ROTHAMSTED RESEARCH

Yields of the Field Experiments 1987

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87/R/SU/4 Fungicide and Botrytis - Sunflowers

Rothamsted Research

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87/R/SU/4

SUNFLOWERS

FUNGICIDE AND BOTRYTIS

Object: To study the effects of five times and two methods of applying a mixture of fungicides on the control of Botrytis head infection and on the yield of sunflowers - Annables and Long Hoos III 3.

Sponsor: C.J. Rawlinson.

Design: 3 randomised blocks of 12 plots on each site.

Whole plot dimensions: Annables: 4.2 x 7.0. Long Hoos: 2.7 x 8.0.

Treatments: All combinations of:-

1. SPRAYDTE — Dates of applying vinclozolin at 0.50 kg and carbendazim at 0.25 kg:

	Annables	Long Hoos
1	25 July, 1987	21 Aug
2	25 July and 5 Aug	21 Aug and 4 Sept
3	25 July, 5 and 19 Aug	21 Aug, 4 and 17 Sept
4	25 July, 5, 19 Aug and 3 Sept	21 Aug, 4, 17 Sept and 1 Oct (duplicated)
5	25 July, 5, 19 Aug, 3 and 16 Sept	

2. SPRAYMET — Method of spraying:

ELECTRO	Electrostatic sprayer in 5.3 l (Annables only)
CNVNTIAL	Conventional hydraulic sprayer in 220 l (duplicated on Long Hoos)

plus one extra treatment

EXTRA

NONE	None (duplicated)

NOTE: On Long Hoos the crop was netted from early June to harvest.

Basal applications:
Annables: Manures: 'Nitram' at 170 kg. Weedkiller: Trifluralin at 1.1 kg in 220 l. Desiccant: Diquat at 0.60 kg ion in 220 l.
Long Hoos: Manures: 'Nitro-Chalk' at 255 kg. Weedkillers: Trifluralin at 1.1 kg in 220 l. Linuron at 0.50 kg in 220 l. Desiccant: Diquat at 0.60 kg ion in 220 l.

Seed: Annables: Asmer 3 sown at 90,000 seeds per hectare.
Long Hoos: Asmer 3 failed and site was resown with EX10, both at 90,000 seeds per hectare.

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Cultivations, etc.:-
Annables: Ploughed: Autumn 1986, date not recorded. Rotary cultivated, 'Nitram' applied, trifluralin applied, rotary cultivated, seed sown: 15 Apr, 1987. Desiccant applied: 23 Sept. Combine harvested: 29 Sept. Previous crops: W. wheat 1985 and 1986.
Long Hoos: Ploughed: 29 Dec, 1986. 'Nitro-Chalk' applied: 21 Apr, 1987. Spring-tine cultivated, trifluralin applied, rotary cultivated, Asmer 3 sown and rolled: 24 Apr. Linuron applied: 29 Apr. EX10 sown: 28 May. Desiccant applied: 15 Oct. Harvested by hand: 23 Oct (threshed by stationary combine harvester). Previous crops: Fallow 1985, lupins 1986.

NOTE: Botrytis in heads and stems and growth stages were assessed on both sites. More detailed observations on crop growth were made on Annables.

ANNABLES

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

SPRAYMET SPRAYDTE	ELECTRO	CNVNTIAL	Mean
1	0.73	0.74	0.73
2	0.85	0.79	0.82
3	0.77	0.76	0.77
4	0.77	0.79	0.78
5	0.72	0.72	0.72
Mean	0.77	0.76	0.76

EXTRA NONE 0.84

Grand mean 0.78

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

Table	SPRAYDTE	SPRAYMET	SPRAYDTE SPRAYMET
s.e.d.	0.128	0.081	0.181

SED for comparing NONE with any item in SPRAYMET.SPRAYDTE table is 0.156

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	23	0.221	28.5

GRAIN MEAN DM% 69.2

PLOT AREA HARVESTED 0.00223

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LONG HOOS III

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

SPRAYDTE	NONE	1	2	3	4	5	Mean
	1.02	0.99	1.11	1.10	1.04	0.91	1.03

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

Table	SPRAYDTE
s.e.d.	0.093

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	27	0.161	15.6

GRAIN MEAN DM% 48.2

PLOT AREA HARVESTED 0.00216

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