

L11 Lentil Crop-topping, MRZ Yorke Peninsula (Melton), South Australia

Aim

To assess the agronomic practice of 'crop topping' at multiple application timings on grain yield and grain weight of lentil varieties varying in plant maturity.

Treatments

Varieties: see Table 1.
Treatments: see Table 1 for crop topping application timing and dates
Nil - no desiccant applied
Early - applied approximately two weeks prior to the ryegrass milky dough stage
Mid/Recommended - applied at the ryegrass milky dough stage
NB: A late treatment was not applied in 2014 due to the dry and rapid finish to the season.

Other Details

Sowing date: 29th May
Fertiliser: MAP + Zn (2%) @ 90 kg/ha at sowing
Seed Treatment: P-Pickel T (200ml/100kg seed)
Foliar Fungicides: Canopy Closure –Carbendazim @500 ml/ha, Chlorothalonil @2 L/ha
Mid flowering to Early Podding – Carbendazim @500 ml/ha, Chlorothalonil @ 2 L/ha
Plant Density: 120 plants/m²
Soil Type: sandy clay loam over light clay

Results and Interpretation

Grain yield

- A significant treatment effect was found for grain yield. Grain yields were high and averaged 3.01 t/ha across the trial.
- All varieties showed a yield penalty from crop-topping eight days prior to the recommended timing (ryegrass milky dough stage), averaging a 21% yield loss for all varieties compared to the nil treatment. PBA Ace showed the highest yield loss at this application timing.
- Mid to late maturing varieties PBA Hurricane XT, CIPAL1423, CIPAL1422 and mid maturing variety (CIPAL1404) were the only varieties to show a yield loss at the recommended crop-top timing (highlighted in Table 1).

Grain weight

- All varieties showed a reduced grain weight from crop topping eight days prior to the recommended timing, averaging a 13% loss in grain weight.
- Crop topping at the recommended time had no effect on grain weight in any variety.

Key findings and comments

- Most varieties yielded did not incur yield loss from crop topping at the recommended timing indicating that they were well suited to crop topping at the recommended timing for rye grass control in 2014 where the season finished rapidly due to dry conditions.
- As found in previous seasons there is not always a direct correlation between variety flowering and maturity timing and yield loss due to crop-topping.
- The four varieties that incurred yield loss at the recommended crop top timing in 2014 were rated as mid to late maturing as were a number of other varieties which did not incur yield loss in 2014. Further assessment of these varieties and other mid to late maturing varieties under seasonal conditions with more favourable finishes is required.

Table 1: Effect of crop-top timing on grain yield and grain weight of lentil varieties at Melton, South Australia 2014. Varieties are ranked in order according to their visual maturity rating from earliest to latest (E = Early, M = Mid, L = Late).

Treatment	Maturity Profile		Yield (t/ha)	Yield (% of Nil)		Grain Wt. (g/100)	Grain Weight (% of Nil)	
	Flower Timing	Maturity Timing		Nil	- 2 wks (15/10)		Recommended (23/10)	Nil
PBA Blitz	E-M	E	2.97	75	95	4.8	89	100
CIPAL1401	M	E	3.33	75	101	3.9	89	101
CIPAL1403	M	M	3.15	77	96	3.6	86	102
CIPAL1402	M	M	3.12	72	98	3.3	86	99
CIPAL1301	M	M	3.23	73	101	4.0	87	101
CIPAL1421	E-M	M	2.90	73	103	5.1	86	100
PBA Jumbo2	M-L	M	3.43	73	100	4.5	90	104
CIPAL1404	M-L	M	3.05	76	84	4.1	87	103
CIPAL1405	M-L	M-L	3.03	66	99	4.2	81	103
PBA Jumbo	M	M-L	2.68	74	107	4.5	81	102
PBA Hurricane XT	M-L	M-L	3.07	70	88	3.4	88	102
PBA Ace	M	M-L	3.04	54	90	4.4	83	98
CIPAL1423	E-M	M-L	2.71	73	88	3.8	86	100
CIPAL1422	M	M-L	3.18	65	85	4.1	86	99
Boomer	E-M	M-L	2.47	71	96	5.7	93	104
CIPAL1207	E-M	M-L	2.83	73	99	6.2	93	103
CIPAL1104	M	M-L	3.08	64	98	5.1	86	99
Mean			3.01	71	96	4.4	87	101

LSD ($P < 0.05$) Treatment 0.200 (grain yield)

NB: shading indicates a significant difference from the nil treatment.