

## **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: Aldinga, Boomer, Nipper, Northfield, Nugget, PBA Blitz, PBA Flash, PBA Jumbo, CIPAL0801, CIPAL0802, CIPAL0803, CIPAL0901.  
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), 27 May (Mid), 22 June (Late).

### **Other Details**

Row Spacings/Stubble: 30 cm row spacing, inter-row, standing stubble.  
Fertiliser: MAP + Zn @ 40 kg/ha at sowing.  
Plant Density: 120 plants/m<sup>2</sup>.

### **Results and Interpretation**

- Key Message: Earlier sowing in the Mallee is crucial to maximising grain yield in lentils. If sowing is delayed it is important to carefully select the variety to grow. Early maturing types like CIPAL0901 and early to mid vigorous growing types like CIPAL0803, appear to have better adaption to delayed sowing in this trial.
- Plant establishment – Establishment for all lentil varieties was poor in 2011, primarily due to a mouse plague. Generally densities ranged between 50 and 90 plants/m<sup>2</sup> (data not shown).
- Mouse Damage – Significant mouse damage was observed across the trial and each plot was scored for damage on a percentage scale. Mouse damage was used as a covariate in the grain yield analysis.

**Table L7.1.** The effect of the interaction between sowing date and lentil variety grain yield (t/ha) at Curyo in 2011.

| <b>Variety / Variety mix</b> | <b>4 May</b> | <b>27 May</b> | <b>22 June</b> | <b>Average</b> |
|------------------------------|--------------|---------------|----------------|----------------|
| PBAFlash:Nugget              | 2.61         | 2.46          | 1.89           | 2.32           |
| PBAFlash:CIPAL0901           | 2.49         | 2.39          | 2.02           | 2.30           |
| CIPAL0803                    | 2.18         | 2.61          | 2.08           | 2.29           |
| CIPAL0801                    | 2.41         | 2.46          | 1.78           | 2.22           |
| Nugget                       | 2.26         | 2.67          | 1.70           | 2.21           |
| PBAFlash                     | 2.50         | 2.34          | 1.73           | 2.19           |
| PBAFlash:PBABlitz            | 2.36         | 2.26          | 1.80           | 2.14           |
| CIPAL0901                    | 1.95         | 2.40          | 2.04           | 2.13           |
| PBAFlash:Nipper              | 2.23         | 2.06          | 2.02           | 2.10           |
| Boomer                       | 1.98         | 2.46          | 1.79           | 2.08           |
| CIPAL0802                    | 2.20         | 2.32          | 1.69           | 2.07           |
| PBABlitz                     | 2.04         | 2.35          | 1.72           | 2.03           |
| Aldinga                      | 2.21         | 2.12          | 1.71           | 2.01           |
| Nipper                       | 2.31         | 2.10          | 1.62           | 2.01           |
| PBAJumbo                     | 1.78         | 2.24          | 1.69           | 1.90           |
| Northfield                   | 2.18         | 2.10          | 1.37           | 1.88           |
| <i>Average</i>               | 2.23         | 2.33          | 1.79           | 2.12           |

lsd(P<0.05)SDxVar = NS; lsd(P<0.10)SD = 0.44; lsd(P<0.05)Var = 0.26.

- Grain Yield – Grain yields were excellent, despite the poor establishment, ranging between 1.4 and 2.7 t/ha (Table L7.1). Due to the variability in the trial there was no interaction between sowing date and variety, however the main effects were significant. Generally, the June 22 sowing date resulted in lowest yield, while there was no difference between the May 4 and May

27 sowing dates. The two variety mixes (PBAFlash:Nugget and PBA Flash:CIPAL0901) had the highest average grain yields across the 3 sowing dates, followed by the new lines CIPAL0803 and CIPAL0801. Northfield, PBA Jumbo, Nipper and Aldinga had the lowest grain yields. We also calculated the proportion of each variety in the variety mixes. PBA Flash was between 40 and 50% of the mix with all other varieties. It had the highest proportion when grown with Nipper and at the later sowing dates.

- Grain Weight – Grain weight was reduced by approximated 5% at both of the later sowing dates.

**Table L7.2.** The main effect of sowing date on grain weight (g/100seed) in lentils at Curyo in 2011.

| Sowing Date | Grain weight |
|-------------|--------------|
| 4 May       | 4.73         |
| 22 June     | 4.56         |
| 27 May      | 4.49         |

lsd( $P < 0.05$ )SD = 0.05

### Key Findings and Comments

Due to extreme rainfall events during the summer of 2010/11, the soil profile was at field capacity at sowing in 2011. Early growth at Curyo was restricted due to a dry period during May and June, however this does not appear to have had any significant impact on grain yield. Unfortunately, the mouse plague at sowing had a significant impact on establishment, despite multiple applications of mouse bait (ie. the site was baited 6 times from late April through to the end of June). Fortunately, due to mild temperatures and sufficient rainfall during the main growth periods excellent grain yields were achieved. The results again highlighted that earlier sowing in the Mallee is crucial to maximising grain yield in lentils. However the results also indicate that if sowing is delayed it is important to carefully select the variety to grow. Early maturing types like CIPAL0901 and early to mid maturing, vigorous growing types like CIPAL0803, appear to have better adaption to delayed sowing in this trial. This may also be indicative of the yield stability of these varieties. In this trial, generally the later maturing and older varieties, such as Aldinga, Nipper and Northfield were lowest yielding, demonstrating the advances that have been made in new lentil varieties more recently.

The variety mixes were grown this year to assess whether yield stability could be improved by mixing different types of lentils together, which contain differentiating traits for maturity, and disease resistance. Interestingly, the two mixes PBAFlash:Nugget and PBA Flash:CIPAL0901 had the highest average grain yields and were relatively highly ranked at each sowing date. Further work will occur in 2012 to further investigate these responses.