

## **L7 Sowing Time, LRZ Southern Mallee (Curyo), Victoria**

### **Aim**

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

### **Treatments**

- Varieties: Boomer, Nipper, Northfield, Nugget, PBA Blitz, PBA Flash, PBA Jumbo, PBA HeraldXT, PBA Bolt, PBA Ace, CIPAL0901, CIPAL1101.
- Variety Mixes: PBA Flash:Nipper, PBA Flash:Nugget, PBA Flash:PBABlitz, PBA Flash:CIPAL0901. All sown with a 50:50 ratio based on targeted plants/m<sup>2</sup>.
- Sowing dates: 4 May (Early), 5 June (Mid), 26 June (Late).

### **Other Details**

- Row Spacings/Stubble: 30 cm row spacing, inter-row, standing stubble.
- Fertiliser: MAP + Zn @ 60 kg/ha at sowing.
- Plant Density: 120 plants/m<sup>2</sup>.

### **Results and Interpretation**

- Key Message: When sown early, grain yields of PBA Ace were significantly greater than all released varieties except Nugget. Earlier maturing varieties like PBA Flash, CIPAL0901 and PBA Blitz, generally have less yield decline at the later sowing dates, but this did not result in higher yields than PBA Ace at the later dates.
- Plant establishment – Emergence for the early sowing date was delayed due to a dry period during May and growth throughout the season was generally slow for all sowing dates. Establishment for all lentil varieties was below targets in 2012. Generally densities ranged between 60 and 100 plants/m<sup>2</sup> (data not shown).
- Pod Drop and Shattering – A moderate level of pod drop and shattering was observed at maturity in the lentils at Curyo in 2012. Generally, pod drop and shattering was worst in the earlier sown plots and at very low levels in the later sown plots (Data not shown). Among the varieties Nipper, PBA Blitz, PBA Flash and Nugget had the lowest level of pod drop and Boomer highest (Table L7.1). Boomer was the only variety to show a significant level of pod shattering.

Table L7.1. Pod drop and Shattering scores (1 = no pod loss or shattering; 9 complete pod loss and shattering) of lentil varieties sown May 4 and variety mixes at Curyo in 2012.

<b>Variety / Variety mix</b>	<b>Pod Drop</b>	<b>Shattering</b>
Boomer	3.3	5.3
PBA Ace	3.3	1.3
CIPAL0901	3.3	1.0
CIPAL1101	3.3	1.0
Northfield	3.3	1.3
PBA HeraldXT	3.3	1.7
PBA Bolt	3.0	1.3
PBA Flash:CIPAL0901	3.0	1.0
PBA Flash:Nipper	3.0	1.0
PBA Jumbo	3.0	1.0
PBA Flash:Nugget	2.7	1.0
Nugget	2.3	1.0
PBA Blitz	2.3	1.3
PBA Flash:PBA Blitz	2.3	1.3
PBA Flash	2.0	1.0
Nipper	1.7	2.0

lsd(P<0.05)pod drop = 0.5; lsd(P<0.05)shattering = 0.19.

- **Grain Yield** – Despite the relatively low biomass production at all sowing dates, grain yields were excellent, ranging between 1.4 and 2.6 t/ha (Table L7.2). For all varieties and variety mixes the May 4 sowing date had the highest yield and the June 22 sowing date the lowest yield. However, there was a significant interaction between sowing date and variety, meaning that the relative yield of varieties and mixes across sowing dates differed. In the May 4 sowing date, PBA Ace and PBA Bolt were the highest yielding varieties producing 2.6 and 2.5 t/ha, respectively. PBA Blitz was lowest with 1.9 t/ha. At the June 5 sowing date, the yield of PBA Ace and PBA Bolt dropped by 20% compared with the May 5 sowing, however varieties such as PBA Flash and CIPAL0901 (and the mixes containing these varieties) dropped by only 5-10% (Table L7.2). This meant that, while PBA Ace was significantly higher yield than PBA Flash and CIPAL0901 at the May 5 sowing date, at the June 6 sowing date, PBA Flash and CIPAL0901 were slightly higher yielding (not statistically different) than PBA Ace. Similar trends occurred at the June 22 sowing date (Table L7.2). PBA Blitz, which is a relatively early flowering, lower biomass variety, released for adaption to shorter seasons and the practise of crop-topping was generally one of the lower yielding varieties at all sowing dates.

Table L7.2. The effect of sowing date on grain yield (t/ha) of lentil varieties and variety mixes at Curyo in 2012.

Variety / Variety mix	4 May	27 May	22 June	Average
PBA Ace	2.62	2.06	1.73	2.13
PBA Bolt	2.50	1.95	1.77	2.07
CIPAL1101	2.39	1.83	1.70	1.97
Nugget	2.37	1.94	1.54	1.95
PBAFlash:CIPAL0901	2.30	2.16	1.64	2.03
CIPAL0901	2.26	2.07	1.76	2.03
PBA Flash	2.26	2.13	1.70	2.03
PBA Flash:Nugget	2.26	2.12	1.63	2.00
Northfield	2.24	1.84	1.53	1.87
PBA Jumbo	2.22	1.99	1.35	1.85
PBA Flash:Nipper	2.14	1.67	1.60	1.80
Boomer	2.13	1.83	1.72	1.89
Nipper	2.10	1.80	1.36	1.75
PBA Flash:PBA Blitz	2.07	1.86	1.64	1.86
PBA HeraldXT	2.00	1.48	1.40	1.63
PBA Blitz	1.94	1.73	1.51	1.73
Average	2.24	1.90	1.60	1.91

lsd(P<0.05)SDxVar = NS; lsd(P<0.05)SD = 0.21; lsd(P<0.05)Var = 0.19.

### Key Findings and Comments

These results confirm that the two newly released varieties PBA Ace and PBA Bolt have excellent yield potential in the Mallee. When early sown in 2012, grain yields of PBA Ace were significantly greater than all released varieties except Nugget. Despite the season being significantly drier than average, a mild spring was experienced, meaning that higher biomass and mid maturing varieties, like PBA Ace, were likely to be favoured. This also explains why early maturing, more determinate varieties like PBA Blitz were lower yielding in this season.

Similar to previous trials in the southern Mallee, earlier sowing is either highest or equal highest yielding. In most instances delaying sowing into June will result in yield declines. This trial showed that the earlier maturing varieties like PBA Flash, CIPAL0901 and PBA Blitz, generally have less yield decline at the later sowing dates, meaning that yields were similar too or higher than PBA Ace and PBA Bolt at the later dates. Where possible, it may be desirable for producers to grow two varieties to further minimise production risks. A mid maturing type such as PBA Ace sown early, will maximise grain yield in 'normal' or 'mild' seasons, while an earlier maturing erect variety such

as PBA Bolt or PBA Flash will continue to produce excellent yields in 'shorter' seasons with more extreme events though flowering and podding.