



[Environment Horticulture Program Research Summaries](#)

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

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**Acknowledgements  
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## **Abstract**

Mefentrifluconazole is a new fungicide being developed by BASF for the control of foliar diseases of environmental horticulture crops. The IR-4 Project completed 24 crop safety trials on 15 environmental horticulture plant species or genera during 2019 to 2020. In these trials, no significant impacts were observed in data received so far for these crops.

## Introduction

Mefentrifluconazole is a new fungicide being developed by BASF for the control of foliar diseases of environmental horticulture crops. The IR-4 Project completed 24 crop safety trials on 15 environmental horticulture plant species or genera during 2019 to 2020.

## Materials and Methods

Mefentrifluconazole was applied as a foliar treatment typically 3 times at approximately 14 days intervals or as a single drench treatment. The application rates were 3, 6, and 12 fl oz per 100 gal for foliar sprays or 7.2, 14.4, and 28.8 fl oz per 100 gal for drench applications 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 weekly up to 6 weeks after initial application. For IR-4 testing, the following protocols were used: 19-006, 19-007, 20-011, and 20-012. 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.

Mefentrifluconazole was supplied to researchers (See list of researchers in Appendix 1) by BASF.

## 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 at the 1X rate sufficient to recommend growers not utilize Mefentrifluconazole, and 4) more data is needed to make informed recommendations.

### Phytotoxicity

Across all crops tested, Mefentrifluconazole exhibited no or minimal negative impact on 15 plant species or genera (Table 4.).

Please see Table 5 for a summary of the individual trial results.

**Table 1. List of Mefentrifluconazole treated crops with no or minimal transitory injury.**

*Coreopsis sp.*

**Table 2. List of Mefentrifluconazole treated crops with no injury at 1X but significant injury at 2X or 4X.**

None

**Table 3. List of Mefentrifluconazole treated crops with significant injury at 1X.**

None

**Table 4. List of Mefentrifluconazole treated crops where more information is needed.**

*Astilbe sp.*

*Callistemon citrinus*<sup>1</sup>

*Camellia japonica*<sup>1</sup>

*Cuprocyparis leylandii*

*Euonymus alatus*<sup>1</sup>

*Gaillardia x grandiflora*

*Helianthus maximiliani*

*Juniperus sp.*<sup>1</sup>

*Lagerstroemia indica*

*Loropetalum sp.*

*Monarda didyma*

*Phlox paniculata*<sup>1</sup>

*Rosmarinus officinalis*<sup>1</sup>

*Verbena sp.*<sup>1</sup>

<sup>1</sup> No injury in 2 trials

**Table 5 Detailed Summary of Crop Safety Testing with Mefentrifluconazole.**

Notes: Table entries are sorted by crop Latin name. Only those trials with research reports received by 7/28/2021 are listed below.

PR#	Crop	Production Site	Researcher	State	Year	Application Type	Results
33466	False Goat's Beard ( <i>Astilbe</i> sp.) <i>A. arendsii</i> 'Fanal'	Field Container	Fraelich	GA	2019	Foliar	No injury or significant growth reduction with 3, 6 and 12 fl oz per 100 gal applied 3 times biweekly; treated plants marketable.
34079	Bottlebrush, Crimson ( <i>Callistemon citrinus</i> )	Field Container	Wade	SC	2020	Drench	No injury and growth reduction with 3, 6 and 12 fl oz per 100 gal. All plants marketable.
34079	Bottlebrush, Crimson ( <i>Callistemon citrinus</i> )	Field Container	Wade	SC	2020	Foliar	No injury and growth reduction with 3, 6 and 12 fl oz per 100 gal applied 3 times biweekly. All plants marketable.
33482	Camellia ( <i>Camellia japonica</i> )	Field Container	Wade	SC	2020	Drench	No injury and growth reduction with 3, 6 and 12 fl oz per 100 gal. All plants marketable.
33482	Camellia ( <i>Camellia japonica</i> )	Field Container	Wade	SC	2020	Foliar	No injury and growth reduction with 3, 6 and 12 fl oz per 100 gal applied 3 times biweekly. All plants marketable.
33469	Tickseed ( <i>Coreopsis</i> sp.) <i>C. auriculata</i> 'Nana'	Field Container	Fraelich	GA	2019	Drench	No injury or significant growth reduction with 3, 6 and 12 fl oz per 100 gal applied twice; treated plants marketable.
33469	Tickseed ( <i>Coreopsis</i> sp.) <i>C. auriculata</i> 'Nana'	Field Container	Fraelich	GA	2019	Foliar	No injury or significant growth reduction with 3, 6 and 12 fl oz per 100 gal applied 3 times biweekly; treated plants marketable.
33469	Tickseed ( <i>Coreopsis</i> sp.)	Field Container	Wade	SC	2019	Foliar	No injury or growth reduction with 7.2, 14.4 and 28.8 oz per 100 gal applied 3 times biweekly; all plants marketable.
33487	Leyland Cypress ( <i>Cuprocyparis leylandii</i> )	Field Container	Wade	SC	2019	Foliar	No injury or growth reduction with 3, 6 and 12 fl oz per 100 gal applied 3 times biweekly; all plants marketable.
33483	Burning Bush ( <i>Euonymus alatus</i> )	Field Container	Wade	SC	2020	Drench	No injury and growth reduction with 3, 6 and 12 fl oz per 100 gal. All plants marketable.
33483	Burning Bush ( <i>Euonymus alatus</i> )	Field Container	Wade	SC	2020	Foliar	No injury and growth reduction with 3, 6 and 12 fl oz per 100 gal applied 3 times biweekly. All plants marketable.
33470	Blanket Flower ( <i>Gaillardia x grandiflora</i> ) 'Sunset Snappy'	Field Container	Fraelich	GA	2019	Foliar	No injury or significant growth reduction with 3, 6 and 12 fl oz per 100 gal applied 3 times biweekly; treated plants marketable.
33472	Sunflower, Maximilian ( <i>Helianthus maximiliani</i> ) <i>H. salicifolius</i> 'Autumn Gold'	Field Container	Fraelich	GA	2019	Foliar	No injury or significant growth reduction with 3, 6 and 12 fl oz per 100 gal applied 3 times biweekly; treated plants marketable.
33486	Juniper ( <i>Juniperus</i> sp.) <i>J. horizontalis</i> 'Monber'	Field Container	Fraelich	GA	2019	Foliar	No injury or significant growth reduction with 3, 6 and 12 fl oz per 100 gal applied 3 times biweekly; treated plants marketable.
33486	Juniper ( <i>Juniperus</i> sp.)	Field Container	Wade	SC	2019	Foliar	No injury or growth reduction with 3, 6 and 12 fl oz per 100 gal applied 3 times biweekly; all plants marketable.
33480	Crape Myrtle ( <i>Lagerstroemia indica</i> )	Field Container	Wade	SC	2019	Foliar	No injury or growth reduction with 3, 6 and 12 fl oz per 100 gal applied 3 times biweekly; all plants marketable.
33488	Loropetalum ( <i>Loropetalum</i> sp.)	Field Container	Wade	SC	2019	Foliar	No injury or growth reduction with 3, 6 and 12 fl oz per 100 gal applied 3 times biweekly; all plants marketable.
33463	Bee Balm, Scarlet ( <i>Monarda didyma</i> ) 'Bee-Merry'	Field Container	Fraelich	GA	2019	Foliar	No injury or significant growth reduction with 3, 6 and 12 fl oz per 100 gal applied 3 times biweekly; treated plants marketable.

PR#	Crop	Production Site	Researcher	State	Year	Application Type	Results
33465	Phlox, Fall ( <i>Phlox paniculata</i> )	Field Container	Wade	SC	2020	Drench	No injury and growth reduction with 3, 6 and 12 fl oz per 100 gal. All plants marketable.
33465	Phlox, Fall ( <i>Phlox paniculata</i> )	Field Container	Wade	SC	2020	Foliar	No injury and growth reduction with 3, 6 and 12 fl oz per 100 gal applied 3 times biweekly. All plants marketable.
33464	Rosemary ( <i>Rosmarinus officinalis</i> )	Field Container	Cochran (IA)	IA	2019	Drench	No significant injury or growth effects with 3, 6 and 12 fl oz per 100 gal applied once.
33464	Rosemary ( <i>Rosmarinus officinalis</i> ) 'Blue Spires'	Field Container	Fraelich	GA	2019	Foliar	No injury or significant growth reduction with 3, 6 and 12 fl oz per 100 gal applied 3 times biweekly; treated plants marketable.
33477	Vervain ( <i>Verbena</i> sp.)	Field Container	Wade	SC	2019	Drench	No injury or growth reduction with 3, 6 and 12 fl oz per 100 gal applied 3 times biweekly; all plants marketable.
33477	Vervain ( <i>Verbena</i> sp.)	Field Container	Wade	SC	2019	Foliar	No injury or growth reduction with 3, 6 and 12 fl oz per 100 gal applied 3 times biweekly; all plants marketable.

## Label Suggestions

In this report, all plants exhibited no or minimal injury after drench or foliar treatments of Mefentrifluconazole at 3, 6, and 12 fl oz per 100 gal for foliar sprays or 7.2, 14.4, and 28.8 fl oz per 100 gal for drench applications, suggesting that this active ingredient is safe to environmental horticulture crops. Given the lack of phytotoxicity across so many different plant species and genera, it is suggested that all the 15 plants in Table 4 (listed below) that showed no injury be placed on the Mefentrifluconazole label if BASF has similar results on these crops. Or a general statement can be placed on the label such as 'has not been demonstrated to cause damage on various environmental plant species according to labeled use instructions. Mefentrifluconazole may be used on a wide number of crops but must be tested on a limited portion of the crop prior to applying to the whole crop if the grower has no previous experience applying Mefentrifluconazole to that crop'.

*Astilbe sp.*

*Callistemon citrinus*

*Camellia japonica*

*Coreopsis sp.*

*Cuprocyparis leylandii*

*Euonymus alatus*

*Gaillardia x grandiflora*

*Helianthus maximiliani*

*Juniperus sp.*<sup>1</sup>

*Lagerstroemia indica*

*Loropetalum sp.*

*Monarda didyma*

*Phlox paniculata*

*Rosmarinus officinalis*

*Verbena sp.*



## Appendix 1: Contributing Researchers

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