

C12. Crop-topping/Desiccation, MRZ Yorke Peninsula (Melton), South Australia

Aim

To determine the correct maturity timing required in chickpea for successful crop topping practice.

Treatments

Varieties: see Table 1
Sowing date: 4 June
Treatments: see tables for dates
Nil - no desiccant applied
Early Crop-top - applied 7-14 days pre ryegrass milky dough stage
Mid Crop-top - applied at ryegrass milky dough stage ("Recommended")
Late Crop-top - applied 7-14 days post ryegrass milky dough stage
Fertiliser: Map + Zn @ 90kg/ha

Results and Interpretation

Due to the long and favourable season finish, yield losses from crop-topping were high in 2010, averaging 61% performed two weeks prior to the recommended timing, and 29% at the recommended timing across all varieties. Yield of all varieties was reduced by crop-topping at and prior to the recommended timing (Table C12.2). At 2 weeks after ryegrass milky dough stage PBA Hattrick was the only variety to show a significant yield loss, while CICA0604 and the early maturing line 01-482*03HS009 showed a yield improvement from this treatment.

Grain weight of all varieties was reduced by crop-topping at the recommended timing (Table C12.2). At two weeks prior to the recommended timing 7 of the 16 lines in this trial showed a reduction in grain weight. These included Almaz, Genesis079, Genesis114, PBA Hattrick, and the breeders lines 01-481*03HS010, 01-482*03HS009 and 03-028C*04HS004. Of these varieties only Genesis114 showed reduced grain weight from crop-topping at the late timing, which is likely resulting from its later maturity.

Table C12.2. Effect of crop-top timing on grain yield and grain weight of chickpeas, Melton 2010
Varieties are ranked according to their visual maturity rating from earliest to latest

Variety	Yield (t/ha)	Yield (% of Nil)			Grain Wt. (g/100)	Grain Weight (% of Nil)		
	Nil	- 2 wks ^a (25/10)	Recommended (11/11)	+ 2 wks ^b (23/11)	Nil	- 2 wks ^a (25/10)	Recom. (11/11)	+ 2 wks ^b (23/11)
01-481*03HS010	4.28	30	64	90	29.6	86	74	98
01-482*03HS009	3.2	41	83	110	22.4	78	84	97
Genesis079	3.96	42	71	99	25.9	88	86	99
CICA0603	4.1	43	70	90	23.7	93	83	98
CICA0604	3.36	39	81	110	20.4	91	80	97
Genesis509	3.79	40	71	91	17.5	91	79	97
PBA Hattrick	3.64	29	56	73	22.2	90	79	98
PBA Slasher	4.03	38	65	94	20.3	92	78	94
CICA0717	3.38	52	78	97	25.6	98	80	97
Genesis090	3.99	34	64	90	33.1	96	85	97
02-150C*04HS003	3.52	40	77	102	21.9	93	78	98
03-028C*04HS004	3.65	35	63	96	23.7	85	71	95
Genesis114	2.99	40	78	98	37.5	87	93	90
Almaz	2.99	43	75	98	38.8	91	91	99
Mean	3.63	1.41	2.56	3.46	25.9	23.3	21.3	25.0

NB: Shading denotes significant difference from the Nil treatment.

^a = 2 weeks prior to recommended timing

^b = 2 weeks after recommended timing

Key Findings and Comments

- The wet season finish in 2010 favoured chickpea production, however this made timely weed control through crop-topping very destructive.
- There was little varietal response from crop-topping in 2010.
- All varieties showed reduced yield when crop-topped at or before the recommended timing for optimum ryegrass control (milky dough stage).
- Crop-topping 2 weeks after the recommended timing was the only timing considered “safe” for chickpeas in 2010, with only one variety showing reduced grain yield and one variety having reduced grain weight.
- These results emphasise the difficulty in employing this weed control method in chickpea.