Health Canada Santé Canada

Evaluation Report for Category B, Subcategory 3.10, 3.11, 3.12, 3.13, 3.2, 3.4 and 3.5 Application

Application Number: 2015-1950
Application: B.3.10 - New Tankmixes
B.3.11 - New Pests
B.3.12 - New Site or Host
B.3.13 - New Precautions
B.3.2 - New Application Timing
B.3.4 - New Application Method
B.3.5 - New Rotational Crops/Plantback Interval
Product: Authority 480 Herbicide
Registration Number: 29012
Active ingredients (a.i.): Sulfentrazone
PMRA Document Number: 2665188

Purpose of Application

The purpose of this application was to add several new crops, several new weeds, several new rotational crops/plant-back intervals and a new tank mix to the label, to amend the application method (directed application to the base of threes, vines, and berries) and timing, to amend environmental precautions, and to make other label improvements.

Chemistry Assessment

Chemistry assessment was not required for this application.

Health Assessments

The uses for the end-use product Authority 480 Herbicide include new field crops, vegetables and fruits treated by ground application equipment at a rate equivalent to that registered. In addition to the single broadcast spray application, band treatment has also been added to the label for some of the crops. These proposed amendments are not expected to result in potential occupational or bystander exposure over the registered uses of Authority 480 Herbicide. No health risks of concern are expected when workers follow label directions and wear personal protective equipment as stated on the label.

Residue data from field trials conducted in the United States (including Canadian representative growing regions) were submitted to support the domestic use of Authority 480 Herbicide on various crops. Sulfentrazone was applied to crops at exaggerated rates, and harvested according to label directions. In addition, previously reviewed residue data from field trials conducted in/on cabbage, asparagus, lima bean, horseradish roots, spearmint and peppermint tops, strawberry, and flax seed were reassessed in the framework of this petition. Processing studies in treated apple,

grape, mint, and tomato were reviewed or reassessed to determine the potential for concentration of residues of sulfentrazone into processed commodities.

Maximum Residue Limits

The recommendation for maximum residue limits (MRLs) for sulfentrazone was based upon the submitted field trial data, and the guidance provided in the OECD MRL Calculator. MRLs to cover residues of sulfentrazone, DMS, and HMS in/on crops and processed commodities are proposed as shown in Table 1. Residues in processed commodities not listed in Table 1 are covered under the proposed MRLs for the raw agricultural commodities (RACs).

TABLE 1. Summary of Field Trial and Processing Data Used to Support Maximum Residue Limits (MRLs)

Commodity	Application Method/ Total Application Rate (g a.i./ha)	PHI (days)	Combined Residues of Sulfentrazone, DMS, and HMS(ppm)		Experimental Processing Factor	Currently Established MRL (ppm)	Recommended MRL (ppm)
			LAFT	HAFT			
Mustard greens	pre-emergent / 103-121	40-60	<0.15	0.18	Not required	-	0.4 (*Brassica* leafy greens, CSG 4-13B)
Broccoli	soil application (before transplanting) / 385-429	45-73	<0.15	<0.15	Not required	-	0.2 (*Brassica*, Head and Stem, CG 5-13)
Cabbage	soil application (before transplanting) / 140	68-104	<0.15	<0.15	Not required	0.2 (Cabbages)	
Tomato	One pre-tranplant and one banded application between rows post-emergent / 744-1100	19-21	<0.15	<0.15	No concentration of residues in tomato paste or puree.	-	0.15 (Fruiting Vegetables, CG 8-09)
Bell Peppers	One pre-transplant and one banded application between rows post-emergent / 828-873	19-21	<0.15	<0.15	Not required		

TABLE 1. Summary of Field Trial and Processing Data Used to Support Maximum Residue Limits (MRLs)							
Commodity	**Application Method/ Total Application Rate (g a.i./ha)**	**PHI (days)**	**Combined Residues of Sulfentrazone, DMS, and HMS(ppm)**		**Experimental Processing Factor**	**Currently Established MRL (ppm)**	**Recommended MRL (ppm)**
Non-bell Peppers	One pre-tranplant and one banded application between rows post-emergent / 841-853	19-22	<0.15	<0.15			
Grapes	Soil directed broadcast spray / 416-433	3-30	<0.15	<0.15	No quantifiable residues observed when applied at exaggerated rates	-	0.15 (Berries and Small Fruits, CG 13-07)
Strawberry	Soil directed broadcast spray / 416-417	2-28	<0.15	<0.15	Not required	-	
	Broadcast soil application pre-plant or dormant phase) / 426-448	56-189	<0.15	<0.15		-	
Blueberries	Soil directed broadcast spray / 417-428	3-31	<0.15	<0.15	Not required	-	
Blackberries	422-425 / Soil directed broadcast spray	3-29	<0.15	<0.15	Not required	-	
Raspberries	419-425 / Soil directed broadcast spray	7	<0.15	<0.15	Not required	-	
Elderberry	Soil directed broadcast spray / 419-420	3-29	<0.15	<0.15	Not required	-	
Fuzzy kiwifruit	Soil directed broadcast spray / 423-438	3-30	<0.15	<0.15	Not required	-	

TABLE 1. Summary of Field Trial and Processing Data Used to Support Maximum Residue Limits (MRLs)							
Commodity	**Application Method/ Total Application Rate (g a.i./ha)**	**PHI (days)**	**Combined Residues of Sulfentrazone, DMS, and HMS(ppm)**		**Experimental Processing Factor**	**Currently Established MRL (ppm)**	**Recommended MRL (ppm)**
Almond	Ground application / 420-430	3-28	<0.15	<0.15	Not required	-	0.15 (Tree Nuts, CG 14-11)
Pecan	Ground application / 420-428	3-21	<0.15	<0.15	Not required	-	
Apples	Soil broadcast / 404-441	13-15	<0.15	<0.15	No concentration of residues in apple juice	-	0.15 (apples)
Asparagus	Soil surface broadcast application / 271-284	13-15	<0.15	<0.15	Not required	0.15	-
Lima Beans	pre-emergent broadcast application / 210-224	89-91	<0.15	<0.15	Not required	-	0.15 (Succulent shelled broad bean)
Horseradish	Soil broadcast application / 413-429	116-133	<0.15	<0.15	Not required	0.15	-
Mint tops	Soil broadcast application / 140	92-130	<0.16	<0.15	No concentration of residues in mint oil	0.3	-
Flax seed[1]	Soil broadcast application after planting 409-429	111-123	<0.15	<0.15	Not required	-	0.15 [mustard seeds (oilseed and condiment type)]

LAFT = Lowest Average Field Trial; HAFT = Highest Average Field Trial

[1] Flax seed was used to represent mustard seed, as sulfentrazone is phytotoxic to canola, the representative commodity for CSG 20A.

Following the review of all available data, MRLs as proposed in Table 1 are recommended to cover residues of sulfentrazone. Residues in these crop commodities at the proposed MRLs will not pose an unacceptable risk to any segment of the population, including infants, children, adults and seniors.

Environmental Assessment

An environmental assessment is not required since the addition of several new crops, new weeds, new rotational crops/plant-back intervals and a new tank mix to the label, application methods and timing, and to make other label improvements, at previously labelled application rates, do not impact environmental risk.

Value Assessment

Sulfentrazone herbicide is identified as a priority for control of broadleaf weeds in apples, blackberries, blueberries, broccoli, cabbage, cauliflower, grapes, mustards, and brassica in the Canadian Grower Priority Database. The expansion of the use pattern of Authority 480 Herbicide to include the listed efficacy, host, and rotational crop claims would provide Canadian growers a greater flexibility to employ Authority 480 Herbicide for early season weed management.

Value information submitted included (1) data from field research trials, including 17 trials on asparagus, 13 trials on strawberry, 14 trials on mustard, 6 trials on each fababean and mint, 4 trials on each turnip green, collard greens, mustard greens, kale, and transplanted tomato, and 3 trials on transplanted pepper, (2) Use History Information from the USA, and (3) sound scientific rationale. Value information demonstrated that (1) the efficacy of Authority 480 Herbicide for control of the listed weeds is acceptable and (2) the listed crops and rotational crops could be expected to have an adequate margin of crop tolerance to Authority 480 Herbicide in accordance with the label instructions.

Conclusion

The PMRA has reviewed the information provided in support of the various amendments to the label of Authority 480 Herbicide. Based on the results of this review, the amendments are acceptable for full registration.

References

PMRA #	References
2533591	2015, Tolerance of asparagus to sulfentrazone (Authority 480 Herbicide) Project #: AAFC07-011, DACO: 10.1, 10.2, 10.2.1, 10.2.2, 10.2.3, 10.2.3.1, 10.2.3.3, 10.2.3.3(B), 10.3, 10.3.1, 10.3.2, 10.3.2(A), 10.3.3, 10.4, 10.5, 10.5.1, 10.5.2, 10.5.3, 10.5.4, and 10.5.5.
2533592	2015, Trial reports for tolerance of asparagus to sulfentrazone (Authority 480 Herbicide), DACO: 10.1, 10.2, 10.2.1, 10.2.2, 10.2.3, 10.2.3.1, 10.2.3.3, 10.2.3.3(B), 10.3, 10.3.1, 10.3.2, 10.3.2(A), 10.3.3, 10.4, 10.5, 10.5.1, 10.5.2, 10.5.3, 10.5.4, and 10.5.5.
2533594	2006, Tolerance to and efficacy of sulfentrazone on selected weeds in strawberry, DACO: 10.1, 10.2, 10.2.1, 10.2.2, 10.2.3, 10.2.3.1, 10.2.3.3, 10.2.3.3(B), 10.3, 10.3.1, 10.3.2, 10.3.2(A), 10.3.3, and 10.6.
2533597	2014, Tolerance to and efficacy of sulfentrazone (Authority 480 Herbicide) for the control of kochia in mustard, DACO: 10.1, 10.2, 10.2.1, 10.2.2, 10.2.3, 10.2.3.1, 10.2.3.3, 10.2.3.3(B), 10.3, 10.3.1, 10.3.2, 10.3.2(A), 10.3.3, and 10.6.
2533598	2015, Agricultural Use History Template - asparagus, DACO: 10.2.4.
2533599	2015, Agricultural Use History Template - brassica, head and stem, brassica, leafy greens and fruiting vegetables, DACO: 10.2.4.
2533600	2015, Agricultural Use History Template - horseradish, DACO: 10.2.4.
2533601	2015, Authority grapes tree fruit berries use history, DACO: 10.2.4.
2550666	2015, Excel summary file - tolerance of fababeans to sulfentrazone (Authority 480 Herbicide), DACO: 10.1, 10.3, 10.3.1, 10.3.2, and 10.3.2(A).
2550668	2015, Excel summary file - tolerance of mint, peppermint and spearmint, to sulfentrazone (Authority 480 Herbicide), DACO: 10.1, 10.3, 10.3.1, 10.3.2, and 10.3.2(A).
2550671	2015, Excel summary file - tolerance of turnip greens, collard greens, mustard greens and kale to sulfentrazone (Authority 480 Herbicide), DACO: 10.1, 10.3, 10.3.1, 10.3.2, and 10.3.2(A).
2550674	2015, Excel summary file - tolerance of fruiting vegetables, transplanted tomatoes, bell peppers and peppers, to sulfentrazone (Authority 480 Herbicide), DACO: 10.1, 10.3, 10.3.1, 10.3.2, and 10.3.2(A).
2533607	2015, Authority 480 Herbicide Use Scenario Summary, DACO: 5.1,5.2
1275973	2002, Sulfentrazone: Magnitude of the Residue on Bean (Lima), DACO: 7.8
1581974	2007, Sulfentrazone: Magnitude of the residue on Strawberry, DACO: 7.2.1,7.4.1

2533610 2006, Sulfentrazone: Magnitude of the Residue on Broccoli, DACO: 7.3,7.4,7.4.1,7.4.2

2533611 2006, Sulfentrazone: Magnitude of the Residue on MUSTARD GREENS, DACO: 7.3,7.4,7.4.1,7.4.2

2533613 2007, Sulfentrazone: Magnitude of the Residue on Tomato, DACO: 7.3,7.4,7.4.1,7.4.2

2533616 2007, SULFENTRAZONE: MAGNITUDE OF THE RESIDUE ON PEPPER (BELL & NON-BELL), DACO: 7.3,7.4,7.4.1,7.4.2

2533617 2010, Residues of Sulfentrazone on Berry and Small Fruits, DACO: 7.3,7.4,7.4.1,7.4.2

2533618 2010, Residues of Sulfentrazone on Tree Nuts, DACO: 7.3,7.4,7.4.1,7.4.2

2533619 2012, SULFENTRAZONE: MAGNITUDE OF THE RESIDUE ON APPLE, DACO: 7.3,7.4,7.4.1,7.4.2

2569540 2001, Storage Stability of Sulfentrazone, 3-carboxylic acid Sulfentrazone, and 3-hydroxymethyl Sulfentrazone in/on Laboratory Fortified Peanut, Peanut Oil, Sugarcane Refined Sugar, and Sugarcane Molasses., DACO: 7.3

2607827 2009, Sulfentrazone: Magnitude of the residue on blueberry., DACO: 7.3,7.4,7.4.1,7.4.2

ISSN: 1911-8082