1981

Rapeseed, oilseed phenology, linseed and sunflower trial

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DEPARTMENT OF AGRICULTURE

Western Australia

EXPERIMENTAL SUMMARIES

1981 Season

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NITROGEN x TIME OF SOWING, TWO RAPESEED VARIETIES

81BR2/2940EX

M. Mason, G. Parlevliet/D. Simcock, Heartlea

Soil type/ History: Gravelly loamy sand over gritty clay at about 50 cm. First crop after grass dominant pasture on old land.

Detail: Rapeseed, 6 kg/ha, mixed with superphosphate, 150 kg/ha, immediately before sowing.
Agran treatments topdressed by hand 3-4 weeks after sowing.

Results:

Sowing Date	Rapeseed Variety	Nitrogen Treatment	Seed Yield (kg/ha)
3 June 1981	Wesroona	Nil	727
		Ammonium nitrate 68 kg/ha	567
		Ammonium nitrate 135 kg/ha	705
		Ammonium nitrate 203 kg/ha	752
		Ammonium nitrate 406 kg/ha	810
		Ammonium nitrate 812 kg/ha	1,022
	Wesbell	Nil	740
		Ammonium nitrate 135 kg/ha	803
3 July 1981	Wesroona	Nil	1,876
		Ammonium nitrate 68 kg/ha	1,835
		Ammonium nitrate 135 kg/ha	2,010
		Ammonium nitrate 203 kg/ha	1,822
		Ammonium nitrate 406 kg/ha	1,902
		Ammonium nitrate 812 kg/ha	1,705
	Wesbell	Nil	1,772
		Ammonium nitrate 135 kg/ha	1,930
28 July 1981	Wesroona	Nil	1,289
		Ammonium nitrate 68 kg/ha	1,365
		Ammonium nitrate 135 kg/ha	1,300
		Ammonium nitrate 203 kg/ha	1,473
		Ammonium nitrate 406 kg/ha	1,419
		Ammonium nitrate 812 kg/ha	1,352
	Wesbell	Nil	1,372
		Ammonium nitrate 135 kg/ha	1,423

Comment: First time of sowing badly infested with weeds, capeweed and grasses dominant.

NITROGEN x TIME OF SOWING TWO RAPESEED VARIETIES

81AL21/2940EX

M. Mason, R. Glencross/T. Donaldson, Forest Hill

Soil type/ History: Yellow loamy sand over sandy loam. Clay at about 30 cm. First crop after clover on old land.

Detail: Rapeseed, 7 kg/ha, mixed with superphosphate, 150 kg/ha, immediately before sowing.
Urea treatments topdressed by hand 6-7 weeks after sowing.
One replication of early planting not harvested because of severe insect damage.

Results:

Sowing Date	Rapeseed Variety	Nitrogen Treatment	Seed Yield (kg/ha)
8 June 1981	Wesbell	Nil	1,782
		Urea 50 kg/ha	1,885
		Urea 75 kg/ha	1,385
		Urea 100 kg/ha	2,026
		Urea 150 kg/ha	2,462
		Urea 300 kg/ha	2,622
	Wesroona	Nil	1,333
		Urea 100 kg/ha	1,179
8 July 1981	Wesbell	Nil	1,846
		Urea 50 kg/ha	2,094
		Urea 75 kg/ha	2,017
		Urea 100 kg/ha	2,056
		Urea 150 kg/ha	2,098
		Urea 300 kg/ha	2,359
	Wesroona	Nil	1,855
		Urea 100 kg/ha	2,047
30 July 1981	Wesbell	Nil	1,291
		Urea 50 kg/ha	1,205
		Urea 75 kg/ha	1,543
		Urea 100 kg/ha	1,372
		Urea 150 kg/ha	1,457
		Urea 300 kg/ha	1,359
	Wesroona	Nil	1,393
		Urea 100 kg/ha	1,526

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RAPESEED ESTABLISHMENT TRIAL

81AL47/4156EX

D. Carter, R. Glencross/H. Hood, South Stirlings

Aim: To test whether sowing oats with a rapeseed crop can offer protection against sandblast damage of rape seedlings.

Soil type: Duplex with loamy sand topsoil.

Sown: 18 June 1981

Detail: Wesbell rapeseed (6 kg/ha) and West oats (0, 30, 90 kg/ha) were sown in one operation by topdressing the oats through the seed box and the rape mixed with superphosphate (200 kg/ha) through the fertiliser box of the drill and incorporating with trailing harrows. Urea at 100 kg/ha was applied 6 weeks after sowing.
Hoegrass at 2 l/ha (23 July) was successfully used to remove the oats.

Results:

Rate Oats (kg/ha)	Oat Density* (plants/m^2)	Rape Density (plants/m^2)	Rape Yield (kg/ha)
0	0	149	750
30	116	158	650
90	273	123	534

* prior to Hoegrass application

Comment:

1. Plots were subjected to winds up to 65 km/hr (mean velocity) using RMD's mobile wind tunnel however the cloddy nature of site and wet early season provided little opportunity to create sandblast damage. Wind profile data were collected.

2. The Hoegrass was applied when the oats were quite advanced (tillering) and consequently a competition effect on the rapeseed was observed.

RAPESEED HARVESTING METHODS

81MT48/4033EX Mount Barker Research Station

Aim: To compare windrowing, desiccation and conventional harvesting of rapeseed.

Detail: Wesroona rapeseed 6 kg/ha, Agras No. 1 150 kg/ha topdressed before sowing. Plots 5 m x 60 m.
Treatments (1) Windrowed - 1/12/81 ave seed moisture content 37%
(2) Diquat - desiccated with diquat (Reglone[R] 3 l/ha in 550 l water/ha at 400 kPa, sprayed 1/12/81).
(3) Diquat + Spodnam - as for (2) with addition of Spodman[A] at 750 ml/ha.
(4) Naturally maturing - untreated.
Subtreatment - time of harvest. T_1 17/12/81, T_2 6/1/82.

Results:

Yield[B] (kg/ha)

	Harvested 17/12/1981		Harvested 6/1/1982	
Windrowed	1,145	(9.0)[C]	1,058	(8.0)
Diquat	1,254	(8.0)	856	(8.0)
Diquat + Spodnam	1,370	(8.0)	909	(8.1)
Naturally Maturing	1,118	(9.3)	891	(8.0)

[B] All yields adjusted to 9% moisture
[C] Seed moisture content (%) at harvest shown in parentheses

[A] Spodnam[R] (Mandops Pty Ltd) marketed for use in preventing pod shatter in rapeseed when used in conjunction with diquat.

Comment:
1. Windrowing effectively reduced seed loss between the two harvests.
2. Desiccation showed little advantage over untreated crop regarding seed loss however the desiccated crop ripened more evenly and was harvestable (9% seed moisture) about a week before the untreated crop.
3. Spodnam appeared to have a small effect in reducing pod shatter however its application with recommended water rates (550 l/ha) might be considered impractical.

SHATTERING DIFFERENCES AMONG RAPESEED LINES

81MT49/4033EX

D. Carter/Mount Barker Research Station

Aim: To examine a method for identifying sources of pod shattering resistance in rapeseed.

Soil type: Gravelly loam.

Detail: All plots cone seeded at 6 kg/ha, plot size 6.5 x 2.5 m. Superphosphate topdressed at 200 kg/ha before sowing and urea at 100 kg/ha was applied 6 weeks after sowing. A split plot design was employed, with one side of the plot left untreated (Nonshattered) and the other blown with 80 km/hr winds for 2 mins using RMD's mobile wind tunnel (Shattered).

Results:

	T_1 Sown 17/6/81			T_2 Sown 15/7/81		
Rapeseed Line	Nonshattered Yield (kg/ha)	Shattered Yield (kg/ha)	Loss (%)	Nonshattered Yield (kg/ha)	Shattered Yield (kg/ha)	Loss (%)
DRC 1[A]	704	525	25	866	701	19
79N185	680	400	41	723	427	41
79N83	534	378	42	635	440	31
79N171	931	534	43	849	519	39
79N192	977	544	44	1,304	895	31
Wesbell	809	445	45	805	578	28
Wesroona	743	391	47	1,037	654	37

A DRC 1 is *B. campestris* line, all others are *B. napus*

B % Loss caused by wind blast = $\frac{\text{Nonshattered - Shattered Yield}}{\text{Nonshattered Yield}} \times \frac{100}{1}$

Estimated pre-treatment pod shattering losses

Rapeseed Line	Pre-treatment loss (%)	
	T_1	T_2
DRC 1	0	1
79N185	17	12
79N83	9	5
79N171	18	7
79N192	17	6
Wesbell	18	8
Wesroona	32	20

Comment:

1. T_2 of the early maturing DRC 1 and Wesroona are more comparable with T_1 of the other later maturing lines.
2. The B. campestris entry, DRC 1, is clearly less susceptible to pod shattering losses than the B. napus lines.
3. The B. napus lines are similar in shattering susceptability suggesting no major gene differences. Difficulty is then encountered separating quantitative genetic differences from environmental effects arising from differences in maturity, although multiple times of planting can help overcome this.

OILSEED PHENOLOGY

81MT47, 81WH57, 81A48, 81BA53, 81C37, 81E34/4159EX

Aim: To relate the development of a range of Brassica genotypes to climatic variables (viz. temp. and day length).

Detail: All plots (1.25 x 5 m) cone seeded after topdressing basal phosphorus fertilizer.
Nitrogen applied 4-6 weeks after sowing except 81BA53, where Agras topdressed presowing. N rates ranged from 56 to 68 kg/ha.

Results:

	Yield (kg/ha)							Estimated Pre-harvest Shattering Loss (%)
	81MT47			81WH57**			81BA53**	Mean of 3
Sowing date:	17/6	8/7	2/9	4/6	25/6	23/7	19/6	sites
A. Brown sarson*	294	371	266	1,667	697	238	1,249	0
A. Yellow sarson	160	135	22	459	448	0	714	0
B. CPI 81794	324	352	130	387	536	244	742	2
B. CPI 81799	1,006	860	185	1,169	654	137	855	2
A. Span	314	714	271	989	629	107	328	1
A. Chinoli A_2	524	865	273	908	607	114	417	6
A. DRC 1	600	833	148	583	348	29	225	4
C. 76N219-M17S	1,169	1,127	153	1,692	1,060	24	539	20
C. Wesroona	733	1,177	97	1,518	1,090	30	614	30
A. Candle	99	288	13	114	102	63	289	2
B. Lethbridge 22A	1,043	1,168	272	537	146	181	1,044	1
C. Wesbell	901	880	14	1,655	292	0	-	15
D. PI 194900	958	776	17	1,271	147	65	922	4

*Listed in order of increasing days to anthesis. ** Unreplicated data

A. = B. campestris
B. = B. juncea
C. = B. napus
D. = B. carinata

Comment:

81C37 - severely infested with wild radish - not harvested
81E34 - early insect damage - not harvested
81A48 - yield data not available
81MT47 - yield potential of site reduced by waterlogging

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KERB ON RAPESEED AND LINSEED

81GL6/4156EX

C. Thorn/Glasshouse South Perth

Aim: To examine the effect of post-emergent sprayed propyzamide (Kerb ^{R}50-WP) on rapeseed and linseed. Kerb is a selective herbicide for control of annual grasses and certain broadleaf weeds.

Detail: The trial was sown in the glasshouse in July. Five plants per 3 kg capacity pot were supplied with complete nutrient solution and pots were watered to field capacity by daily weighing. Kerb was applied 4 weeks after sowing and plants were harvested 4 weeks later.

Results:

1. Top Dry Matter (g/pot)

	Rate of Kerb (kg/ha)*			
	0	1	2	4
Rapeseed (cv Wesroona)	6.35	6.88	6.70	5.66
Linseed (cv Glenelg)	0.11	0.09	0.08	0.05
Barley Grass	1.07	0.39	0.28	0.05

2. Root Dry Matter (g/pot)

	Rate of Kerb (kg/ha)*			
	0	1	2	4
Rapeseed	3.65	3.34	3.72	3.66
Linseed	0.30	0.16	0.15	0.11
Barley Grass	0.39	0.33	0.20	0.13

* calculated on a surface area basis.

Comment: Kerb at 1 kg/ha sprayed early postemergence has provided excellent annual grass control in clover based pasture. This pot trial indicates an adverse effect of Kerb on linseed but not on rapeseed. Field testing of this herbicide on rapeseed is required.

SUNFLOWER AGRONOMY TRIAL

80AL89/3684EX

D. Highman, Albany District Office/D. Tilbrook, Mettler

Aim: To study the relationship between plant population and yield in a range of sunflower varieties grown under dryland conditions.

Soil type/ History: Grey sand over clay at 25-35 cm
Pasture

Sown: 20 November 1980
Harvested: 31 March 1981

Detail: All fertilizer was topdressed prior to sowing at rates: 27 kg/ha P, 32 kg/ha N, 42 kg/ha K. Four varieties of sunflower were precision sown at four densities. Yield data are from hand harvest of 10 m length of middle two rows of each four row plot.

Results: See Figure 1.

Comments:

1. Below average summer rainfall received and plants visibly moisture stressed during and after anthesis.
2. Rutherglen bugs were the only obvious insect pest while birds caused some seed loss close to harvest maturity.
3. The optimum plant population under these marginal dryland conditions is about 25,000 plants/hectare. However, note the trend for the early maturing variety (Hysun 11) to reach maximum yield at a higher plant population than later maturing variety (Hysun 30). Hysun 21 and Sunfola 68/3 are intermediate in maturity.

FIG. 1 DRYLAND SUNFLOWER YIELD vs PLANT POPULATION