



[Environment Horticulture Program Research Summaries](#)

## **IR-4 Environmental Horticulture Program SP2478 Crop Safety**

**Authors: Jaimin Patel and Cristi Palmer  
Date: April 21, 2022**

**Acknowledgements  
Susan Bierbrunner**

This material is based upon work that is supported by the National Institute of Food and Agriculture, U.S. Department of Agriculture, under award numbers 2020-34383-32455 and 2021-343830-34848 with substantial cooperation and support from the State Agricultural Experiment Stations and USDA-ARS.

## Table of Contents

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

## Table of Tables

Table 1. List of SP2478 treated crops (foliar) with no or minimal transitory injury.....	5
Table 2. List of SP2478 treated crops (foliar) with no injury at 1X but significant injury at 2X or 4X.....	5
Table 3. List of SP2478 treated crops (foliar) with significant injury at 1X. ....	5
Table 4. List of SP2478 treated crops (foliar) where more information is needed.....	5
Table 5. List of SP2478 treated crops (foliar) with less than 3 trials.....	5
Table 6. List of SP2478 treated crops (drench) with no or minimal transitory injury.....	5
Table 7. List of SP2478 treated crops (drench) with no injury at 1X but significant injury at 2X or 4X.....	5
Table 8. List of SP2478 treated crops (drench) with significant injury at 1X. ....	5
Table 9. List of SP2478 treated crops (drench) where more information is needed.....	5
Table 10. List of SP2478 treated crops (drench) with less than 3 trials. ....	5
Table 11. Detailed Summary of Crop Safety Testing with SP2478 .....	6

## **Abstract**

SP2478 is a new fungicide being developed by SePro for the control of diseases on environmental horticulture crops such as powdery mildew and other diseases. The IR-4 Project completed 21 crop safety trials on 9 environmental horticulture plant species or genera from 2020 through 2022. SP2478 was applied either as a foliar spray or as a drench into soilless media. In these trials, all eight species or genera treated with foliar sprays exhibited minimal or no injury in the limited number of trials (one or two) for each crop.

When SP2478 was applied as a drench application in seven species or genera, all of these seven species or genera exhibited minimal or no injury in one or two trials for each crop.

## Introduction

SP2478 is a new fungicide being developed by SePro for the control of diseases on environmental horticulture crops such as powdery mildew and other diseases. The IR-4 Project completed 21 crop safety trials on 9 environmental horticulture plant species or genera from 2020 through 2022.

## Materials and Methods

SP2478 was applied as foliar treatment three times, at approximately 7 days intervals. This product was also applied once as a drench treatment. The application rates were at 4, 10 and 20 fl. oz per 100 gal, plus a water treated control. A minimum of ten 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 seven days after each foliar application whereas 7-14 days three times after one drench application. For IR-4 testing, the following protocols were used: 21-011, 21-012, 22-014, and 22-015. For more detailed materials and methods, including application rates for various products, please visit <https://www.ir4project.org/ehc/ehc-registration-support-research/env-hort-researcher-resources/#Protocols> to view and download these protocols.

SP2478 was supplied to researchers (See list of researchers in Appendix 1) by SePro.

## Results and Summary

Based on the type and nature of injury seen with pesticide applications, tested plant species were placed into three 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 at the 1X rate sufficient to recommend growers not utilize SP2478, and 4) more data are needed to make informed recommendations whether due to variable responses or because fewer than 3 trials have been conducted. These categories are represented separately for foliar and drench applications.

## Phytotoxicity

There were eight crop species or genera where less than three trials were conducted with foliar sprays (Table 5) and seven crop species or genera with drench applications (Table 10). As a foliar or drench application, across all crops tested, SP2478 exhibited no or minimal negative impact on all plant species or genera in either one or two trials.

Please see Table 11 for a summary of the individual trial results.

**Table 1. List of SP2478 treated crops (foliar) with no or minimal transitory injury.**

None

**Table 2. List of SP2478 treated crops (foliar) with no injury at 1X but significant injury at 2X or 4X.**

None

**Table 3. List of SP2478 treated crops (foliar) with significant injury at 1X.**

None

**Table 4. List of SP2478 treated crops (foliar) where more information is needed.**

None

**Table 5. List of SP2478 treated crops (foliar) with less than 3 trials.**

*Euphorbia pulcherrima*

*Impatiens hawkeri*

*Impatiens walleriana*

*Petunia x hybrida*

*Rosa* sp.

*Salvia splendens*

*Vinca minor*

*Viola* sp.

**Table 6. List of SP2478 treated crops (drench) with no or minimal transitory injury.**

None

**Table 7. List of SP2478 treated crops (drench) with no injury at 1X but significant injury at 2X or 4X.**

None

**Table 8. List of SP2478 treated crops (drench) with significant injury at 1X.**

None

**Table 9. List of SP2478 treated crops (drench) where more information is needed.**

None

**Table 10. List of SP2478 treated crops (drench) with less than 3 trials.**

*Impatiens hawkeri*

*Impatiens walleriana*

*Petunia x hybrida*

*Rosa* sp.

*Salvia splendens*

*Viola* sp.

*Viola X wittrockiana*

<sup>1</sup> Already registered

<sup>2</sup> No injury in 1 or 2 trials conducted.

**Table 11. Detailed Summary of Crop Safety Testing with SP2478**

Notes: Table entries are sorted by crop Latin name. Only those trials with research reports received by 4/7/2022 are listed below.

PR#	Crop	Production Site	Researcher	State	Year	Application Type	Results
34618	Poinsettia ( <i>Euphorbia pulcherrima</i> )	Shadehouse/ Lath House	Cheng	HI	2020	Foliar	No injury with 4, 10 and 20 fl oz per 100 gal.
34618	Poinsettia ( <i>Euphorbia pulcherrima</i> ) 'Red'	Shadehouse/ Lath House	Weiland	OR	2021	Foliar	No phytotoxicity was observed at 4, 10 & 20 fl. oz per 100 gallons when applied at 14 day interval.
34489	Impatiens, New Guinea ( <i>Impatiens hawkeri</i> ) 'Apollo Ruby Red'	Greenhouse	Bodine	NJ	2021	Drench	Slight to moderate injury increasing with rate (4, 10 and 20 fl oz per 100 gal)
34489	Impatiens, New Guinea ( <i>Impatiens hawkeri</i> ) 'Apollo Ruby Red'	Greenhouse	Bodine	NJ	2021	Foliar	Virtually no injury with 4, 10, and 20 fl oz per 100 gal
34489	Impatiens, New Guinea ( <i>Impatiens hawkeri</i> ) 'Magnum Lavendar'	Greenhouse	Weiland	OR	2021	Drench	No injury or impact on growth with 4, 10, and 20 fl oz per 100 gal.
34489	Impatiens, New Guinea ( <i>Impatiens hawkeri</i> ) 'Magnum Lavendar'	Greenhouse	Weiland	OR	2021	Foliar	No injury or impact on growth with 4, 10, and 20 fl oz per 100 gal.
34488	Impatiens, Common Garden; Buzzy Lizzy ( <i>Impatiens walleriana</i> ) 'Dazzler Cranberry'	Greenhouse	Bodine	NJ	2021	Drench	Slight injury with 4, 10 and 20 fl oz per 100 gal
34488	Impatiens, Common Garden; Buzzy Lizzy ( <i>Impatiens walleriana</i> ) 'Dazzler Cranberry'	Greenhouse	Bodine	NJ	2021	Foliar	Virtually no injury with 4, 10, and 20 fl oz per 100 gal
34491	Petunia ( <i>Petunia x hybrida</i> ) 'Madness Midnight'	Greenhouse	Bodine	NJ	2021	Drench	Virtually no injury with 4, 10 and 20 fl oz per 100 gal
34491	Petunia ( <i>Petunia x hybrida</i> ) 'Madness Midnight'	Greenhouse	Bodine	NJ	2021	Foliar	Virtually no injury with 4, 10, and 20 fl oz per 100 gal
34491	Petunia ( <i>Petunia x hybrida</i> ) 'Easy Wave Yellow'	Greenhouse	Reding	OH	2021	Drench	No injury, growth or flowering reduction when applied at any of the following rates (4, 10 and 20 fl oz/100 gal)
34483	Rose ( <i>Rosa</i> sp.) <i>R. mutabilis</i> 'China Rose'	Field Container	Weiland	OR	2022	Drench	No injury or impact on growth with 4, 10, and 20 fl oz per 100 gal.
34483	Rose ( <i>Rosa</i> sp.) <i>R. mutabilis</i> 'China Rose'	Field Container	Weiland	OR	2022	Foliar	No injury or impact on growth with 4, 10, and 20 fl oz per 100 gal.
34487	Scarlet Sage ( <i>Salvia splendens</i> ) 'Summer Jewel Red'	Greenhouse	Reding	OH	2021	Drench	No injury, growth or flowering reduction when applied at any of the following rates (4, 10 and 20 fl oz/100 gal)
34487	Scarlet Sage ( <i>Salvia splendens</i> ) 'Red Hot Sally'	Greenhouse	Weiland	OR	2021	Drench	No injury or impact on growth with 4, 10, and 20 fl oz per 100 gal.
34487	Scarlet Sage ( <i>Salvia splendens</i> ) 'Red Hot Sally'	Greenhouse	Weiland	OR	2021	Foliar	No injury or impact on growth with 4, 10, and 20 fl oz per 100 gal.
34511	Periwinkle, Common ( <i>Vinca minor</i> )	Greenhouse	Fraelich	GA	2021	Foliar	No injury or growth reduction with 4, 10 and 20 fl oz per 100 gal applied 3 times biweekly. All plants marketable.

PR#	Crop	Production Site	Researcher	State	Year	Application Type	Results
34485	Violet (Viola sp.) V. Cornuta 'Halo Sky Blue'	Greenhouse	Grunwald	OR	2021	Drench	No injury or impact on plant growth with 4, 10, and 20 fl oz per 100 gal.
34485	Violet (Viola sp.) V. Cornuta 'Halo Sky Blue'	Greenhouse	Grunwald	OR	2021	Foliar	No injury or impact on plant growth with 4, 10, and 20 fl oz per 100 gal.
34485	Violet (Viola sp.) 'Yellow Hybrid'	Greenhouse	Reding	OH	2021	Drench	No injury, growth or flowering reduction when applied at any of the following rates (4, 10 and 20 fl oz/100 gal)
34486	Pansy, Large Flowering; Wittrock's Violet (Viola X wittrockiana) 'Cool Wave Golden Yellow'	Greenhouse	Bodine	NJ	2021	Drench	No injury, growth or flowering reduction when applied once at 4, 10 and 20 fl oz per 100 gal

## Label Suggestions

In this report, eight or seven species and genera exhibited no or minimal injury after foliar or drench treatments, respectively, at 4, 10 and 20 fl oz per 100 gal for a total of nine crops across both application methods. If specific crops will be listed on the label, these can be included in a future label, pending availability of additional data:

*Euphorbia pulcherrima*

*Impatiens hawkeri*

*Impatiens walleriana*

*Petunia x hybrida*

*Rosa sp.*

*Salvia splendens*

*Vinca minor*

*Viola sp.*

*Viola X wittrockiana*



## Appendix 1: Contributing Researchers

Mr. Dave Bodine <i>(past affiliate)</i>	USDA-ARS Rutgers Cream Ridge Research Center
Mr. Ben Fraelich	USDA-ARS 2316 Rainwater Rd. P.O. Box 748 Tifton GA 31793
Dr. Nik Grunwald <i>(past affiliate)</i>	USDA-ARS Horticultural Crops Research 3420 NW Orchard Ave. Corvallis OR 97330
Dr. Mike Reding	USDA-ARS Hort Insects Lab 1680 Madison Avenue Wooster OH 44691
Dr. Jerry Weiland	USDA-ARS Horticultural Crops Research 3420 NW Orchard Ave. Corvallis OR 97330