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The 22nd International Grassland Congress (Revitalising Grasslands to Sustain Our Communities) took place in Sydney, Australia from September 15 through September 19, 2013.

Proceedings Editors: David L. Michalk, Geoffrey D. Millar, Warwick B. Badgery, and Kim M.

Broadfoot

Publisher: New South Wales Department of Primary Industry, Kite St., Orange New South Wales, Australia

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Aminopyralid + metsulfuron-methyl for cost-effective control of hard to kill pasture weeds

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Keywords: Aminopyralid, metsulfuron-methyl, efficacy, blackberry, gorse, galenia, artichoke thistle, brownout, control.

Introduction

This paper summarises research trials conducted from 2010 to 2013 to determine speed of brownout and efficacy of an aminopyralid + metsulfuron-methyl herbicide product in pastures compared to metsulfuron alone and current commercial standards.

Methods

Sites

Trials were conducted in eastern Australia from Tenterfield, NSW to Bairnsdale, Victoria to collect data to support the registration of the aminopyralid + metsulfuron-methyl product concept.

Formulations and adjuvants

Aminopyralid + metsulfuron-methyl were applied either as a tank-mix or as a formulated pre-mix product. Treatments were applied either with non-ionic surfactant at 0.1 to 0.2% v/v (artichoke thistle and blackberry) or silicone adjuvant at 0.2% v/v (galenia and gorse). Commercial standard comparison treatments were applied at label recommended rates and adjuvant concentrations.

Blackberry, gorse and artichoke thistle trials

Efficacy trials were conducted either on commercial grazing properties or roadsides. Treatments were applied by high volume handgun and applied to the point of runoff from the leaf surface. Total spray volume applied was 1000 to 3000 L/ha, depending on weed size and density. Each trial had 1 to 3 replicates, with a randomised complete block trial design (where replicated).

Brownout scores were taken by subjective visual assessment at 25 to 76 days after application (DAA), using a 0 to 100 scale, where 100 = complete brownout. Control scores were taken at 137 to 189 DAA, using a similar scale. Further assessments are required to determine final control, 2 years after application.

Galenia trials

Efficacy trials were conducted on commercial farms, with treatments applied to naturally occurring weed infestations. Treatments were applied with a hand-held small plot sprayer, with 3 m boom and nozzles at 50 cm spacings, to plots that were 3 x 10 m in size. Three or four replicates were used in both trials, with randomised complete block trial design. Application volume was 100 L/ha.

Table 1. Artichoke thistle control (%) by high volume spray of either Aminopyralid + metsulfuron-methyl (Met) or metsulfuron-methyl (Met) alone.

Treatment	Rate (g/100L)	103009 63DAA	113018 45DAA	113020 137DAA
Aminopyralid + Met	5.6 + 4.5		80 a	98 a
Aminopyralid + Met	7.5 + 6	99 a	87 a	100 a
Met	6	80 b	43 b	73 b
LSD (P=0.05)		2.9	7.5	6

Table 2. Galenia brownout (34DAA) or control (189DAA) (%) by boomspray of either Aminopyralid + metsulfuron-methyl or metsulfuron-methyl alone.

Treatment	Rate (g/ha)	113006 Brown out	113007 Brown out	113006 control	113007 control
Amino + Met	15 + 12	43 b	37 a	63 c	82 a
Amino + Met	30 + 24	58 a	27 b	81 a	78 a
Amino + Met	60 + 48	63 a	43 a	91 a	88 a
Met	12	25 c	37 a	33 d	50 b
LSD (P=0.05)		9.6	8.8	6.5	13.6

Table 3. Gorse brownout (%) by high volume spray of either Aminopyralid + metsulfuron-methyl or metsulfuron-methyl alone.

Treatment	Rate (g/100 L)	113021 63DAA	113022 76DAA
Amino + Met	11.3 + 9	99 a	100 a
Met	9	80 b	85 b
LSD(P=0.05)		1.5	6.5

Results

Aminopyralid + metsulfuron-methyl provided artichoke thistle, galenia, gorse and blackberry brownout or control similar to or greater than metsulfuron (Tables 1, 2, 3, 4, and 5).

Conclusion

Aminopyralid + metsulfuron-methyl gave similar or better brownout and control of blackberry, gorse, galenia and artichoke thistle as metsulfuron-methyl alone. This new product is a new option for cost-effective control of a broad spectrum of weeds in Australia pastures.

Table 4. Blackberry brownout (%) by high volume spray of Aminopyralid + metsulfuron-methyl or metsulfuron-methyl alone.

Treatment	Rate (g/100L)	104014 25DAA	113001 35DAA	113003 47DAA	112001 56DAA	112004 29DAA	12005 27DAA
Amino + Met	7.5+6	65 a	80 a	80 a	43 a	60 a	68 a
Met	6	15 b	20 b	50 b	23 b	10 b	21 b
LSD ($P=0.05$)		50	26	13	6.5	0	12.3

Table 5. Blackberry control (%) by high volume spray of Aminopyralid + metsulfuron-methyl or metsulfuron-methyl alone.

Treatment	Rate (g/100L)	104014 685DAA	113001 222DAA	113003 364DAA	113002 364DAA	112001 301DAA
Amino+ Met	7.5+6	90 b	90 a	95 a	100	100 b
Met	6	35 a	85 a	94 a	90	100 b
LSD ($P=0.05$)		43	13	7	*(1 rep only)	0