Trade Advice Note

on

Bromoxynil

in the product

Nufarm Bromicide 200 Selective Herbicide
(APVMA Product Number 31614)

Australian Pesticides and Veterinary Medicines Authority

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Introduction

The Australian Pesticides and Veterinary Medicines Authority (APVMA) has before it an application from Nufarm Australia Limited to approve a label to include use in sorghum to control a range of weeds. The application also requires the establishment of an entry to Table 4 of the MRL Standard for bromoxynil on cereal fodder and forage, and pasture as well as an Export Harvest Interval (EHI) for fodder.

The APVMA invites any person to submit a relevant written submission with respect to whether the proposed new use is likely to unduly prejudice trade or commerce between Australia and Australia's trading partners. **Please provide your submission by 10 June 2008**. Any submissions provided after this date may be unable to be considered before the regulatory decision is made. All submissions should be addressed to the above contact.

Trade consideration

1. Commodities exported

Cereal grains, including sorghum, and animal commodities derived from livestock fed on treated cereal forage, cereal fodder and pasture are the commodities exported. Oaten hay is also considered to be a major export commodity.

As the use of bromoxynil on the cereal grains wheat, oats, barley, rye and triticale has been registered in Australia for many years and residues are expected to be below the current cereal grains MRL of *0.2 mg/kg after treatment at the recommended rates these commodities will not be discussed further.

2. Destination and Value of Exports

In 2005-06 Australia produced 2019 kt of sorghum valued at $360 million. Exports amounted to 173 kt valued at $33 million. The major export markets were Japan (86 kt), Chinese Taipei (26 kt) and Papua New Guinea (19 kt).[1]

No information on the export of oaten hay is available. In broad terms, the export market for Australian hay has grown from 423,000 tonnes in 2001 to a projected 646,000 tonnes in 2006, with the majority going to Japan's dairy industry[2].

The destination and value of Australian exports of beef, sheep and dairy commodities are summarised in tables 1 – 3.[1]

[1] Australian Commodity Statistics, ABARE 2006

[2] GRDC - Media Release - Hay making a viable alternative as the sun keeps on shining - Elmore GRDC Update.
http://www.grdc.com.au/director/events/mediareleases.cfm?item_id=4828B9A5C81CD6B3E6B2620345E2AF16&pageNumber=12

Table 1: Value of Australian beef exports by destination

Value of beef exports	1998	1999	2000	2001	2002	2003	2004	2005
	$m	$m	$m	$m	$m	$m	$m	$m
Beef and veal								
Americas								
Canada	104.6	128.0	148.1	204.4	320.2	110.9	38.1	32.6
United States	735.2	805.1	1 172.8	1 699.7	1 593.6	1 332.3	1 374.4	1 186.4
Asia								
Chinese Taipei	108.2	123.2	116.7	132.6	152.3	126.7	124.2	148.3
Hong Kong, China	23.6	16.6	18.2	17.8	17.1	15.0	27.3	18.7
Indonesia	6.1	33.3	40.8	37.2	46.1	38.4	26.7	33.6
Japan	1 312.4	1 369.7	1 537.3	1 728.2	1 237.7	1 384.4	2 189.8	2 244.8
Korea, Rep. of	87.6	201.9	221.7	228.9	320.4	250.7	434.4	494.8
Malaysia–Singapore	66.7	68.7	70.6	78.7	91.4	86.8	74.4	48.9
Philippines	40.4	38.5	34.3	55.8	36.1	23.0	4.3	5.9
Europe								
European Union	58.6	61.3	37.4	48.4	53.5	49.2	62.8	56.8
CIS	58.2	18.1	3.8	14.4	2.9	0.7	2.0	4.6
Eastern Europe	43.6	6.9	6.3	1.2	9.1	4.5	1.3	0.4
Middle East								
Kuwait	3.6	1.6	0.3	4.6	1.8	9.8	3.4	1.0
Saudi Arabia	7.4	3.3	2.1	23.0	11.6	7.8	3.1	1.7
United Arab Emirates	5.4	2.5	4.4	11.6	10.9	7.8	12.0	13.7
Oceania								
New Zealand	4.5	5.0	11.1	6.3	25.6	15.9	9.8	8.8
Pacific Isles	6.2	4.1	5.2	7.2	7.4	5.4	4.5	4.0
Papua New Guinea	12.3	14.1	14.1	11.5	9.8	4.9	5.2	4.3
Total beef and veal	2 768.3	2 963.3	3 464.1	4 357.3	4 002.6	3 475.3	4 390.2	4 346.7
Live cattle								
Asia								
Indonesia	18.0	68.5	143.1	171.8	254.0	203.4	207.3	209.1
Japan	11.6	7.8	9.8	12.7	11.2	16.6	14.6	20.5
Malaysia	15.3	29.9	25.7	38.5	45.1	38.9	25.2	20.1
Philippines	87.7	126.7	117.8	58.4	65.8	39.1	30.1	11.6
Middle East								
Egypt	61.6	131.2	129.7	153.8	94.9	5.0	0.0	3.8
Israel	5.7	3.8	9.0	15.4	23.9	22.8	11.9	20.6
Jordan	7.7	15.7	18.1	6.7	2.4	12.9	15.3	10.2
Libya	64.9	13.5	0.0	0.0	0.0	0.0	0.0	0.0
Saudi Arabia	0.0	0.0	0.0	14.9	32.5	9.4	0.0	11.0
Total live cattle	280.3	409.2	471.7	514.4	580.8	376.5	327.7	337.1

Table 2: Value of Australian sheep exports by destination.

Value of sheep exports	1998	1999	2000	2001	2002	2003	2004	2005
	$m	$m	$m	$m	$m	$m	$m	$m
Mutton								
Canada	3.2	3.1	4.6	6.8	5.2	3.6	5.8	5.4
Chinese Taipei	29.1	27.6	26.3	36.9	48.9	32.2	41.9	34.8
CIS	9.2	0.9	3.1	3.7	5.4	1.3	5.8	13.5
European Union	44.8	28.2	34.1	42.0	41.4	28.1	43.2	48.3
Japan	37.9	32.6	34.0	42.7	51.1	29.9	47.1	38.1
Korea, Rep. of	2.3	2.1	1.7	2.3	3.3	2.2	3.1	3.1
Malaysia	11.6	13.7	16.5	21.7	22.9	15.9	22.6	18.5
Papua New Guinea	8.0	7.5	6.2	7.4	6.6	6.1	5.1	5.2
Saudi Arabia	37.4	36.8	43.9	90.1	77.5	65.0	53.0	63.9
Singapore	16.4	16.5	18.4	23.4	23.2	20.4	22.0	18.6
South Africa	34.6	35.3	46.3	30.9	17.6	11.1	14.1	18.7
United States	40.3	37.1	43.9	56.4	64.7	67.9	48.6	44.4
Other	77.9	84.2	97.1	146.3	152.0	91.7	113.4	119.7
Total	352.5	325.8	376.3	510.6	519.7	375.3	425.9	432.0
Lamb								
European Union [b]	48.2	52.3	74.3	105.7	89.3	96.9	93.4	83.9
Japan	22.9	25.1	30.7	37.0	40.7	42.3	53.5	79.1
Papua New Guinea	12.0	13.0	16.0	18.0	15.7	14.4	17.3	19.4
South Africa	9.7	10.0	15.3	5.5	1.2	2.1	3.5	5.3
United Arab Emirates	18.1	18.2	24.2	27.4	31.6	29.9	27.0	32.8
United States	97.6	103.2	150.2	219.9	218.2	257.5	259.9	324.2
Other	87.2	96.3	137.0	165.7	169.5	159.7	184.7	233.1
Total	295.6	318.0	447.7	579.1	566.2	602.8	639.3	777.8
Live sheep [c]								
Middle East	187	177	204	349	395	330	223	275
Bahrain	13	15	13	20	25	29	33	35
Egypt	1	6	12	14	9	1	0	0
Jordan	32	35	24	28	39	35	58	53
Kuwait	53	47	61	79	101	105	84	60
Oman	18	17	20	26	24	19	20	25
Qatar	17	13	15	16	21	13	10	12
Saudi Arabia	0	0	27	120	127	104	0	74
United Arab Emirates	49	35	29	34	30	16	13	15
Other	2	3	2	5	7	8	3	4
Total	189	180	206	355	402	338	225	279

Table 3: Value of Australian dairy exports by destination.

Value of dairy exports	Unit	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
Cheese								
Japan	$m	306.6	338.8	429.2	272.0	299.6	378.9	298.5
Philippines	$m	16.4	18.6	20.0	15.7	11.1	18.2	13.7
Saudi Arabia	$m	94.1	123.6	148.2	98.9	69.0	81.5	103.5
United Kingdom	$m	23.9	38.7	21.5	15.2	18.3	20.5	20.1
United States	$m	28.8	39.1	48.3	36.1	33.9	45.4	54.8
Other	$m	336.8	391.0	366.3	361.9	306.6	330.9	345.5
Total	$m	806.6	949.9	1 033.4	799.8	738.4	875.4	836.1
Butter and butterfat								
Egypt	$m	33.7	34.6	23.5	18.9	6.4	10.5	12.5
Malaysia	$m	15.8	14.7	14.4	12.7	13.5	11.6	15.8
Philippines	$m	11.9	8.6	5.1	3.7	1.9	2.8	5.1
Singapore	$m	19.4	16.7	20.4	15.5	18.2	16.8	21.1
Thailand	$m	27.3	19.8	23.0	13.2	12.7	13.5	12.0
Other	$m	182.6	196.6	211.0	160.0	129.4	133.0	157.6
Total	$m	290.5	291.0	297.4	224.0	182.1	188.3	224.1
Skim milk powder								
Japan	$m	56.2	48.9	53.7	29.6	13.3	10.6	12.5
Malaysia	$m	78.3	87.4	88.4	51.4	52.7	64.2	77.1
Philippines	$m	102.0	181.4	143.5	69.0	59.8	49.4	72.0
Singapore	$m	26.7	51.8	52.8	38.4	41.3	57.7	56.1
Thailand	$m	55.1	67.2	69.1	33.2	20.0	21.7	76.8
Other	$m	159.8	257.5	290.5	184.1	198.8	216.3	234.3
Total	$m	478.1	694.2	697.9	405.6	386.0	419.9	528.9
Casein								
Japan	$m	15.3	19.9	26.7	20.6	23.3	23.1	30.4
United States	$m	62.6	56.7	80.5	81.4	68.8	56.6	27.3
Other	$m	15.3	23.4	15.5	26.4	30.4	36.4	31.3
Total	$m	93.2	100.1	122.6	128.4	122.5	116.1	88.9
Whole milk powder								
Malaysia	$m	27.0	26.9	39.2	22.3	28.9	33.1	23.8
Singapore	$m	15.7	31.7	29.7	25.2	21.4	30.9	44.6
Taiwan	$m	49.2	54.9	54.1	44.9	40.0	31.5	22.8
Thailand	$m	28.8	24.9	22.6	14.0	12.0	8.6	10.5
Other	$m	282.8	441.8	425.5	273.4	218.9	220.3	231.9
Total	$m	403.4	580.2	571.1	379.8	321.1	324.4	333.6
Other products								
Fresh milk	$m	81.4	82.0	98.1	98.1	104.0	108.7	107.3
Other fresh products	$m	20.2	12.7	7.9	5.5	9.6	9.1	6.3
Condensed milk	$m	87.6	111.5	123.7	133.3	121.0	139.8	147.5
Other powders	$m	182.2	223.2	276.6	272.1	253.9	244.9	241.2
Total	$m	371.5	429.4	506.2	509.1	488.6	502.6	502.3

3. Proposed Australian use-pattern

Nufarm Bromicide 200 Selective Herbicide (containing 200 g/L Bromoxynil, present as the n-octanoyl ester)

Situation & Crop	Weeds Controlled	Weed Stage	State	Rate	Critical Comments
Wheat, Barley, Cereal Rye, Oats and Triticale: including those undersown with **Clover, Lucerne** or **Medic** (Vic only); **Linseed; Clover or Lucerne Pastures; Lotus seed or forage crops** (Qld only)	Amsinckia (*Amsinckia* spp.) Black Bindweed (Climbing buckwheat) (*Fallopia convolvulus*) Capeweed (*Arctotheca calendula*) Chamolmile (*Matricaria matricarioides*) Common Peppercress (*Lepidium africanum*) Corn Gromwell (Ironweed, Sheepweed) (*Buglossoides arvensis*) Fat Hen (*Chenopodium album*) Field Madder (*Sherardia arvensis*) Lesser Swinecress (*Coronopus didymus*) Mountain Sorrel (*Oxalis acetosella*) Purple Calandrinia (*Calandrinia menziesii*), Saffron Thistle (*Carthamus lanatus*) Shepperd's Purse (*Capsella bursa-pastoris*) Three-horned bedstraw (*Gallium tricornutum*), Tree Hogweed (*Polygonum patulum*) Variegated Thistle (*Silybum marianum*)	Up to the 4 leaf stage or when plants are no more than 35 mm in diameter. Up to the 6 leaf stage or when plants are no more than 50 mm in diameter	All states	1.4 L/ha (280 g ai/ha) 2.0 L/ha (400 g ai/ha)	**CROP STAGE:** **Wheat, Barley, Cereal, Rye, Oats and Triticale:** 3 leaf to full tillered (Zadoks Scale Z13-Z30). **Linseed:** 50 to 150 mm high. **Lucerne and Clover:** After seedlings have one trifoliate leaf or before there is 150 mm regrowth in established stands. **Lotus**: Apply post-emergence at least 4 weeks after sowing (crop seedlings with a minimum of 2-6 true leaves). **APPLICATION:** Refer to General Instuctions. Avoid application when maximum daily temperatures above 20^{o}C occur, or are likely to occur for a few days after application. Good coverage of the spray on the weed is essential. Apply only in the Autumn and Winter (mid-April to end of August). For optimum control, apply only when the weeds are actively growing and before the weeds are shielded by the crop. **CAUTION:** **Lucerne and clover:**This product will cause slight leaf burning of undersown lucerne and clover. DO NOT apply to Persian clover or Berseem clover. **Linseed**: DO NOT spray linseed by aerial application. **Lotus:** Some initial scorching of leaves may occur in some cases. **Medics:** Application to some cultivars of Medics may result in unacceptable crop damage in some situations. # Effective control of Paterson's Curse and Fumitories will only be obtained under good growing conditions.

	Mexican Poppy (*Argemone ochroleuca*) Three cornered Jack (Doublegee, Spiney Emex) (*Emex australis*) Turnip weed (Giant Mustard) (*Rapistrum rugosum*) Wild Radish (*Raphanus raphanistrum*) Wild mustard (*Sisymbrium spp.*) Wild Turnip (*Brassica tournefortii*) Wireweed[##] (*Polygonum aviculare*) Paterson's Curse[#] (*Echium plantagineum*) (Salvation Jane)				## Where Wireweed is growing under stress, it has been found to be less susceptible.
	Fumitories[#] (*Fumaria* spp.)		Qld, NSW, Vic, SA, WA, ACT only		
	Pheasant's Eye (*Adonis macrocarpa*) Birds Eye (Carrot Weed) (*Cotula australis*)	Up to the 4 true leaf stage	SA only	700 mL/ha (140 g ai/ha)	DO NOT use where undersown medics occur
		Greater than the 4 true leaf stage		1.4 L/ha (280 g ai/ha)	
	Fireweed (*Senecio* spp.)	Seedlings	Qld, NSW, ACT only	1.4 L/ha (280 g ai/ha)	Apply during the Autumn-Winter period when weeds are young and actively growing. Not effective on mature plants.
		Early flowering stage		2.8 L/ha (560 g ai/ha)	
Wheat, Barley, Cereal Rye, Oats and Triticale: including those undersown with Clover, Lucerne or Medics; **Clover seed crops**	Amsinckia (*Amsinckia* spp.) Capeweed (*Arctotheca calendula*) Chamolmile (*Matricaria matricarioides*) Charlock (*Sinapis arvenses*) Corn Gromwell (Ironweed, Sheepweed) (*Buglossoides*	Up to the 5 leaf stage or when plants are no more than 50 mm in diameter	WA only	750 mL/ha (150 g ai/ha) PLUS 440 mL Nufarm Amicide 625/ha OR PLUS 700 mL of Nufarm MCPA 500/ha	**CROP STAGE:** **Cereals:** 3 leaf to fully tillered. (Zadoks Scale Z13-30) **Clover:** Apply after clover seedlings have at least 3 trifoliate leaves. **APPLICATION:** Refer to general instructions. Avoid application when maximum daily temperatures above 20^{o}C occur, or are likely to occur for a few days after application.

	arvensis) Fat Hen (*Chenopodium album*) Field Madder (*Sherardia arvensis*) Hexham Scent (King Island Melliot) (*Melilotus indicus*) Horned Poppy (*Glaucium flavum*) Indian Hedge Mustard (*Sisymbrium orientale*) Lesser Swincress (*Coronopus didymus*) Mexican Poppy *(Argemone ochroleuca*) Mintweed (*Salvia reflexa*) Purple Calandrinia (*Calandrinia menziesii*) Paterson's Curse (*Echium plantagineum*) (Salvation Jane) Rough Poppy (*papaver hybridum*) Saffron Thistle (*Carthamus lanatus*) Shepperd's Purse (*Capsella bursa-pastoris*) Slender Thistle (*Carduus tenuiflorus*) Turnip weed (Giant Mustard) (*Rapistrum rugosum*) Wild Radish (*Raphanus raphanistrum*)		Vic, SA only	1.4 L/ha (280 g ai/ha) PLUS 440 mL Nufarm Amicide 625/ha OR PLUS 700 mL of Nufarm MCPA 500/ha	Apply only in the Autumn and Winter (mid-April to end of August). Apply only when weeds are actively growing and before weeds are shielded by the crop. **CAUTION:** Some crop damage and /or yield loss may occur in Olympic and Shortim wheat cultivars. DO NOT apply to Persian clover or Berseem clover. A slight burning of clover may occur. DO NOT use 2,4-D or MCPA tank mix if wheat, oats, barley or triticale are undersown with lucerne, clover or medics unless some damage is acceptable. This product may be tank mixed with Hoegrass/Nugrass® for control of Annual Rye Grass and Wild Oats in Wheat and Barley only. DO NOT use 2,4-D or MCPA tank mix if using a tank mix with Hoegrass/Nugrass®
	Common Peppercress (*Lepidium africanum*) Tree Hogweed (*Polygonum patulum*)		Vic only		

	Black Bindweed (Climbing buckwheat) (*Fallopia convolvulus*)	Up to the 8 leaf stage	Vic, SA only		
Wheat, Oats, Barley, Triticale alone or with undersown lucerne and clover	Common Sowthistle (*Sonchus oleraceus*)	Up to 4 leaves	Qld, Northern NSW	1.4 L/ha (280 g ai/ha)	Strictly for use on small weeds early in crop before shading out. **CROP STAGE:** **Wheat, barley, oats and triticale:** 3 leaf to full tillering (Z13-Z23). Use a minimum spray volume of 70 L/ha. If Group B resistance is suspected, or weeds have grown through a previous application of chlorsulfuron apply 2.1 L/ha
		4 to 8 leaves		2.1 L/ha (420 g ai/ha)	**CROP STAGE:** **Wheat, barley, oats and triticale:** 3 leaf to full tillering (Z13-Z23). This product will cause slight leaf burning of undersown lucerne and clover.
Wheat, Barley, Oats and Triticale	Three cornered Jack (Doublegee, Spiney Emex) (*Emex australis*) Wireweed (*Polygonum aviculare*) Variegated Thistle (*Silybum marianum*)	Up to the 4 leaf stage or when plants are no more than 50 mm in diameter	Qld, NSW, Tas, SA, ACT only	1.4 L/ha (280 g ai/ha) PLUS 440 mL Nufarm Amicide 625/ha OR PLUS 700 mL of Nufarm MCPA 500/ha	**CROP STAGE:** 5 leaf to fully tillered (Zadoks scale Z15-30): Apply under good growing conditions. **Boom Spraying:** Use a minimum of 220 L spray per hectare on Black Bindweed when the crop is greater than 300 mm high. **Caution:** Some crop damage and /or yield loss may occur in Olympic and Shortim wheat cultivars. DO NOT mix with 2,4-D or MCPA tank mix if wheat, oats, barley or triticale are undersown with lucerne, clover or medics unless some damage is acceptable. DO NOT apply to medics (WA only). This product may be tank mixed with Hoegrass/Nugrass® for control of Annual Rye Grass and Wild Oats in Wheat and Barley only. DO NOT use 2,4-D or MCPA tank mix if using a tank mix with Hoegrass/Nugrass® **Application:** Refer to general instructions. Avoid application when maximum daily temperatures
	Fumitories (*Fumaria* spp.)		Qld, NSW, ACT, Vic only		
	Wild mustard (*Sisymbrium spp.*) Wild Turnip (*Brassica tournefortii*)		Qld, Vic only		
	Cleavers	2-4 stems + 1-3 whorls of leaves/stem	Qld, Vic, NSW, ACT, Tas only		
	Three cornered Jack (Doublegee, Spiney Emex) (*Emex australis*) Wireweed (*Polygonum aviculare*)	4-5 leaf stage	WA only		
			Qld, Vic, NSW, ACT, SA, Tas only	2.1 L/ha (420 g ai/ha) PLUS 400 mL Nufarm Amicide 625/ha OR PLUS 700 mL	
	Fumitories (*Fumaria* spp.)		Qld, NSW, Vic, SA, ACT only		

	Black Bindweed (Climbing buckwheat) (*Fallopia convolvulus*) Chamolmile (*Matricaria matricarioides*) Fat Hen (*Chenopodium album*) Field Madder (*Sherardia arvensis*) Lesser Swincress (*Coronopus didymus*) Mountain sorrel (*Oxalis acetosella*) Purple Calandrinia (*Calandrinia menziesii*) Paterson's Curse (*Echium plantagineum*) (Salvation Jane) Shepperd's Purse (*Capsella bursa-pastoris*) Three-horned bedstraw (*Gallium tricornutum*), Variegated Thistle (*Silybum marianum*)	5 to 8 leaf stage	All states	of Nufarm MCPA 500/ha	above 20^{o}C occur, or are likely to occur for a few days after application.
Grain sorghum	Common Sowthistle (*Sonchus oleraceus*) Cowvine or Peachvine (*Ipomea Ionchophylla*) Bellvine (*I. plebeia*)	Up to 4 leaves	Qld, NSW only	1.5 L/ha (300 g ai/ha)	**CROP STAGE:** 4-12 leaf stage. This product may cause transient leaf burn of some sorghum varieties. **Application:** Beyond the 6-8 leaf stage of the crop, dropped nozzles should be used to minimise chemical being sprayed into the whorl and on upper leaves of the crop and to reduce shading of weeds. Use on small weeds early in the crop life to prevent shading out of the weeds. Spray when weeds are actively growing and not when drought stressed. Use a minimum spray volume of 70 L/ha.
	Common Sowthistle (*Sonchus oleraceus*) Cowvine or Peachvine (*Ipomea Ionchophylla*)	4 to 8 leaves		2 L/ha (400 g ai/ha)	

	Common Sowthistle (*Sonchus oleraceus*) Cowvine or Peachvine (*Ipomea Ionchophylla*) Bellvine (*I. plebeia*) Morning glory (*I. purpurea*), Bladder Ketmia (*Hibiscus trionum*), Dwarf amaranth (*Amaranthus macrocarpus*), Annual ground cherry (*Physalis angulata*) Fierce thornapple (*Datura ferox*) Anoda weed (*Anoda cristate*) Noogoora burr (*Xanthium pungens*)	Up to 4 leaves		1.5 L/ha (300 g ai/ha) PLUS 1.1 kg/ha Nufarm Nutrazine 900DF	**CROP STAGE:** 4-12 leaf stage. This product may cause transient leaf burn of some sorghum varieties. **Application:** Beyond the 6-8 leaf stage of the crop, dropped nozzles should be used to minimise chemical being sprayed into the whorl and on upper leaves of the crop and to reduce shading of weeds. Use on small weeds early in the crop life to prevent shading out of the weeds. Spray when weeds are actively growing and not when drought stressed. Use a minimum spray volume of 70 L/ha. Add a non-ionic surfactant. Do not use on sandy soils.
		4 to 8 leaves		2 L/ha (400 g ai/ha) PLUS 1.1 kg/ha Nufarm Nutrazine 900DF	
Pastures	Adonis (Pheasants Eye) Birds Eye (Carrot weed)	Up to 4 leaves	SA only	700 mL/ha (140 g ai/ha)	Apply in May-June. Medics may be severly scorched at the low rate and killed at the high rate. Do not apply to polymorpha medics. Avoid application to clover-based pastures in temperatures over 20^{o}C or when temperatures above 20^{o}C may follow for some days after application; as seedling mortality may occur and established plants may be damaged.
		More than 4 leaves		1.4 l/ha (280 g ai/ha)	
	Double gee, Wild radish	Up to 4 leaves	WA only	1.5 L/ha (300 g ai/ha)	
	Matricaria	Up to 3 leaves		750 mL/ha (150 g ai/ha)	
	Fireweed	Seedlings	Qld, NSW, ACT only	1.4 L/ha (280 g ai/ha)	Apply with low volume boom spray during autumn/winter, when weeds are young and actively growing. Not effective on mature plants.
		Early flowering		2.8 L/ha (560 g ai/ha)	
Pastures, Roadsides and Rights-of-Way	African Daisy (*Senecio pterophorus*)	Up to and including the flowering stage	SA only	300 mL per 100 L water (60 g ai/100L)	The plants, including the stems, must be thoroughly wet to the point of run-off. Apply when the plants are actively growing. Spraymate Activator should be added at 125 mL per 100 litres of spray. A follow-up treatment may be necessary for large, well established plants. Ensure an overall spray coverage on weed seedlings.
	Boneseed/Bitou-bush (*Chrysanthemoides monilifera*)	Seedlings only	Vic, Tas only	160 mL per 100 L water (32 g ai/100 L)	

Withholding periods:

Harvest: Not required when used as directed.

Grazing: Do not graze treated crops or pasture or cut for stock food for 21 days after application.

Livestock Destined for Export Markets:

Grazing withholding periods apply to stock slaughtered for the domestic market. Some export markets apply different standards. To meet these standards ensure that the export animal feed interval is observed before stock are sold or slaughtered.

Export harvest interval (EHI): Do not harvest for 8 weeks after application.

Export animal feed interval (EAFI): Do not graze or cut for stockfood for 8 weeks after application.

4. Results from residues trials presented to the APVMA

Four Australian trials and four European trials on sorghum were provided. Residues of bromoxynil in samples of sorghum grain taken 84 – 100 days after treatment at 420 – 450 g ai/ha (1.05 – 1.1× maximum rate) were <0.007 (n = 3), <0.01, <0.05, 0.02 and 0.023 mg/kg. The current cereal grains MRL of *0.2 mg/kg is appropriate to cover the proposed use of bromoxynil on sorghum.

Residues of bromoxynil were not detected in samples of wheat or barley straw taken 60 or more days after treatment at up to 800 g ai/ha (1.4× maximum rate). An MRL of *0.1 mg/kg is recommended for straw and fodder of cereal grains.

No data were provided for barley and wheat forage in conjunction with the current 14 day grazing withholding period. At 14 days after application at 420 g ai/ha (0.75× maximum rate for cereals), residues in sorghum forage were 1.97, 2.11, 3.40 and 4.85 mg/kg, on a dry weight basis.

Fifteen European trials on pasture were provided. At 12 – 14 days after treatment at 800 g ai/ha (1.4× maximum rate) residues in pasture were 1.7, 5.9 and 12.5 mg/kg. Assuming a dry matter content of 20%, the maximum residue in pasture at the proposed 14 day grazing withholding period is 62.5 mg/kg on a dry weight basis. Preliminary calculations indicated that predicted residues in tissues and milk from livestock feeding on pasture containing bromoxynil residues at this level would cause the NEDI to exceed the ADI. If a 21 day grazing withholding period is considered for pasture, residues were <0.08, 1.2 and 2.8 mg/kg (fresh weight) after treatment at 800 g ai/ha (1.4× maximum rate). This would correspond to a maximum residue of 14 mg/kg on a dry weight basis. Scaling this result for the maximum allowed rate of 560 g ai/ha would give a maximum predicted residue of 9.8 mg/kg in pasture on a dry weight basis. As residues in cereal forage and pasture are expected to be similar, MRLs of 10 mg/kg are recommended for cereal forage and pasture in conjunction with a 21 day grazing withholding period.

The predicted median residue in pasture is 4.2 mg/kg on a dry weight basis. Pasture may be fed to grazing livestock as 100% of the diet giving a bromoxynil feeding level of 4.2 ppm. It is appropriate to use the median residue rather than the highest residue in this case given the range of residues observed in the trials at 21 days after treatment. Animal transfer studies provided with the application indicate that the following animal commodity MRLs are required:

MO 0105	Edible offal (mammalian)	3 mg/kg

MM 0095	Meat [mammalian]	0.5 mg/kg
ML 0106	Milks	0.1 mg/kg

Cereal grains may be fed to poultry as 100% of the diet. However, as no changes are required to the cereal grains MRL which is set at *0.2 mg/kg, the current poultry commodity MRLs remain acceptable.

5. Overseas registration and approved label instructions

The applicant indicated that bromoxynil products are registered for use in the USA, Canada, UK, France, Hungary, Italy, Poland, Ireland, Netherlands, Spain, Saudi Arabia, Luxemborg, Germany, Austria, Egypt, South Africa, Tanzania, Turkey, Portugal, New Zealand and Argentina.

6. Codex Alimentarius Commission and overseas MRLs

Codex MRLs have not yet been established for bromoxynil.

The following relevant overseas residue MRLs/ tolerances have been established for bromoxynil:

Country/status	Commodity	Tolerance, mg/kg
USA	Sorghum, grain, forage	0.5
	Sorghum, grain, grain	0.05
	Sorghum, grain, stover	0.2
Japan	Hay (includes hay, fodder, straw & silage)	0.1*
	Other cereal grains	0.2 (provisional)

*Established under the Amendment to the Enforcement Ordinance of the Standards of Feed and Feed Additives, Ministry of Agriculture, Forestry and Fisheries, Japan.

The following overseas animal commodity MRLs /tolerances have been established for bromoxynil:

Country	Commodity	Tolerance, mg/kg
USA	Cattle, fat	1
	Cattle, meat	0.5
	Cattle, meat by-products	3.5
	Milk	0.1
Japan	Cattle, muscle	0.07 (provisional)
	Cattle, fat	0.1 (provisional)
	Cattle, liver	0.07 (provisional)
	Cattle kidney	0.07 (provisional)
	Cattle, edible offal	0.07 (provisional)
	Milk	0.07 (provisional)
EC	Meat, edible offal, fat & preparations of meat & edible offal	*0.05 (provisional
	Milk	*0.01 (provisional)

The proposed Australian MRLs for meat, offal and milk are at similar levels to those established for bromoxynil on animal commodities in the USA. The proposed Australian

MRLs are however significantly higher than the provisional animal commodity MRLs established for bromoxynil by Japan and the EC.

7. Current and proposed Australian MRLs for bromoxynil:

The following changes to the Australian MRL standard are proposed for bromoxynil:

Table 1

Compound	Food		MRL (mg/kg)
DELETE:			
Bromoxynil	MO 0105	Edible offal (mammalian)	*0.02
	MM 0095	Meat [mammalian]	*0.02
	ML 0106	Milks	*0.02
ADD:			
Bromoxynil	MO 0105	Edible offal (mammalian)	3
	MM 0095	Meat [mammalian]	0.5
	ML 0106	Milks	0.1

Table 4

Compound	Animal feed commodity		MRL (mg/kg)
ADD:			
Bromoxynil	AF 0081	Forage of cereal grains	10
		Pasture	10
	AS 0081	Straw and fodder of cereal grains	*0.1

For full details of bromoxynil MRLs, please refer to the APVMA website http://www.apvma.gov.au and follow the Residues link.

8. Potential Risk to Trade

Export of treated produce containing finite (measurable) residues of bromoxynil may pose a risk to Australian trade in situations where (i) no residue tolerance (import tolerance) is established in the importing country or (ii) where residues in Australian produce are likely to exceed a residue tolerance (import tolerance) established in the importing country.

Residues of bromoxynil in sorghum grain at harvest were non detectable (<0.007 – <0.05 mg/kg) in 5 out of 7 trials reflecting the proposed GAP. In the remaining 2 trials residues were 0.02 mg/kg. Japan, the main export market for sorghum grain has established a provisional bromoxynil cereal grains MRL of 0.2 mg/kg. It is therefore considered that the risk to trade in sorghum grain is likely to be small.

As residues were not detected in samples of wheat or barley straw collected 60 days or more after treatment, an 8 week export harvest (EHI) interval should ensure that residues in hay for

export meet the Japanese MRL for bromoxynil in hay which is established at the LOQ (0.1 mg/kg).

Detetectable residues are expected to occur in animal commodities when the product is used as directed. Of the main export markets for animal commodities only the USA has established MRLs at comparable levels to those required for Australia. The target concentration for residues in Australian animal commodities for export is therefore below the LOQ (0.05 mg/kg). Based on the calculated half life for bromoxynil in liver (12.2 days) it would take 69 days on clean feed for residues in animal tissues to decline below 0.05 mg/kg. It is therefore not possible to recommend an export slaughter interval (ESI) as an ESI of more than 60 days may be considered to be difficult to comply with. However, the risk to trade in animal commodities can be mitigated through the observance of an 8 week export animal feed interval (EAFI). This will ensure that there are no detectable bromoxynil residues in treated pasture or cereal forage and therefore no detectable residues in animal commodities that are destined for export.

The relevant industry groups should be given the opportunity to comment on the perceived level of risk and whether any industry-initiated strategies are required to manage the risk.

9. Conclusions

Residues of bromoxynil in treated sorghum grain will be below the current Australian cereal grains MRL of *0.2 mg/kg. As the main export market for sorghum grain, Japan, has established a tolerance in line with the Australian MRL there is unlikely to be any undue risk to trade. An 8 week export harvest interval will ensure that there are no detectable residues in animal feed commodities such as cereal hay for export.

Predicted residues in cereal forage and pasture require the existing animal commodity MRLs for grazing livestock be increased. Of the main export markets for animal commodities, only the USA has established MRLs equivalent to those required for Australia. However, this risk to trade can be mitigated by the observance of an eight week export animal feed interval (EAFI). This will ensure that there are no detectable residues in animal commodities destined for export.

The APVMA welcomes comment with regard to whether the proposed use of Nufarm Bromicide 200 Selective Herbicide poses an undue prejudice to Australian export trade when it is used on cereals and pastures to control various weeds.