

Evaluation of new herbicides for capsicums and chillies

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Weed Management ~ Balancing people, planet, profit

Introduction



- Three year project funded by Horticulture Australia Ltd.
 - No herbicides currently registered for broadleaf weed control in capsicums or chillies.
 - Identified and screened herbicides for crop safety and weed efficacy.
 - 13 trials conducted in major production areas throughout Australia.





Herbicides Screened



Pre-crop transplant Pre-emergent	Post-transplant Pre-emergent	Post-transplant Post-emergent
sulfentrazone	s-metolachlor	carfentrazone
isoxaflutole	dimethenamid-p	bentazone
clomazone	oxyfluorfen	metribuzin
oxadiargyl	pendimethalin	imazamox
pendimethalin	oxadiargyl	
s-metolachlor		
dimethenamid-p		
flumioxazine		





Effective Herbicides Identified



- Command (480 g/L clomazone)
- Stomp (330 g/L pendimethalin)
- Raft (400 g/L oxadiargyl)
- Best results when applied pre-crop transplanting to weed free soil (pre-weed emergence).
- Effective pre-emergent control of common broadleaf and grass weeds across a number of sites.





Weed Efficacy – broadleaf weeds



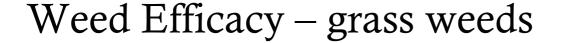
Mean % control compared to untreated control (no. of trials)

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Treatment	Green amaranth	Pig-weed	Black night-shade	Sow thistle
clomazone 240 g ai/ha	-	56 (1)	12 (2)	78 (1)
clomazone 480 g ai/ha	50 (3)	100 (2)	51 (5)	-
oxadiargyl 200 g ai/ha	-	100 (1)	-	100 (1)
oxadiargyl 400 g ai/ha	90 (3)	100 (3)	95 (5)	100 (1)
pendimethalin 660 g ai/ha	-	-	52 (2)	-
pendimethalin 990 g ai/ha	95 (3)	100 (3)	70 (5)	44 (1)

*Data from trials conducted without use of plastic









Mean % control compared to untreated control (no. of trials)

Treatment	Summer grass	Crabgrass	Crowsfoot grass	Barnyard grass
clomazone 240 g ai/ha	100 (1)	73 (1)	91 (2)	-
clomazone 480 g ai/ha	100 (3)	-	100 (3)	100 (1)
oxadiargyl 200 g ai/ha	-	99 (1)	-	-
oxadiargyl 400 g ai/ha	91 (3)	100 (1)	84 (3)	83 (1)
pendimethalin 660 g ai/ha	99 (1)	-	93 (2)	-
pendimethalin 990 g ai/ha	99 (3)	97 (1)	95 (3)	100 (1)

*Data from trials conducted without use of plastic

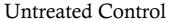




Weed Efficacy – under plastic









clomazone 480 g ai/ha





Weed Efficacy – under plastic





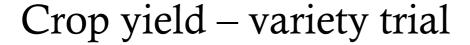




pendimethalin 660 g ai/ha









_	Kg of fruit per plot (1 row x 5 m)			
Treatment	Capsicum cv. Warlock	Chilli cv. Blister		
clomazone 960 g ai/ha	9.9	8.8		
oxadiargyl 800 g ai/ha	9.5	8.9		
pendimethalin 1980 g ai/ha	9.8	9.1		
untreated control	10.0	8.7		

^{*}Trial conducted without plastic in Bowen, Queensland 2003

Double proposed use rates, sandy alluvial soil with low organic carbon and clay





Herbicide residue in produce



- Herbicides residues in produce was below limit of quantitation at all sites:
 - Clomazone < 0.01 mg/kg (2 sites).
 - Pendimethalin < 0.01 mg/kg (2 sites).
 - Oxadiargyl to be analysed.





Summary



- Effective weed management strategies developed for capsicums and chillies.
- Integration of herbicides into cropping systems.
- Clomazone and oxadiargyl safe inter-row and under plastic.
- Phytotoxicity with pendimethalin when used under plastic and needs further investigation.





Thankyou

- This project was funded by levy paying growers and Horticulture Australia Ltd.
- The assistance of growers from around Australia for providing trial sites is gratefully acknowledged.
- The input and advice from Chris Monsour (Bowen Crop Monitoring Services) who also conducted the trial work in Bowen (North Queensland) is gratefully acknowledged.





