Lentil, Germplasm, HRZ North East (Dookie), Victoria

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Aim

To investigate the adaptability of a range of lentil varieties and breeding lines, specifically on the more acidic soils of the Dookie region.

Treatments

Varieties: See Table 2 below.

Table 1. Site Details

	Dookie
Sowing Date	29 April
Stubble height (cm)	30
Row Spacing (cm)	22.5
Fertiliser (kg/ha)[1]	50

1. MAP (9.2, 20.2, 0, 2.7)

All varieties were planted at 120 seeds/m^2. Treflan was used as a pre-emergent herbicide and clethodim was used as a post-emergent herbicide.

Results and Interpretation

- Key Messages: This trial was sown to showcase the growers, the viability of growing lentils in the region and evaluate varietal performance in the local conditions at Dookie 2019.
  Older varieties like PBA Jumbo and PBA Jumbo2 were the top yielding varieties in a region where lentils are not traditionally grown. Yields were very good (1.21-1.97 t/ha), considering the very dry finish at Dookie.

- Disease: Percentage of leaf area infected by diseases were scored on the 10th of September. Overall, disease levels were low where the breeding line CIPAL1801 had the highest affected leaf area (4.7%). These low scores, like the chickpeas, could be due to a combination of low rainfall in the spring but also due to low background levels of the disease in the region where lentils aren't a traditionally grown in the north east of Victoria (Table 1).

- Thousand Seed Weight (TSW): The average TSW was consistent with market classes for each of the varieties. (Table 1 and Figure 1).

- Grain Yield and Harvest Index: PBA Jumbo, PBA Jumbo2, CIPAL1801, PBA Flash, PBA Bolt and CIPAL1721 yielded well ranging between 1.80 and 1.97 t/ha.
  Harvest index decreased with yield across all varieties. This outlines the fact that the better yielding varieties were able to convert the winter biomass into grain. These factors combined with a mild spring with few frost events meant very good yields across the trial.

- Conclusion: Lentils can do very well, despite seasonal factors, in north east Victoria. Vigorous growth through winter combined with very low background disease levels, shows that even in dry conditions lentils are a viable option for growers in the region if prices and rotations are favourable. Waterlogging could be a significant issue in wetter seasons. In low pressure situations PBA Jumbo and PBA Jumbo2 performed the best.

Table 1. Disease scores on 10 September, harvest index, thousand seed weight, and grain yield (t/ha) of lentils at Dookie in 2019.

Variety	Disease (% LAI)	TSW (g/ 1000 seeds)	Harvest Index (%)	Grain Yield (t/ha)
PBA Jumbo	2.0	45	37	1.97
PBA Jumbo2	2.3	49	42	1.96
CIPAL1801	4.7	38	42	1.89
PBA Flash	3.7	44	35	1.85
PBA Bolt	2.3	41	32	1.81
CIPAL1721	2.3	42	38	1.80
PBA Hallmark XT	1.7	35	37	1.60
PBA Greenfield	1.3	48	30	1.47
CIPAL1504	1.3	39	26	1.42
PBA Hurricane XT	1.7	33	29	1.38
PBA Ace	2.0	42	30	1.37
PBA Giant	1.3	58	22	1.21
LSD (P<0.05)	1.8	3	10	0.41

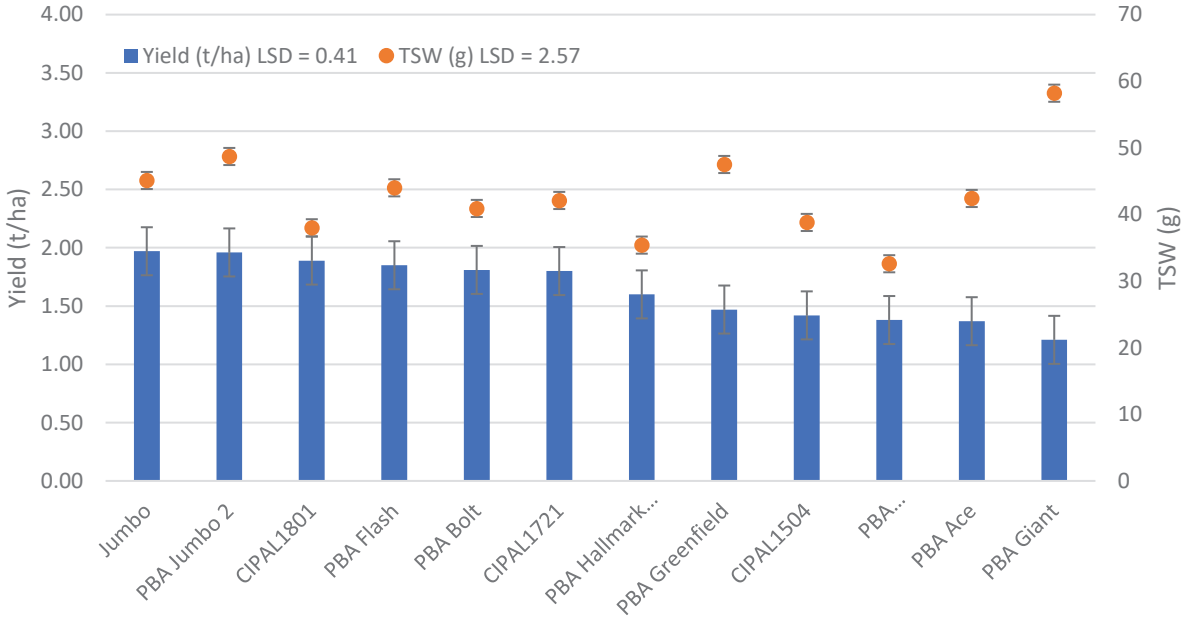

Figure 3. Grain Yield (t/ha) and thousand seed weights (TSW) of lentil varieties at Dookie 2019. Error bars are a measure of LSD.

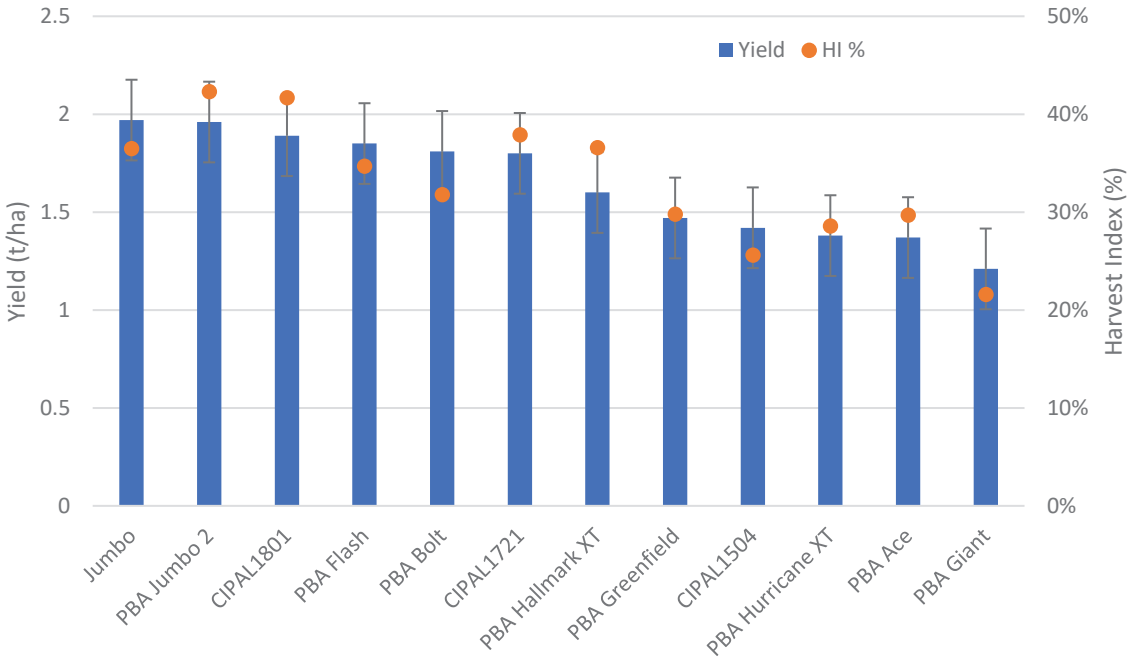

Figure 3. Grain Yield (t/ha) and harvest index (%) of lentil varieties at Dookie 2019. Error bars area measure of LSD. LSD Yield = 0.41: LSD HI = 0.103.