



2015 GRDC Canola NVT

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Purpose: The purpose of the canola NVT trials at Dandaragan is to provide growers and their advisors with independent information on the performance of newly released varieties of canola relative to the current commercial varieties grown in the area. The intention is to have two years of data available on the NVT website at the time each new variety is made available for commercial production.

Location: Dandaragan

Soil Type: Sandy Loam

Soil Test Results:

Soil Analysis (CSBP)	0-10cm	10-20cm
Colour	BROR	BROR
Ammonium Nitrogen mg/Kg	3	1
Nitrate Nitrogen mg/Kg	11	3
Phosphorus Colwell mg/Kg	27	12
Potassium Colwell mg/Kg	87	39
Sulphur mg/Kg	6	5
Organic Carbon %	1.22	
Conductivity dS/m	0.06	0.02
pH Level (CaCl ₂) pH	5.1	4.7
pH Level (H ₂ O) pH		
Aluminium CaCl ₂ mg/Kg	0.5	1.2
DTPA Copper mg/Kg	0.21	
DTPA Iron mg/Kg		
DTPA Manganese mg/Kg		
DTPA Zinc mg/Kg	0.27	
Exc. Aluminium meq/100g		
Exc. Calcium meq/100g	3.03	
Exc. Magnesium meq/100g	0.42	
Exc. Potassium meq/100g	0.22	
Exc. Sodium meq/100g	0.08	

Rotation: 2014: Oats, 2013: Pasture, 2012: Pasture

Growing Season Rainfall (April- October 2015): Growing season rainfall for Dandaragan West weather station (9014): 342.2mm

Long term average growing season rainfall for Dandaragan West weather station (9014): 531.8mm

BACKGROUND SUMMARY

The National Variety Trial (NVT) program is a national program of comparative crop variety testing with standardised trial management, data generation, collection and dissemination. The program is supported by the Australian Government, and growers through the Grains Research & Development Corporation (GRDC) and is managed by the Australian Crop Accreditation System Limited (ACAS). The NVT aims to generate independent information for growers about newly released crop varieties. The NVT System has been developed to complement the plant breeding programs. Breeders will make their release decisions prior to nominating lines for testing programs. NVT will only be testing lines close to commercial release.

The oil data presented is not as reliable as the yield data. A single sample from each variety in each trial is tested for oil, with the simple average presented in the results. As with the yield data, results from many trials are more reliable than results from few trials.

TRIAL DESIGN

Plot size: 1.32m x 8m

Machinery use: Direct drilled with Small Plot Seeder, Knife points and press wheels

Repetitions: 3

Seeding rates and dates: 11/05/15; 50 plants/m²

Treatment rates and dates:

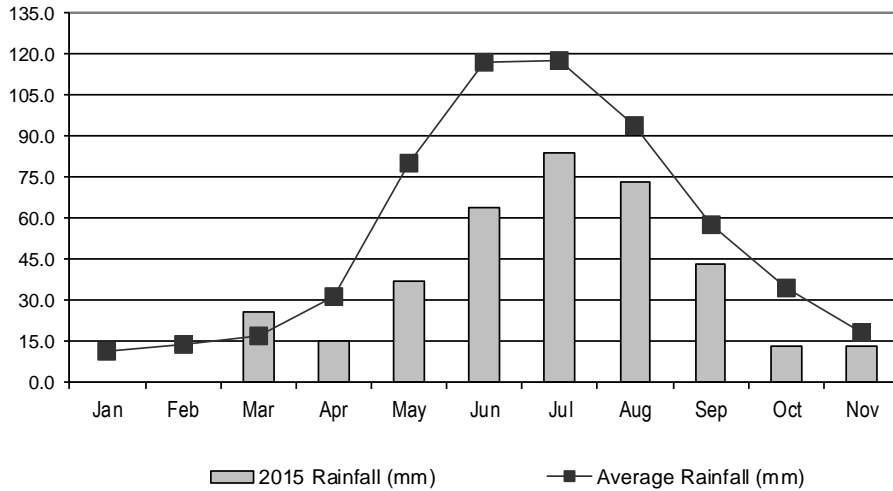
No.	Date	Maintenance Product Name	Description	Rate	Unit
1	09/05/2015	SpraySeed	Herbicide	2	L/ha
		Trifluralin	Herbicide	3	L/ha
		Chlorpyrifos	Insecticide	0.5	L/ha
2	11/05/2015	Gusto Gold + Impact	Fert - Banded @ sowing	100	kg/ha
		Maxam	Fert - Topdressed IBS	150	kg/ha
3	22/06/2015	Lontrel	Herbicide 6WA-S	0.15	L/ha
		Targa	Herbicide 6WA-S	0.3	L/ha
		Select	Herbicide 6WA-S	0.5	L/ha
		Lorsban	Insecticide 6WA-S	0.4	L/ha
		Alphacypermethrin	Insecticide 6WA-S	0.3	L/ha
		Hasten	Adjuvant	1%	v/v
5	28/07/2015	Urea	Fert - topdressed 11WA-S	60	kg/ha
6	10/08/2015	Urea	Fert - topdressed 13WA-S	60	kg/ha
7	26/10/2015	Reglone	Desiccation	3	L/ha

RR canola trial was sprayed with Roundup Ready at 0.9 kg/ha 6 WA-S (23/06/2015)

IT canola trial was sprayed with Intervix at 500 mL/ha + Hasten at 1% 6 WA-S (23/06/2015)

2015 Monthly and Average Rainfall Data - Dandaragan West, W.A.

Observations were drawn from Dandaragan West {station 9014}.(11.9km away)



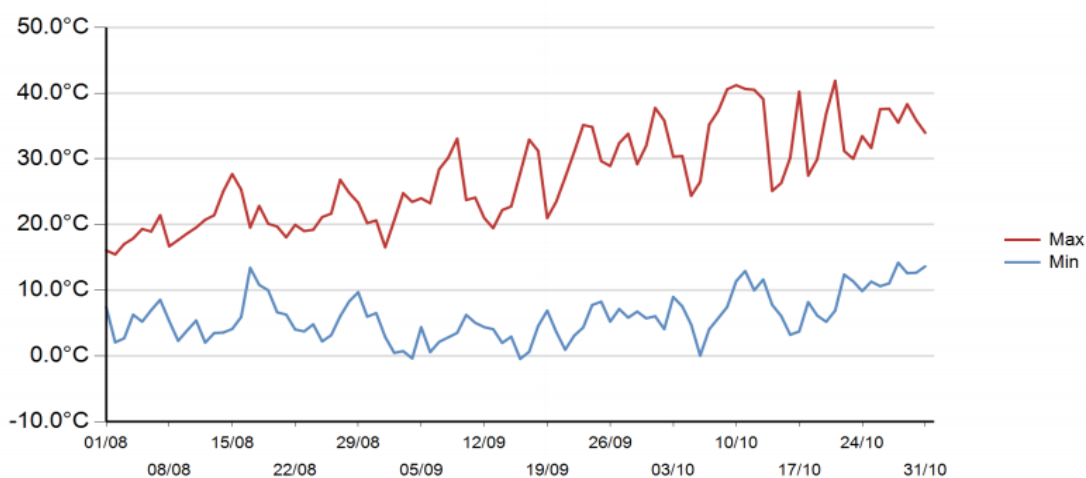
2015 Daily Rainfall Data - Dandaragan West, W.A.

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
1			0.0	0.0	2.2	0.0	0.0	21.4	8.8	0.0	0.0
2			0.0	0.0	0.0	↓	2.8	0.0	0.0	0.0	10.0
3			0.0	0.0	0.0	5.6	2.0	0.0	0.0	0.0	
4			0.0	0.0	0.2	0.0	0.2	0.0	0.0	0.0	
5			0.0	0.0	0.0	0.0	0.0	0.0	↓	0.0	
6			0.0	0.0	0.0	0.0	2.0	0.0	↓	0.0	
7			0.0	5.2	0.0	0.0	0.0	0.0	4.6	0.0	
8			0.0	1.0	0.0	0.0	6.4	0.0	0.0	0.0	
9			0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	
10			0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	
11			0.0	3.6	0.0	0.0	0.0	0.0	2.0	0.0	
12			0.0	2.0	0.0	0.2	0.0	0.0	25.6	0.0	
13			0.0	1.0	0.0	0.0	0.0	0.0	2.4	0.0	
14			7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
15			5.8	0.0	0.0	0.0	0.0	0.0	0.0	2.4	
16			2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
17			0.0	0.0	13.4	0.0	0.0	4.6	0.0	0.0	
18			0.0	0.0	21.4	6.0	0.0	4.6	0.0	0.0	
19			2.0	0.0	0.0	1.4	11.0	2.8	0.0	2.8	
20			0.0	0.0	0.0	11.0	4.8	10.8	0.0	0.0	
21			0.0	0.0	0.0	30.4	0.0	0.8	0.0	0.0	
22			0.0	0.0	0.0	9.2	0.0	19.0	0.0	0.0	
23			0.0	0.0	0.0	0.0	5.4	0.2	0.0	0.0	
24			0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	
25			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	
26			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
27			8.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
28			0.0	0.0	0.0	0.0	9.0	0.0	0.0	0.0	
29			0.0	0.0	0.0	0.0		0.0	0.0	0.0	
30			0.0	0.0	0.0	0.0		7.2	0.0	0.0	
31			0.0		0.0		39.8	2.0		1.4	

sowing

2015 Rainfall (mm)			25.6	15.2	37.2	63.8	83.6	73.4	43.4	13.4	13.4
Average Rainfall (mm)	11.0	13.6	16.8	31.4	80.3	117.1	117.5	93.8	57.5	34.2	17.9

Temperature Graph



Frost and heat events

Event	Comments
Frost Event	This trial experienced frost conditions on the following dates throughout the flowering period: -0.4 °C on Sep 4, -0.5 °C on Sep 16. Interpret results with caution.
Heat Event	Heat Event This trial experienced extreme heat conditions on the following dates throughout the flowering period: 33.1 °C on Sep 9, 32.9 °C on Sep 17, 35.1 °C on Sep 23, 34.8 °C on Sep 24, 32.4 °C on Sep 27, 33.8 °C on Sep 28, 37.7 °C on Oct 1, 35.8 °C on Oct 2, 35.2 °C on Oct 7, 37.3 °C on Oct 8, 40.6 °C on Oct 9, 41.2 °C on Oct 10, 40.6 °C on Oct 11, 40.5 °C on Oct 12, 39.1 °C on Oct 13, 40.2 °C on Oct 17, 36.9 °C on Oct 20, 41.9 °C on Oct 21, 33.4 °C on Oct 24, 37.6 °C on Oct 26, 37.6 °C on Oct 27, 35.5 °C on Oct 28, 38.3 °C on Oct 29, 35.9 °C on Oct 30. Interpret results with caution.

RESULTS/STATISTICS

Table 1: RR canola analysis and receival standards

Variety	Predicted Yield t/ha	Oil %	Seed Protein %	50 % Flowering year/day
Hyola 404RR	2.63	46.8	20.3	223
Hyola 600RR	2.58	48.1	18.9	232
Nuseed GT-41	2.53	46.2	21.8	221
IH30 RR	2.48	45.6	21.	224
Nuseed GT-50	2.42	45.6	20.7	231
DG 550RR	2.41	46.1	21.8	227
IH52 RR	2.34	46.0	21.1	232
Pioneer 44Y24 (RR)	2.32	44.7	23.0	228
Nuseed GT-42	2.31	45.4	21.3	225
Victory V5002RR	2.31	46.3	18.7	234
Pioneer 43Y23 (RR)	2.30	45.7	20.5	224
DG 460RR	2.26	46.8	21.3	228
Pioneer 45Y25 (RR)	2.23	46.5	20.5	234

Hyola 504RR	2.20	46.1	21.7	230
IH51 RR	2.01	46.5	21.2	232
Site Mean (t/ha)	2.39			
LSD (t/ha)	0.24			
CV (%)	5.6			
Probability	<0.001			

Table 2: IMI canola analysis and receival standards

Variety	Predicted Yield t/ha	Oil %	Seed Protein %	50 % Flowering Year day
Hyola 474CL	2.27	45.3	21.9	232
Pioneer 44Y89 (CL)	2.27	47.4	19.5	230
Banker CL	2.25	45.8	22.1	221
Pioneer 44Y87 (CL)	2.25	45.1	21.4	220
Rimfire CL	2.19	45.1	21.3	228
Archer	2.13	45.6	22.5	228
Hyola 577CL	2.11	45.6	22.3	224
Hyola 575CL	1.99	46.2	21.5	227
Pioneer 45Y86 (CL)	1.97	45.3	23.1	229
Site mean (t/ha)	2.16			
LSD (t/ha)	0.23			
CV (%)	6.2			
Probability	0.0477			

Observation/ Discussion/ Measurements

The trials were sown dry on the 11 May and 35 mm of rainfall was received 7-8 days after sowing. Emergence was patchy due to the dry start and furrow fill caused by strong winds before the first rain. The crop grew significantly in the last week of June with good soil moisture and trial plots were able to compensate to some extent for low plant density. Overall the season was looking promising right up to the end of August however from the middle of September through to the end of October conditions were hot and dry. The crop was relying on stored soil moisture for final pod and seed development. Overall the RR canola site averaged 2.39 t/ha and the IT canola site averaged 2.16 t/ha which is well within the district average. As a result of emergence issues due to seasonal conditions ACAS decided not to release data for TT canola varieties this year.

Yield potential is likely to be influenced by crop emergence. There was a trend for RR canola varieties receiving a lower emergence score to be lower yielding. Despite the hot dry finish to the season there doesn't appear to be a trend for early maturing varieties to out-perform the later maturing varieties and this could be as a result of underlying emergence issues. It is possible the hot dry conditions during the second half of September may have had an effect on later developing seed pods however yields do not indicate as such.

Roundup Ready varieties which topped the chart this year were Hyola 404 RR, Hyola 600 RR, Nuseed GT-41, IH30 RR, Nuseed GT-50 and DG 550 RR. There was no significant yield difference between varieties.

While the top yielding IMI varieties were Hyola 474 CL, Pioneer 44Y89 (CL), Banker CL, Pioneer 44Y87 (CL), Rimfire CL, Archer and Hyola 577 (CL). Again, there was no significant yield difference between these seven varieties.

RR Canola

RR canola varieties accounted for 19 % of canola sown in WA in 2014 which was slightly higher compared to 2013. Pioneer 43Y23, Nuseed GT-50, Pioneer 44Y24 and Hyola 404 RR currently account for 80 % of all the RR canola in WA.

Pacific seed varieties Hyola 404RR and Hyola 600RR were two of the top performers this year at Dandaragan. Hyola 404RR was released in 2010 and is currently used as the benchmark for new upcoming varieties. It performs well, with excellent oil yields and is a mid-early maturing variety with R-MR rating for blackleg. Hyola 600RR is expected to out yield Hyola 404 RR in a longer season, being a new variety released in 2015 it has the “S series” technology with a number of benefits including increased leaf and root biomass. It has very good oil content and is rated R for blackleg. Oil content for this variety was the highest in this year’s NVT trial at 48% closely followed by Hyola 404RR at 47%.

Nuseed GT-41 is an older variety released in 2012, early-mid maturing and R-MR for blackleg. Long term MET predicted yields shows this variety is similar to Hyola 404 RR and will out yield in higher rainfall environments.

Bayer’s IH30 RR is relatively new being released in 2014, it is an early flowering, early maturing variety with competitive oil content. Long term MET predicted yields show it is on par with Nuseed GT-41 in low to medium rainfall environments.

Nuseed GT-50 is a mid-maturing variety that has been an excellent performer across all Agzones. Nuseed GT-50 is one of the more commonly grown varieties due to its ability to adapt during both short and long seasonal conditions.

DG 550 RR is a new variety from Seednet released in 2015, it’s a mid-season maturing with an R rating for blackleg. This variety received very good early growth and emergence scores relative to other varieties which may have helped confirm its place as one of the top yielding this year. Long term MET analysis shows DG 550 RR as 14 % lower yielding compared to Hyola 404 RR for Agzone 2.

IT Canola

Pioneer 45Y86 (CL) remained the most popular variety to be sown in 2014. It is an excellent performer in high rainfall areas, for both yield and oil. Top yielding IMI varieties in this year’s Dandaragan NVT were Hyola 474 CL, Pioneer 44Y89 (CL), Banker CL, Pioneer 44Y87 (CL), Rimfire CL, Archer and Hyola 577CL. Yields for these varieties were not significantly different.

Hyola 474CL was released in 2011 and has very good blackleg rating (R). High oil and Mid-early maturing that is very well suited for low to medium rainfall zones or late plantings in high rainfall zones.

The new variety Pioneer 44Y89 (CL) released in 2014 has performed very well across all low to mid rainfall environments in WA. It does have some flexibility into high rainfall environments but Pioneer 45Y88 (CL) can provide additional yield benefit during a long season.

Banker CL is a new experimental Clearfield hybrid from Heritage Seeds. It is currently the highest yielding variety for Agzone 2 but has a limited number of data points so this information should be approached with a degree of caution.

Pioneer 44Y87 (CL) was released in 2013 and is a consistent performer across all Agzones with good yield stability. It is early-mid maturing and has a better blackleg rating compared to

Pioneer 45Y86 (CL) however oil content is lower compared to its competitors. Pioneer 44Y89 looks to be a good alternative to Pioneer 44Y87 given 44Y89s yield advantage.

Mid maturity Rimfire CL is a new commercial Clearfield hybrid from Heritage Seeds. Released as a direct competitor to 44Y89 (CL) and Hyola 474CL. With limited trial entries long term MET data shows this variety is performing just below its competitors.

Archer is one of the first Clearfield varieties from Heritage Seeds, released in 2012 it is mid-late maturing with a Blackleg rating of MR-MS which fit the medium to high rainfall zones with low black leg pressure.

Hyola 577CL has oil yields on par with Pioneer 45Y86 (CL). It has very good early vigor with Mid- maturing character that fits the medium to high rainfall regions. Released 2013.

