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IR-4 Ornamental Horticulture Program Fluensulfone Crop Safety

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Table of Contents

Table of Contents	2
Table of Tables	3
Abstract	4
Introduction.....	5
Materials and Methods.....	5
Results and Summary	5
Phytotoxicity.....	5
Label Suggestions	8
Appendix 1: Contributing Researchers	9

Table of Tables

Table 1.	List of MCW-2 480EC treated crops with no or minimal transitory injury.	6
Table 2.	List of MCW-2 480EC treated crops with no injury at 1X but significant injury at 2X or 4X.	6
Table 3.	List of MCW-2 480EC treated crops with significant injury at 1X.....	6
Table 4.	List of MCW-2 480EC treated crops where more information is needed.	6
Table 5	Detailed Summary of Crop Safety Testing with MCW-2 480EC (flusulfone) Error! Bookmark not	

Abstract

Fluensulfone was registered as Nimitz Pro G in the United States in 2016 for nematode control in turf. Between 2012 and 2014, the IR-4 Project completed 13 trials on 8 ornamental horticulture plant species or genera examining phytotoxicity related to soil drench applications of fluensulfone (MCW-2 480EC). In these trials, one genus (*Petunia sp.*) exhibited minimal or no injury after drench applications. Based on this information, it is recommended that this genus be added to the list of tolerant plants on a future fluensulfone label for uses on ornamental horticulture crops.

Introduction

Fluensulfone was registered as Nimitz Pro G in the United States in 2016 for nematode control in turf. Between 2012 and 2014, the IR-4 Project completed 13 trials on 8 ornamental horticulture plant species or genera examining phytotoxicity related to soil drench applications of fluensulfone (MCW-2 480EC).

Materials and Methods

Fluensulfone (MCW-2 480EC) was tested applied as drench treatment at rates of 0.11, 0.22 and 0.44 ml per cu ft potting mix. Product was sprayed on potting mix and blended for even distribution or applied in sufficient water to thoroughly wet the entire mix in the pot. A minimum of six plants (replicate treatments) were required. Phytotoxicity was planned to be recorded on a scale of 0 to 10 (0 = no phytotoxicity; 10 = complete kill). Phytotoxicity was rated at 7, 14 and 21 days after application. For IR-4 testing, the following protocols were used: 12-011 and 13-011. For more detailed materials and methods, including application rates for various products, please visit <http://ir4.rutgers.edu/ornamental/OrnamentalDrafts.cfm> to view and download these protocols.

MCW-2 480EC was supplied to researchers (See list of researchers in Appendix 1) by MANA and Quali-Pro.

Results and Summary

Based on the type and nature of injury seen with pesticide applications, tested plant species were placed into four categories: 1) no significant phytotoxicity or growth differences from the untreated check or any injury was transitory, 2) no or minimal transitory injury seen at the 1X rate, but the 2X and/or 4X rates did cause significant phytotoxicity, 3) significant injury sufficient to recommend growers not utilize fluensulfone, and 4) more data are needed to make informed recommendations.

Phytotoxicity

Across all plant species tested fluensulfone (MCW-2 480EC) exhibited no or minimal negative impact on one genus (Table 1). All the other 7 species or genera tested also exhibited no or minimal negative impact, but less than 3 trials were conducted so there is not enough information available at this time (Table 4).

Please see **Error! Reference source not found.** for a summary of the individual trial results.

Table 1. List of MCW-2 480EC treated crops with no or minimal transitory injury.

Petunia sp.

Table 2. List of MCW-2 480EC treated crops with no injury at 1X but significant injury at 2X or 4X.

None

Table 3. List of MCW-2 480EC treated crops with significant injury at 1X.

None

Table 4. List of MCW-2 480EC treated crops where more information is needed.

Calibrachoa sp

Lantana camara

Lantana sp.

Osteospermum sp.

Pseudotsuga menziesii

Rhododendron sp (azalea)¹

Rhododendron sp. (rhododendron)¹

¹For these plants, the one or two trials presented here indicate no phytotoxicity or slight, transient injury, but these findings need to be confirmed.

Table 5 Detailed Summary of Crop Safety Testing with MCW-2 480EC (fluensulfone)

Notes: Table entries are sorted by crop Latin name. Only those trials with research reports received by 12/14/2017 are listed below.

PR#	Crop	Production Site	Researcher	State	Year	Application Type	Results
30852	Calibrachoa (Calibrachoa sp.) 'Minifamous Red'	Greenhouse	Grunwald	OR	2012	Drench	No injury or growth reduction with 0.11, 0.22 and 0.44 ml per cu ft potting mix; all plants saleable.
30858	Lantana (Lantana sp.) 'Chapel Hill Sunny Side Up'	Greenhouse	Catlin	NY	2013	Drench	No injury with 0.11, 0.22, and 0.44 ml/cu ft potting mix; slight growth reduction.
30858	Lantana (Lantana sp.) L. camara 'Confetti'	Greenhouse	Grunwald	OR	2012	Drench	No injury or growth reduction with 0.11, 0.22 and 0.44 ml per cu ft potting mix; all plants saleable.
30882	Daisybush (Osteospermum sp.) 'Akila'	Greenhouse	Freiberger	NJ	2014	Drench	No injury or growth reduction with 0.11, 0.22 and 0.44 ml per cu ft potting mix.
30882	Daisybush (Osteospermum sp.) 'Copper Purple'	Greenhouse	Grunwald	OR	2012	Drench	No injury or growth reduction with 0.11, 0.22 and 0.44 ml per cu ft potting mix; all plants saleable.
30884	Petunia (Petunia sp.) 'Carpet Blue Sky'	Greenhouse	Catlin	NY	2013	Drench	Slight injury (interveinal chlorosis) with 0.11, 0.22 and 0.44 ml per cu ft potting mix; no growth reduction.
30884	Petunia (Petunia sp.) 'Picobella Salmon'	Greenhouse	Freiberger	NJ	2013	Drench	No injury or growth reduction with 0.11, 0.22 and 0.44 ml per cu ft potting mix.
30884	Petunia (Petunia sp.) 'Single Wave Purple'	Greenhouse	Grunwald	OR	2012	Drench	No injury or growth reduction with 0.11, 0.22 and 0.44 ml per cu ft potting mix; all plants saleable.
30885	Fir, Douglas (Pseudotsuga menziesii)	Greenhouse	DeFrancesco	OR	2012	Drench	No injury or growth reduction with 0.11, 0.22 and 0.44 ml per cu ft potting media.
30885	Fir, Douglas (Pseudotsuga menziesii)	Greenhouse	Grunwald	OR	2012	Drench	No injury or growth reduction with 0.11, 0.22 and 0.44 ml per cu ft potting mix; all plants saleable.
30886	Rhododendron (Rhododendron sp.) 'Hino Crimson'	Greenhouse	DeFrancesco	OR	2012	Drench	No injury or growth reduction with 0.11, 0.22 and 0.44 ml per cu ft potting media.
30887	Rhododendron (Rhododendron sp.) R. catawbiense 'Album'	Greenhouse	Grunwald	OR	2012	Drench	No injury or growth reduction with 0.11, 0.22 and 0.44 ml per cu ft potting mix; all plants saleable.
30887	Rhododendron (Rhododendron sp.) 'Vulcan'	Greenhouse	DeFrancesco	OR	2012	Drench	No injury or growth reduction with 0.11, 0.22 and 0.44 ml per cu ft potting media.

Label Suggestions

In this report, one genus exhibited minimal or no injury after soil drench treatment with fluensulfone (MCW-2 480EC) at rates of 0.11, 0.22 and 0.44 ml per cu ft potting mix. It is recommended that this genus be added to the list of tolerant plants on future fluensulfone label on ornamentals.

Appendix 1: Contributing Researchers

Dr. Nora Catlin	Cornell Cooperative Extension 423 Griffin Avenue Riverhead, NY 11901
Mr. Joe DeFrancesco	Oregon State University 2040 Cordley Hall Corvallis, OR 97331
Mr. Tom Freiburger	Rutgers University Cream Ridge Experiment Station 283 Rt. 539 Cream Ridge, NJ 08514
Dr. Nik Grunwald	Horticultural Crops Research Lab USDA-ARS 3420 NW Orchard Ave. Corvallis, OR 97330