilling cultivated oats (*A. sativa*):

PREBEAN Seven days before drilling s. beans
AS BEAN Same day as drilling s. beans
POSTBEAN Seven to ten days after drilling s. beans

2. **DENSITY** Density of cultivated oats (number of plants established square metre):

	PREBEAN	AS BEAN	POSTBEAN
D0	0	0	0
D1	17	25	12
D2	58	83	23
D3	112	142	46
D4	161	310	48

plus one extra plot

WILD OAT Wild oats (*A. fatua*) sown on same day as s. beans.
Number of plants established: 172 per square metre:

NOTES: (1) Target sowing densities (number of seeds sown per square metre) were: **DENSITY** D1 40, D2 120, D3 240, D4 480 and **WILD OAT** 240.
(2) Cultivated oats were sown in the central 2 m of the plot.

Experimental diary:

06-Nov-91 : B : Straw mechanically destroyed.
07-Nov-91 : B : Ploughed.
16-Jan-92 : B : Deep tine cultivated.
04-Mar-92 : B : Spring-tine cultivated.
04-Mar-92 : T : **SOWDATE** PREBEAN: Dula drilled.
04-Mar-92 : B : Harrowed.
17-Mar-92 : T : **SOWDATE** AS BEAN: Dula drilled.
 : T : **WILD OAT**: Hand broadcast wild oats.
17-Mar-92 : B : Rotary harrowed. Alfred, undressed, drilled at 310 kg,
 harrowed, rolled.
02-Apr-92 : T : **SOWDATE** POSTBEAN: Dula drilled, harrowed.

92/R/BES/5

Experimental diary:

19-May-92 : B : Basagran at 3.0 l in 300 l.
 15-Jun-92 : B : Chiltern Chlorothalonil at 1.5 l, Tripart Defensor FL at
 0.50 l and Metasystox 55 at 0.42 l in 200 l.
 20-Aug-92 : B : Hand harvested.

Previous crops: W. barley 1990, sunflowers 1991.

NOTE: At intervals during the growing season crop and weed counts were made and samples taken for the assessment of leaf area and dry weight.

GRAIN TONNES/HECTARE

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

DENSITY	D0	D1	D2	D3	D4	Mean
SOW DATE						
PREBEAN	4.72	3.10	2.42	2.12	2.14	2.90
AS BEAN	4.84	3.04	2.15	1.96	1.63	2.72
POSTBEAN	4.53	4.04	4.43	3.35	3.50	3.97
Mean	4.70	3.39	3.00	2.48	2.42	3.20

WILD OAT 1.00

GRAND MEAN 3.06

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

SOW DATE	DENSITY	SOW DATE DENSITY & WILD OAT
0.210	0.271	0.470

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	30	0.576	18.8

MEAN DM% *

PLOT AREA HARVESTED 0.0002