

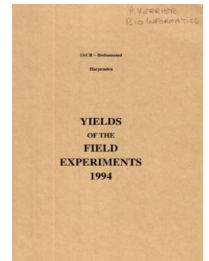
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Sunflowers

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94/R/SU/1

SUNFLOWERS

VARIETIES & DISEASE

Object: To assess early maturing varieties of sunflowers and their susceptibility to *Botrytis cinerea* and other fungal diseases - Ex-allotments.

Sponsors: V.J. Church, H.A. McCartney.

Design: 4 randomised blocks of 6 plots.

Whole plot dimensions: 3.5 x 10.0.

Treatments:

CULTIVAR

345	SAM 345
348	SAM 348
AV	Avante
AL	Allegro
PAN	PAN 9405
AGC	AGC 92445

Experimental diary:

01-Nov-93 : B : Sting CT at 4.0 l in 200 l.
06-Dec-93 : B : Ploughed.
27-Apr-94 : B : Heavy spring-tine cultivated.
28-Apr-94 : B : Rotary harrowed.
29-Apr-94 : T : **CULTIVAR** 345, 348, AV, AL, PAN, AGC: Varieties, dressed, drilled at 14 seeds per m².
03-May-94 : B : 34.5% N at 145 kg.
04-May-94 : B : Rolled.
06-May-94 : B : Stomp 400 at 5.0 l in 200 l.
20-May-94 : B : Decis at 300 ml in 200 l.
13-Jun-94 : B : Laser at 2.25 l with Actipron at 1.8 l in 220 l.
24-Aug-94 : T : **CULTIVAR** 345: Hand harvested, threshed by stationary combine.
25-Aug-94 : T : **CULTIVAR** AV, AL, AGC: Reglone at 3.0 l with Vassgro Spreader at 0.44 l in 440 l.
02-Sep-94 : T : **CULTIVAR** AV, AL, AGC: Hand harvested, threshed by stationary combine.
22-Sep-94 : T : **CULTIVAR** PAN: Reglone at 3.0 l with Vassgro Spreader at 0.44 l in 440 l.
 : T : **CULTIVAR** 348: Hand harvested, threshed by stationary combine.
29-Sep-94 : T : **CULTIVAR** PAN: Hand harvested, threshed by stationary combine.

Previous crops: W. wheat 1992, s. barley 1993.

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NOTE: Plant populations, growth stages, diseases and head size were monitored throughout the season, moisture content was measured prior to desiccation and grain density and oil content were measured after harvest.

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

CULTIVAR

345	2.41
348	3.15
AV	2.59
AL	2.63
PAN	3.35
AGC	2.68

Mean	2.80
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*** Standard errors of differences of means ***

CULTIVAR

0.189

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	15	0.267	9.5

GRAIN MEAN DM% 69.7

PLOT AREA HARVESTED 0.00150

94/R/SU/2

SUNFLOWERS

BOTRYTIS, HONEYBEES AND POLLEN BEETLES

Object: To determine whether visits by honeybees and pollen beetles to sunflower heads during flowering affects subsequent development of *Botrytis cinerea* - Long Hoos V 2.

Sponsors: J.R. Simpkins, N.L. Carreck, V.J. Church.

Design: 4 randomised blocks of 6 plots.

Whole plot dimensions: 2.74 x 2.74.

Treatments:

BEE ADDN	Presence of bees or pollen beetles and introduction of a bacterium (<i>Bacillus subtilis</i>) or fungicide (pyrimethanil) as a powder or spray:
-	None
B	Bees only
BB	Bees plus bacterium
P	Pollen beetles only
BF	Bees plus fungicide powder
F	No bees plus fungicide spray

NOTE: Bacterium and fungicide powder were mixed with talc and 'biobeads' for spreading by bees. Pyrimethanil was an experimental fungicide. Insect cages, each 2.74m x 2.74m, were placed on each plot.

Experimental diary:

08-Mar-94 : B : Ploughed.
14-Mar-94 : B : Heavy spring-tine cultivated.
17-Mar-94 : B : Heavy spring-tine cultivated.
24-Mar-94 : B : Rolled.
03-May-94 : B : 34.5% N at 145 kg.
 : B : Rotary harrowed twice, Avante, dressed, drilled at 14 seeds per m².
04-May-94 : B : Rolled.
06-May-94 : B : Stomp 400 at 5.0 l in 220 l.
15-Jul-94 : T : **BEE ADDN** B, BB, BF: Honey bee colonies introduced.
18-Jul-94 : T : **BEE ADDN** P: Pollen beetles introduced into cages.
 : T : **BEE ADDN** BB, BF: Bacterium and fungicide powder respectively introduced each day until 03-Aug.
20-Jul-94 : T : **BEE ADDN** F: Pyrimethanil spray at 4 kg in 220 l. plots.
22-Jul-94 : B : Irrigated.
25-Jul-94 : B : Irrigated.
27-Jul-94 : B : Irrigated.
02-Aug-94 : B : Irrigated.
04-Aug-94 : T : **BEE ADDN** B, BB, BF: Honey bee colonies removed.
06-Sep-94 : B : Reglone at 3.0 l with Vassgrow Spreader at 400 ml in 440 l.
08-Sep-94 : B : Hand harvested, threshed by stationary combine.

94/R/SU/2

Previous crops: Mustard 1992, potatoes 1993.

- NOTES:** (1) Plots were netted against birds from after sowing to harvest. Irrigation for 1-2 hours on each occasion, was applied to increase disease spread. Plants were assessed for disease during the season and individual grain weights were measured.
- (2) The harvested seed was mixed in error on two plots, with the treatments P and BF. Estimated values were used in the analysis.

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

BEE ADDN	
-	1.94
B	1.78
BB	2.02
P	1.83
BF	1.82
F	1.77
Mean	1.86

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

BEE ADDN	
	0.190

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	13	0.269	14.5

GRAIN MEAN DM% *

PLOT AREA HARVESTED 0.0001