



Bayer CropScience

# AgGrow

AGRONOMY + RESEARCH



## BROAD LEAF WEED RESISTANCE

Spiny Emex and Rough Poppy - Hillston 2014

INDEPENDENT AGRONOMY ADVICE + CUTTING EDGE RESEARCH

# HERBICIDE EFFICACY ON SPINY EMEX & ROUGH POPPY

## KEY POINTS

\* Spiny emex (*Emex australis*) also known as doublegee, or three cornered jack, and rough poppy (*Papaver hybridum*) can be serious weeds of crops and pastures, and difficult to control with herbicides due to both resistance and tolerance.

\*Velocity seemed to be a standout product for controlling spiny emex, however mixtures of various products with Diuron, Sencor and Dicamba increased control further.

\*A similar trend occurred for controlling rough poppy, however Tigrex and Jaguar also gave adequate control of this difficult weed.

\*In all cases, crop safety was compromised when tank mixing some products, especially mixes with Diuron. This is likely due to the light sandy soils that these trials were conducted on.

## BACKGROUND

Rough poppy and spiny emex are two broad leaf weeds which are an increasing problem in the region.

Alternate chemistry could provide cost effective options for managing these weeds.

Trials comparing the various post emergent options for controlling rough poppy and spiny emex were established in the Hillston area in 2014.

## TRIAL DETAILS

Two herbicide demonstrations were established in Hillston, in conjunction with Bayer Crop Science.

A spiny emex demonstration was established on 3rd July, 2014 in a crop of wheat at Kent Burgess's property "Mt Erin", Hillston and a rough poppy demonstration was established on Karl Dalton's in 2014 in a crop of wheat at "Queens Park", Hillston.

The aim of these demonstrations was to evaluate the efficacy of herbicide options which offer alternate modes of action for controlling rough poppy and spiny emex.

### Spiny Emex Demonstration:

This trial consisted of 15 treatments, as shown in table 1. The herbicides were boom sprayed on 3rd July, after a slight frost, at 1pm with 80 L/ha water rate and with XR110015 flat fan nozzles. Environmental conditions at spraying were 18oC temperature, 60% humidity, 8-10 km/hr northerly winds and 30% cloud cover. The crop was at the early tillering stage when sprayed and the weeds were actively growing with spiny emex on average 10cm and wild turnip 30cm.

### Rough Poppy Demonstration:

This trial consisted of 12 treatments, as shown in table 2. The herbicides were boom sprayed on 3rd July, at 11am with 100 L/ha water rate and with XR110015 flat fan nozzles. Environmental conditions at spraying were 18oC tempertaure, 60% humidity, 10 km/hr winds and 30% cloud cover. The crop was at the early tillering stage when sprayed and the weeds were actively growing with rough poppy ranging between 1-10cm.

Plots for the spiny emex trial were 12m x 200m and not replicated, and the rough poppy trial were



replicated twice and were 12m x 4m.

Observations and assessments were carried out throughout the trial. These included a visual assessment of the percent weed control, crop phytotoxicity and biomass reduction.

A summary of these measurements are shown in table 3 and 4 in the results section. A visual representation of some treatments are also shown in the photos below.

**Table 1: Treatment list for the Spiny Emex herbicide demonstration, “Mt Erin” Hillston.**

No.	Treatment	Rate	Adjuvant
1	Untreated		
2	Velocity®	500 mL	1% Hasten
3	Velocity® + LVE MCPA 570	500 mL + 500 mL	1% Hasten
4	Velocity® + Diuron 900DF	500 mL + 180 g	1% Hasten
5	Precept® 150EC	1000 mL	1% Hasten
6	Precept® 150EC + Sencor® 480SC	1 L + 150 mL	1.2L Liase
7	Precept® 150EC + Diuron 900DF	1 L + 180 gm	1% Hasten
8	Precept® 150EC + Kamba® 500	1 L + 280 mL	1% Hasten
9	Precept® 150EC + Ally®	1 L + 5 gm	1% Hasten
10	Diuron 900DF + Kamba® 500	180g + 280 mL	
11	LVE MCPA 570 + Ally®	500 mL + 5g	
12	Paradigm™ + LVE MCPA 570	25g + 500 mL	0.2% BS1000
13	MCPA Amine 750 + Diuron 900DF	330 mL + 180g	
14	MCPA LVE 570	1L	
15	Tigrex®	1L	

**Table 2: Treatment list for the Rough Poppy herbicide demonstration, “Queens Park” Hillston.**

No.	Treatment	Rate	Adjuvant
1	Untreated		
2	Velocity®	500 mL	1% Hasten
3	Velocity® + LVE MCPA 500	500 mL + 500 mL	1% Hasten
4	Velocity® + Diuron 900 DF	500 mL + 180 gm	1% Hasten
5	Precept® 150EC	1000 mL	1% Hasten
6	Precept® 150EC + Sencor® 480SC	1 L + 150 mL	1% Hasten
7	Precept® 150EC + Ally®	1 L + 5 gm	1% Hasten
8	Jaguar®	1 L	
9	Tigrex®	1 L	
10	LVE MCPA 500 + Ally®	500 mL + 5 gm	
11	Igran® + Agritone® 750	600 mL + 330 mL	
12	Diuron 900DF + Agritone® 750	180 g + 330 mL	

## RESULTS AND DISCUSSION

### Spiny Emex

The standout control treatments for spiny emex were Velocity and various mixes with diuron, sencor and dicamba as shown in table 3.

Velocity + either Diuron/MCPA and Precept + either Diuron/Sencor/Dicamba/Ally all were exceptional mixes for spiny emex control.

As an individual product, Velocity seemed to be strongest alone compared to all other products in this trial.

However mixtures of Velocity or Precept with Diuron probably caused unacceptable crop damage on this sandy soil.

In this trial, any final control score less than 60-70% allowed the spiny emex to survive well enough to set seed and continue to use moisture.

### Rough Poppy

The standout control treatments for rough poppy were Velocity + MCPA and Igran + Agritone.

Velocity alone, Velocity + Diuron, Precept + Sencor, Jaguar and Tigrex all gave greater than 80% control. Less than 80% control allowed the rough poppy to set seed which would have contaminated the grain sample and/or added to the weed seed bank.

Untreated plants in spiny emex trial at commencement of trial, largest and smallest sized plants.



Table 3: Spiny Emex Demonstration Assessments

No.	Treatment	17/07/2014		6/08/2014		27/10/2014
		Weed control	crop effect	Weed control	crop effect	Weed control
		%	%	%	%	%
1	Untreated	0	0	0	0	0
2	Velocity® @ 500ml	60	0	75	0	70
3	Velocity® @ 500ml + MCPA LVE 570 @ 500ml	70	10	85	0	80
4	Velocity® @ 500ml + Diuron @ 180g	90	30	90	35	90
5	Precept® 150 @ 1L	40	0	70	0	40
6	Precept® 150 @ 1L + Sencor® @ 150ml	60	10	90	20	90
7	Precept® 150 @ 1L + Diuron @ 180g	90	40	85	35	80
8	Precept® 150 @ 1L + Kamba 500 @ 280ml	50	20	95	15	85
9	Precept® 150 @ 1L + Ally® @ 5g	40	20	90	10	85
10	Diuron @ 180g + Kamba® 500 @ 280ml	40	20	75	0	75
11	MCPA LVE 570 @ 500ml + Ally® @ 5g	30	10	80	30	70
12	Paradigm™ @ 25g + MCPA LVE 570 @ 500ml	40	10	75	10	70
13	MCPA Amine 750 @ 330ml + Diuron @ 180g	50	20	50	10	50
14	MCPA LVE 570 @ 1L	10	0	30	0	30
15	Tigrex® @ 1L	20	20	40	10	40

Table 4: Rough Poppy Demonstration Assessments

No.	Treatment	Weed control %		
		17.07.2014	1.08.2014	1.09.2014
		14DAA	29DAA	60DAA
1	Untreated	0	0	0
2	Velocity® @ 500ml	39	83	83
3	Velocity® @ 500ml + LVE MCPA 500 @ 500ml	70	80	95
4	Velocity® @ 500ml + Diuron @ 5g	90	80	90
5	Precept® 150 @ 1L	45	38	45
6	Precept® 150 @ 1L + Sencor®	70	78	85
7	Precept® 150 @ 1L + Ally® @ 5g	10	35	45
8	Jaguar® @ 1L	60	43	80
9	Tigrex® @ 1L	50	60	90
10	LVE MCPA 500 @ 500ml + Ally® @ 5g	50	45	50
11	Igran® @ 600ml + Agritone® @ 330ml	85	98	95
12	Diuron @ 180g + Agritone® @ 330ml	58	40	50

Untreated in spiny emex trial 33DAS



Precept + Sencor in spiny emex trial 33DAS



Velocity in spiny emex trial 33DAS



Velocity + Diuron in spiny emex trial 33DAS



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