SLENDER ICEPLANT HERBICIDE TRIALS 2007

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ΑιΜ

To investigate herbicide control options for Slender Iceplant (*Mesembryanthemum nodiflorum*). The focus is on finding possible herbicide options that may allow for legume and grass pastures between bluebush or saltbush.

BACKGROUND

The topsoil inhabited by slender iceplant is maintained in a saline condition, advantageous for the iceplant, but undesirable for anything else. Slender iceplant has also been found to contain oxalate levels up to 35.78%, which is well above the minimum level of 2% that may cause stock poisoning.

Literature from Israel suggests that slender iceplant produces three sets of seed, which exhibit different levels of dormancy. Slender Iceplant has a staggered germination pattern and may germinate at the break of the season, during the winter months and also again after spring rains.

The spread of slender iceplant has been facilitated by soil disturbance events (e.g. floods in 1999) and our lack of understanding of the biology of iceplant, resulting in inappropriate management practices. It is suspected that if the iceplant could be controlled, then some mild saltland could be allowed to leach of salts and possibly be returned to production. Ultimately if these areas could be returned to cropping, there could be much to gain for the farmer.

Property	Damian Ryan, Morawa	Shaun Sparkman, Perenjori	Ian Syme, Buntine
Plot size & replication	3m x 20m x 3 reps	3m x 20m x 3 reps	3m x 20m x 3 reps
Soil type	Red loam over brown hardpan at 20cm & ferruginous layer at 1m	Shallow loam over alluvium basement	Sand over laterite
Soil cover	No cover	Minimal cover, some bell & creeping saltbush	Thick iceplant stubble
Spraying Date	Pre-em 8/6/07 Post-em 28/8/07	re-em 8/6/07 Post-em 28/8/07 Post-em 28/8/07	
Paddock Rotation	2006 = Pasture	2006 = Barley	Persistent monoculture
Growing Season Rainfall	83mm	130mm	125mm

TRIAL: HERBICIDE CONTROL OF SLENDER ICEPLANT (MESEMBRYANTHEMUM NODIFLORUM) 2007

RESULTS

Table 1: Percentage slender iceplant control, visually rated on 19/10/2007, for a range of pre-emergent treatments.

Group	Pre-emergent Herbicide Treatments	Morawa (% Iceplant kill)	Buntine (% Iceplant kill)	Cost (\$/ha) GST exc.
D	2L Pendimethalin (330 g/L) (Stomp [®])	94	88	13.00
С	1L Diuron (500 g/L)	84	90	8.60
С	500ml Diuron (500 g/L)	32	24	4.33
С	200ml Diuron (500 g/L)	2	30	1.73
В	20g Flumetsulam (800 g/kg) (Broadstrike [®])	77	5	13.44
В	10g Flumetsulam (800 g/kg) (Broadstrike [®])	74	9	6.72
В	5g Flumetsulam (800 g/kg) (Broadstrike [®])	52	5	3.36
С	500ml Terbutryn (500 g/L) (Igran [®])	26	32	11.00
С	200ml Terbutryn (500 g/L) (Igran [®])	0	16	4.40
G	200ml Oxyfluorfen (240 g/L) (Goal®)	81	61	6.60
С	500ml Linuron (500 g/L)	74	45	19.75
С	200ml Linuron (500 g/L)	2	13	7.90

Pre-emergent Trial

- Trials indicate that good pre-emergent iceplant control was achieved with Stomp[®] at 2 L/ha, diuron at 1 L/ha and Goal[®] at 200 ml/ha. Goal needs to be trialed further at higher rates.
- Broadstrike[®] also appeared to have good pre-emergent activity at the Morawa site, which was consistent with results achieved in 2006, where treatments containing 25g Broadstrike[®] gave 81-99% control.
- Slender iceplant stubble heavily shaded the soil at the Buntine site. With little growing season rainfall, this may be the reason why Broadstrike[®] had poor activity in Buntine.
- The Stomp[®] and Goal[®] treatments were particularly interesting as a number of medics had germinated through them.
- It seems that iceplant control should focus on pre-emergent options, as there are a number of germinations throughout the season.

RESULTS

Table 2: Percentage	slender iceplant control	l, visually rated or	n 19/10/2007. for a ran	nge of post-emergent treatments
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Grou p	Post-emergent Herbicide Treatments	Morawa (% Iceplant kill)	Perenjori (% Iceplant kill)	Cost (\$/ha) GST exc.
D	2L Pendimethalin (330 g/L) (Stomp [®])	0	0	13.00
D	1L Pendimethalin (330 g/L) (Stomp [®])	0	0	6.50
С	1L Diuron (500 g/L)	12	10	8.60
С	500ml Diuron (500 g/L)	3	3	4.33
C/B	250ml Diuron +25g Flumetsulam (Broadstrike [®])	31	11	18.96
В	25g Flumetsulam (800 g/kg) (Broadstrike [®])	21	0	16.80
С	800ml Terbutryn (500 g/L) (Igran [®])	48	12	17.60
С	400ml Terbutryn (500 g/L) (Igran [®])	7	0	8.80
G	500ml Oxyfluorfen (240 g/L) (Goal®)	2	10	16.50
G	250ml Oxyfluorfen (240 g/L) (Goal [®])	0	0	8.25
В	7g Metosulam (714 g/kg) (Eclipse [®])	0	0	8.33

Post-emergent Trial

- Generally all of the post-emergent treatments performed poorly on slender iceplant in 2007.
- Both trial sites were hot and dry at the time of spraying and only received 10mm rainfall, 2 months after spraying.
- Post-emergent treatments including Igran[®] at 800 mL/ha and diuron at 1 L/ha performed best, however both are likely to perform better in moist conditions. These treatments killed small iceplants, but only burnt the top leaves of larger plants causing some reduction in biomass.
- Broadstrike[®] appeared to turn the iceplant leaves a yellow and red colour, suppressing further growth. Due to the dry conditions it is not known if Broadstrike[®] would have enough activity for post-emergent use.

Herbicide Use in Saltland Pastures

- There are no herbicides registered for use in saltbush, bluebush or other saltland pastures.
- It is important to know the herbicide tolerance of saltbush and bluebush before attempting to control slender iceplant in these situations.
- Dicamba, 2,4-D amine, diuron, atrazine and Igran[®], are known to cause severe damage to bluebush. (See article on "Herbicide Tolerance of Saltland Pastures")
- Stomp[®], Goal[®] and Broadstrike[®] appear to be most useful when controlling slender iceplant before it emerges and may allow for volunteer regeneration of legume and grass pastures. These options may have some use in saltland systems, however more work is required.

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