

Yardstick Trials - Trial Report



Corrigin - 13/02/2018

Wheat:

Specific Location:	Corrigin NVT	Sowing Date:	21/05/2018
Varieties:	Scepter, & Trojan	Harvest Date:	04/12/2018
Previous Crop:	Canola		

Barley:

Specific Location:	Corrigin NVT	Sowing Date:	21/05/2018
Varieties:	LaTrobe & Bass	Harvest Date:	04/12/2018
Previous Crop:	Canola		

Canola:

Specific Location:	Frost Site Dale	Sowing Date:	27/05/2018
Varieties:	Hyola 559 & InVigor T4510	Harvest Date:	27/11/2018
Previous Crop:	Oaten hay		

Weather Conditions

Event (Cereals)	Comments
Frost Event	This trial experienced frost conditions on the following dates throughout the flowering period: -0.8 °C on Aug 10, -0.5 °C on Aug 11, -0.7 °C on Aug 12, -0.9 °C on Aug 13, -0.1 °C on Aug 17, -2.1 °C on Aug 18, -0.1 °C on Aug 19, -0.2 °C on Aug 25, -1.2 °C on Sep 6, -0.3 °C on Sep 11, -0.8 °C on Sep 14, -4.1 °C on Sep 15, -3.4 °C on Sep 16, -0.6 °C on Sep 20. Interpret results with caution.
Heat Event	Heat Event This trial experienced extreme heat conditions on the following dates throughout the flowering period: 33.4 °C on Sep 3, 33 °C on Sep 22, 33.2 °C on Sep 23, 33.1 °C on Sep 25, 32.3 °C on Sep 30, 32.2 °C on Oct 9, 32.7 °C on Oct 11, 34.8 °C on Oct 17, 33.5 °C on Oct 25, 36.2 °C on Oct 28, 37.3 °C on Oct 29. Interpret results with caution.

Note: No weather data was recorded for the canola due to a faulty tiny tag.

Cereals rainfall (mm) Data Source: DPIRD Weather Station

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
48.2	43.2	4.2	16.6	15.4	38.6	66.2	57.6	4	31.4	25.8	0

Canola rainfall (mm) Data Source: DPIRD Weather Station

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
91.8	27.2	0.2	11.4	0.4	51.2	111.8	86.4	7	38	1	0.4

Soil Testing

1- Cereals

Soil Classification Details	
Order	Chromosols Chromosols: soils with a strong texture contrast between the topsoil and subsoil. Subsoils are not strongly acid and are not sodic
Sub-Order	Brown
Identification Source	CSIRO SoilMapp

	Depth	Texture	Total Nitrogen	Phosphorous	P Test Type
	cm	1 sand, 2 sandy loam, 3 loam, 4 loamy clay, 5 clay	mg/kg	mg/kg	
15/03/2018	0-10	1.5	10	29	Colwell
15/03/2018	10-60	1.5	10	16	Colwell

	Organic Carbon	pH (water)	pH (CaCl2)	Conductivity (EC)	ESP
	%	pH	pH	dS/m	%
15/03/2018	1.1	6.4	5.3	0.???	Na
15/03/2018	0.9	5.9	5.0	0.???	1.1

2- Canola

Soil Classification Details	
Order	Chromosols Chromosols: soils with a strong texture contrast between the topsoil and subsoil. Subsoils are not strongly acid and are not sodic
Sub-Order	Dark Brown
Identification Source	CSIRO SoilMapp

	Depth	Texture	Total Nitrogen	Phosphorous	P Test Type
	cm	1 sand, 2 sandy loam, 3 loam, 4 loamy clay, 5 clay	mg/kg	mg/kg	
15/03/2018	0-10	1	52	46	Colwell
15/03/2018	10-60	1	24	22	Colwell

	Organic Carbon	pH (water)	pH (CaCl ₂)	Conductivity (EC)	ESP
	%	pH	pH	dS/m	%
15/03/2018	1.7	6.2	5.6	0	na
15/03/2018	1.3	5.8	5.2	0	na

Fertiliser Treatments

	N (Pre)	N (Post)	P
Decile 0	0	0	0
Decile 3	10	0	5
Decile 6	30	0	5
Play Season	30	20	5

Post emergent applications

- Cereals applied 20/07/2018
- Canola applied 13/07/2018

Results

1- WHEAT

Table 1: Crop Establishment (plants/m²) wheat

	Decile 0	Decile 3	Decile 6	Play Season	Means
Scepter	130	135	129	125	130
Trojan	123	126	134	111	124
Means	127	131	132	118	
	Significance (Variety) P= NS			l.s.d (P<0.05) = n.a	
	Significance (Decile) P= NS			l.s.d (P<0.05) = n.a	
	Significance (Variety*Decile) P= NS			l.s.d (P<0.05) = n.a	

Table 2: Crop emergence (0-9) wheat

	Decile 0	Decile 3	Decile 6	Play Season	Means
Scepter	8.7	9.0	9.0	9.0	9.0
Trojan	9.0	9.0	9.0	8.7	9.0
Means	8.8	9.0	9.0	8.8	
	Significance (Variety) P= NS			l.s.d (P<0.05) = n.a	
	Significance (Decile) P= NS			l.s.d (P<0.05) = n.a	
	Significance (Variety*Decile) P= NS			l.s.d (P<0.05) = n.a	

Table 3: Crop vigour (0-9) wheat

	Decile 0	Decile 3	Decile 6	Play Season	Means
Scepter	9.0	9.0	8.7	8.3	9.0
Trojan	7.3	8.0	8.3	8.3	8.0
Means	8.2	8.5	8.5	8.3	
	Significance (Variety) P= 0.009			l.s.d (P<0.05) = 0.5	
	Significance (Decile) P= NS			l.s.d (P<0.05) = n.a	
	Significance (Variety*Decile) P= NS			l.s.d (P<0.05) = n.a	

Table 4: Tiller count (number of tillers per main stem) wheat

	Decile 0	Decile 3	Decile 6	Play Season	Means
Scepter	1	1	1	1	1
Trojan	1	1	1	1	1
Means	1	1	1	1	
	Significance (Variety) P= NS			l.s.d (P<0.05) = n.a	
	Significance (Decile) P= NS			l.s.d (P<0.05) = n.a	
	Significance (Variety*Decile) P= NS			l.s.d (P<0.05) = n.a	

Table 5: NDVI reading wheat

	Decile 0	Decile 3	Decile 6	Play Season	Means
Scepter	0.40	0.48	0.51	0.61	0.50
Trojan	0.35	0.40	0.46	0.52	0.43
Means	0.38	0.44	0.48	0.56	
	Significance (Variety) P= <0.001			l.s.d (P<0.05) = 0.028	
	Significance (Decile) P= 0.04			l.s.d (P<0.05) = 0.04	
	Significance (Variety*Decile) P= NS			l.s.d (P<0.05) = n.a	

Table 6: Days to Z61 (start of flowering) wheat

	Decile 0	Decile 3	Decile 6	Play Season	Means
Scepter	267	266	265	265	266
Trojan	272	271	270	270	271
Means	270	269	267	267	
	Significance (Variety) P= <0.001			l.s.d (P<0.05) = 1.2	
	Significance (Decile) P= 0.032			l.s.d (P<0.05) = 1.5	
	Significance (Variety*Decile) P= NS			l.s.d (P<0.05) = n.a	

Table 7: Floret Sterility (%) wheat

	Decile 0	Decile 3	Decile 6	Play Season
Scepter	14.2	7.3	8.3	8.0
Trojan	7.6	11.1	11.1	9.5

Note: No statistical analysis can be completed as only one replicate was assessed.

Table 8: Yield (t/ha) wheat

	Decile 0	Decile 3	Decile 6	Play Season	Means
Scepter	2.72	3.20	3.47	4.02	3.35
Trojan	2.47	2.88	3.01	3.24	2.90
Means	2.60	3.04	3.24	3.63	
	Significance (Variety) P= <0.001			l.s.d (P<0.05) = 0.14	
	Significance (Decile) P= <0.001			l.s.d (P<0.05) = 0.2	
	Significance (Variety*Decile) P= NS			l.s.d (P<0.05) = n.a	

Table 9: Protein (%) wheat

	Decile 0	Decile 3	Decile 6	Play Season	Means
Scepter	7.2	7.1	7.8	8.8	8.0
Trojan	8.0	8.3	8.6	10.1	9.0
Means	7.6	7.7	8.2	9.5	
	Significance (Variety) P= <0.001			l.s.d (P<0.05) = 0.37	
	Significance (Decile) P= <0.001			l.s.d (P<0.05) = 0.52	
	Significance (Variety*Decile) P= NS			l.s.d (P<0.05) = n.a	

Table 10: Hectolitre Weight (kg/hL) wheat

	Decile 0	Decile 3	Decile 6	Play Season	Means
Scepter	82.0	81.9	82.8	83.6	82.6
Trojan	84.6	84.8	85.3	85.0	84.9
Means	83.3	83.3	84.0	84.3	
	Significance (Variety) P= <0.001			l.s.d (P<0.05) = 0.39	
	Significance (Decile) P= <0.001			l.s.d (P<0.05) = 0.55	
	Significance (Variety*Decile) P= 0.047			l.s.d (P<0.05) = 0.79	

Table 11: Screenings (%) wheat

	Decile 0	Decile 3	Decile 6	Play Season	Means
Scepter	1.3	1.0	1.0	0.9	1.0
Trojan	0.8	0.6	0.6	0.4	0.6
Means	1.1	0.8	0.8	0.7	
	Significance (Variety) P= <0.001			l.s.d (P<0.05) =	0.18
	Significance (Decile) P= 0.037			l.s.d (P<0.05) =	0.25
	Significance (Variety*Decile) P= NS			l.s.d (P<0.05) =	n.a

2- BARLEY

Table 6: Crop Establishment (plants/m²) barley

	Decile 0	Decile 3	Decile 6	Play Season	Means
LaTrobe	122	122	129	127	125
Bass	121	115	113	121	118
Means	122	119	121	124	
	Significance (Variety) P=0.005			l.s.d (P<0.05) =	4.6
	Significance (Decile) P=NS			l.s.d (P<0.05) =	n.a
	Significance (Variety*Decile) P=NS			l.s.d (P<0.05) =	n.a

Table 7: Crop emergence (0-9) barley

	Decile 0	Decile 3	Decile 6	Play Season	Means
LaTrobe	8.0	8.3	9.2	8.7	8.5
Bass	8.7	9.0	8.3	8.7	8.7
Means	8.3	8.7	8.7	8.7	
	Significance (Variety) P=NS			l.s.d (P<0.05) =	n.a
	Significance (Decile) P=NS			l.s.d (P<0.05) =	n.a
	Significance (Variety*Decile) P=NS			l.s.d (P<0.05) =	n.a

Table 8: Crop vigour (0-9) barley

	Decile 0	Decile 3	Decile 6	Play Season	Means
LaTrobe	8.0	8.7	9.0	9.0	8.7
Bass	8.3	9.0	8.7	9.0	8.8
Means	8.2	8.8	8.8	9.0	
	Significance (Variety) P=NS			l.s.d (P<0.05) =	n.a
	Significance (Decile) P=0.005			l.s.d (P<0.05) =	0.4
	Significance (Variety*Decile) P=NS			l.s.d (P<0.05) =	n.a

Table 9: Tiller count (number of tillers per main stem) barley

	Decile 0	Decile 3	Decile 6	Play Season	Means
LaTrobe	2	2	2	2	2
Bass	3	4	3	3	3
Means	2	3	3	3	
	Significance (Variety) P <0.001			l.s.d (P<0.05) =	0.3
	Significance (Decile) P=NS			l.s.d (P<0.05) =	n.a
	Significance (Variety*Decile) P=NS			l.s.d (P<0.05) =	n.a

Table 10: NDVI reading barley

	Decile 0	Decile 3	Decile 6	Play Season	Means
LaTrobe	0.39	0.49	0.58	0.57	0.51
Bass	0.55	0.60	0.63	0.70	0.62
Means	0.47	0.55	0.60	0.64	
	Significance (Variety) P <0.001			l.s.d (P<0.05) =	0.033
	Significance (Decile) P <0.001			l.s.d (P<0.05) =	0.047
	Significance (Variety*Decile) P=NS			l.s.d (P<0.05) =	n.a

Table 6: Days to Z61 (start of flowering) barley

	Decile 0	Decile 3	Decile 6	Play Season	Means
LaTrobe	256	254	254	253	254
Bass	258	258	258	258	258
Means	257	256	256	256	
	Significance (Variety) P <0.001			l.s.d (P<0.05) =	1.1
	Significance (Decile) P=NS			l.s.d (P<0.05) =	n.a
	Significance (Variety*Decile) P=NS			l.s.d (P<0.05) =	n.a

Table 8: Yield (t/ha) barley

	Decile 0	Decile 3	Decile 6	Play Season	Means
LaTrobe	3.74	3.57	3.42	3.74	3.62
Bass	3.43	3.58	3.58	3.60	3.55
Means	3.58	3.58	3.50	3.67	
	Significance (Variety) P=NS			l.s.d (P<0.05) =	n.a
	Significance (Decile) P=NS			l.s.d (P<0.05) =	n.a
	Significance (Variety*Decile) P=NS			l.s.d (P<0.05) =	n.a

Table 9: Protein (%) barley

	Decile 0	Decile 3	Decile 6	Play Season	Means
LaTrobe	7.6	7.6	8.5	9.0	8.2
Bass	8.0	8.2	8.9	9.6	8.7
Means	7.8	7.9	8.7	9.3	
	Significance (Variety) P=0.006			l.s.d (P<0.05) =	0.35
	Significance (Decile) P <0.001			l.s.d (P<0.05) =	0.49
	Significance (Variety*Decile) P=NS			l.s.d (P<0.05) =	n.a

Table 10: Colour (%) barley

	Decile 0	Decile 3	Decile 6	Play Season	Means
LaTrobe	64.1	64.5	63.7	63.4	63.9
Bass	65.3	64.8	64.3	64.2	64.7
Means	64.7	64.6	64.0	63.8	
	Significance (Variety) P <0.001			l.s.d (P<0.05) =	0.34
	Significance (Decile) P=0.003			l.s.d (P<0.05) =	0.49
	Significance (Variety*Decile) P=NS			l.s.d (P<0.05) =	n.a

Table 11: Hectolitre weight (kg/hL) barley

	Decile 0	Decile 3	Decile 6	Play Season	Means
LaTrobe	71.3	71.4	71.7	71.3	71.5
Bass	70.3	70.7	70.7	71.1	70.7
Means	70.8	71.1	71.2	71.2	
	Significance (Variety) P <0.001			l.s.d (P<0.05) =	0.296
	Significance (Decile) P=NS			l.s.d (P<0.05) =	n.a
	Significance (Variety*Decile) P=NS			l.s.d (P<0.05) =	n.a

Table 12: <2.2 screenings (%) barley

	Decile 0	Decile 3	Decile 6	Play Season	Means
LaTrobe	1.9	2.0	2.3	2.2	2.1
Bass	0.8	0.9	0.7	0.7	0.8
Means	1.3	1.5	1.5	1.4	
	Significance (Variety) P=			l.s.d (P<0.05) =	n.a
	Significance (Decile) P=			l.s.d (P<0.05) =	n.a
	Significance (Variety*Decile) P=			l.s.d (P<0.05) =	n.a

Table 13: 2.2-2.5 screenings (%) barley

	Decile 0	Decile 3	Decile 6	Play Season	Means
LaTrobe	6.8	9.5	10.6	12.7	9.9
Bass	2.9	3.2	2.6	4.6	3.3
Means	4.8	6.3	6.6	8.7	
	Significance (Variety) P < 0.001			l.s.d (P<0.05) =	2.93
	Significance (Decile) P=NS			l.s.d (P<0.05) =	n.a
	Significance (Variety*Decile) P=NS			l.s.d (P<0.05) =	n.a

Table 14: Plump grain (%) barley

	Decile 0	Decile 3	Decile 6	Play Season	Means
LaTrobe	91.4	88.5	87.1	85.1	88.0
Bass	96.3	95.9	96.7	94.7	95.9
Means	93.9	92.2	91.9	89.9	
	Significance (Variety) P < 0.001			l.s.d (P<0.05) =	3.244
	Significance (Decile) P=NS			l.s.d (P<0.05) =	n.a
	Significance (Variety*Decile) P=NS			l.s.d (P<0.05) =	n.a

3- CANOLA

Table 11: Crop Establishment (plants/m²) canola

	Decile 0	Decile 3	Decile 6	Play Season	Means
Hyola 559	47	50	43	47	47
InVigor T4510	51	45	44	44	46
Means	49	48	44	45	
	Significance (Variety) P= NS			l.s.d (P<0.05) =	n.a
	Significance (Decile) P= NS			l.s.d (P<0.05) =	n.a
	Significance (Variety*Decile) P= NS			l.s.d (P<0.05) =	n.a

Table 12: Crop emergence (0-9) canola

	Decile 0	Decile 3	Decile 6	Play Season	Means
Hyola 559	9.0	9.0	8.0	8.7	8.7
InVigor T4510	9.0	8.3	8.3	7.3	8.3
Means	9.0	8.7	8.2	8.0	
	Significance (Variety) P= NS			l.s.d (P<0.05) =	n.a
	Significance (Decile) P= NS			l.s.d (P<0.05) =	n.a
	Significance (Variety*Decile) P= NS			l.s.d (P<0.05) =	n.a

Table 13: Crop vigour (0-9) canola

	Decile 0	Decile 3	Decile 6	Play Season	Means
Hyola 559	7.3	8.7	8.7	9.0	8.0
InVigor T4510	7.0	7.7	8.7	9.0	8.0
Means	7.2	8.2	8.7	9.0	
	Significance (Variety) P= NS			l.s.d (P<0.05) =	n.a
	Significance (Decile) P <0.001			l.s.d (P<0.05) =	0.6
	Significance (Variety*Decile) P= NS			l.s.d (P<0.05) =	n.a

Table 4: NDVI reading canola

	Decile 0	Decile 3	Decile 6	Play Season	Means
Hyola 559	0.55	0.60	0.62	0.70	0.62
InVigor T4510	0.58	0.59	0.57	0.65	0.60
Means	0.56	0.60	0.60	0.68	
	Significance (Variety) P= NS			l.s.d (P<0.05) =	n.a
	Significance (Decile) P= 0.001			l.s.d (P<0.05) =	0.047
	Significance (Variety*Decile) P= NS			l.s.d (P<0.05) =	n.a

Table 5: Days to 50% flowering canola

	Decile 0	Decile 3	Decile 6	Play Season	Means
Hyola 559	236	230	232	232	232
InVigor T4510	236	232	230	231	232
Means	236	231	231	231	
	Significance (Variety) P= NS			l.s.d (P<0.05) =	n.a
	Significance (Decile) P <0.001			l.s.d (P<0.05) =	1.9
	Significance (Variety*Decile) P= NS			l.s.d (P<0.05) =	n.a

Table 6: Yield (t/ha) canola

	Decile 0	Decile 3	Decile 6	Play Season	Means
Hyola 559	2.61	3.09	3.22	3.41	3.08
InVigor T4510	2.85	2.93	3.19	3.23	3.05
Means	2.73	3.01	3.21	3.20	
	Significance (Variety) P= NS			l.s.d (P<0.05) =	n.a
	Significance (Decile) P <0.001			l.s.d (P<0.05) =	0.206
	Significance (Variety*Decile) P= NS			l.s.d (P<0.05) =	n.a

Table 7: Protein (%) canola

	Decile 0	Decile 3	Decile 6	Play Season	Means
Hyola 559	19.6	19.3	19.7	19.4	19.5
InVigor T4510	19.0	18.5	19.3	19.4	19.1
Means	19.3	18.9	19.5	19.4	
	Significance (Variety) P= 0.003			l.s.d (P<0.05) =	0.28
	Significance (Decile) P= 0.039			l.s.d (P<0.05) =	0.39
	Significance (Variety*Decile) P= NS			l.s.d (P<0.05) =	n.a

Table 8: Oil canola

	Decile 0	Decile 3	Decile 6	Play Season	Means
Hyola 559	49.30	49.73	49.37	49.40	49.45
InVigor T4510	48.77	49.17	48.47	48.23	48.66
Means	49.03	49.45	48.92	48.82	
	Significance (Variety) P < 0.001			l.s.d (P < 0.05) =	0.34
	Significance (Decile) P = NS			l.s.d (P < 0.05) =	n.a
	Significance (Variety*Decile) P = NS			l.s.d (P < 0.05) =	n.a