

L2 Sowing Time, MRZ Wimmera (Pimpinio), Victoria

Aim

To investigate the adaptability of a range of lentil varieties to varying sowing dates.

Treatments

Varieties: Red types - Nipper, Nugget, PBA Blitz, PBA Flash, PBA Jumbo, PBA Bolt, PBA Ace (Curyo), PBA Ace (Horsham), CIPAL0901, CIPAL1301, CIPAL1405, PBA HurricaneXT, PBA Jumbo2, Green Types – Boomer, PBA Greenfield, PBA Giant.

Sowing dates: 13 May (Early), 18 June (Mid).

Other Details

Row Spacing: 30cm

Stubble: Standing (approx. 30cm tall), sown inter-row

Fertiliser: MAP + Zn @ 80 kg/ha at sowing

Plant Density: 120 plants/m²

Soil Type: Alkaline Black cracking clay (Table 1.)

Figure 1. Soil characterisation at Pimpinio 2014

Depth (cm)	P (mg/kg)	K (mg/kg)	OC (%)	EC (dS/m)	pH (CaCl ₂)	pH (H ₂ O)	B (mg/kg)	CaCO ₃ (%)
0-10	22	846	1.22	0.18	7.5	8.4	2.7	2.7
10-20	10	579	0.77	0.22	7.6	8.6	4.5	4.6
20-40	6	445		0.24	7.6	8.7	6.7	6.8
40-60	5	462		0.35	7.7	9.0	12.9	5.8
60-100	5	511		0.49	7.8	9.0	20.3	6.5

Results and Interpretation

- Key Message: Yields were generally too low to draw specific conclusions about varieties and the interactions with sowing date. Despite the severe weather conditions during spring, most treatments would have produced yields that would have resulted in greater than break even economic.
- Plant establishment – Similar to Curyo, due to the early rainfall, emergence for both sowing dates occurred within 2 weeks of the respective sowing date. Establishment ranged between 80 and 110 plants/m² (data not shown). The May 13 sowing date generally displayed higher establishment than June 18.
- Plant Growth and Disease – Early plant growth was excellent due to the early rainfall and mild temperatures in late autumn and early winter. These conditions were also conducive to early Ascochyta blight development, particularly in treatments sown May 13. There were significant differences in Ascochyta infection observed, with PBA Flash severely affected and PBA Ace, PBA Jumbo2 and CIPAL1301 with only minor symptoms (Table 1). PBA Blitz and PBA Greenfield were more severely affected than previously observed relative to other varieties. Despite the early incursion of Ascochyta Blight, symptoms did not progress throughout spring due to the extremely dry conditions. Growth also slowed during this period and the dry conditions combined with many frosts caused significant flower and pod abortion during the reproductive phase.
- Grain Yield, Profitability and Grain Weight – The extremely dry spring with frosty conditions resulted in low grain yields ranging from 0.2 and 0.5 t/ha (Table 1). Overall there was no difference in the yields of treatments sown May 13 compared with June 18, however there was a significant interaction with variety. For example, PBA Giant sown May 13 had yield 0.27 t/ha less than sown June 18, while PBA HurricaneXT had yield 0.14t/h higher sown May 13 compared with June 18 (Table 1). Overall PBA Ace from the Curyo 2013 seed source had the highest yields, while Boomer was lowest. It was notable that all of the green varieties tended to have lower yields in this trial.

While yields were low, based on 2014 harvest prices a yield of 0.3 t/ha could have broken even economically and yields of 0.5t/ha resulted in profits of approximately \$200/ha.

Unlike Curryo, grain weights were generally lower for most varieties and quality acceptable (Table 1). There was generally an increase in seed weight at the later sowing date.

Table 1. Grain yield (t/ha) and grain weight (g/100seed) of lentil varieties sown 13 May and 18 June and Ascochyta blight score (0 – no disease; 100 – complete death; recorded Aug 26) sown 13 May at Pimpinio in 2014.

Sowing Time	Grain Yield			AB Score	Grain Weight		
	13 May	18 June	AveGY		13 May	18 June	Ave
PBA Ace (Curryo)	0.47	0.49	0.48	5	3.60	4.09	3.84
CIPAL1301	0.53	0.41	0.47	5	3.68	4.40	4.04
Nipper	0.46	0.46	0.46	27	2.86	3.27	3.07
PBA HurricaneXT	0.51	0.37	0.44	10	2.96	3.43	3.20
CIPAL0901	0.49	0.38	0.43	17	3.68	4.66	4.17
Nugget	0.36	0.51	0.43	23	3.54	4.12	3.83
PBA Flash	0.38	0.48	0.43	70	4.05	4.48	4.26
CIPAL1405	0.43	0.42	0.43	20	4.14	4.32	4.23
PBA Bolt	0.45	0.36	0.41	15	3.29	4.13	3.71
PBA Jumbo	0.35	0.41	0.38	28	4.23	4.87	4.55
PBA Ace (Horsham)	0.34	0.42	0.38	5	3.20	4.04	3.62
PBA Jumbo2	0.43	0.32	0.38	5	4.40	5.16	4.78
PBA Giant	0.18	0.45	0.32	17	5.54	6.46	6.00
PBA Blitz	0.29	0.33	0.31	28	4.82	4.98	4.90
PBA Greenfield	0.27	0.34	0.30	30	4.49	5.41	4.95
Boomer	0.24	0.32	0.28	13	5.44	6.52	5.98
Average	0.39	0.40	0.40	20	3.99	4.65	4.32

Lsd summary for each measurement

Measure	Sow Date	Sow Date x Variety		
		Variety	within sow date	
Grain Yield	NS	0.11	0.18	0.15
AB Score		7		
Grain Weight	NS	0.36	NS	NS

Key Findings and Comments

- Yields were generally too low to draw specific conclusions about varieties and the interactions with sowing date. Despite the severe weather conditions during spring, most treatments would have produced yields that would have resulted in greater than break even economic returns.
- PBA Blitz and PBA Greenfield were more severely affected by ascochyta blight than previously observed relative to other varieties. This has resulted in a drop in their disease ratings relative to other varieties.