



[Environmental Horticulture Program Research Summaries](#)

IR-4 Environmental Horticulture Program F6123 Crop Safety

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Date: September 29, 2020**

**Acknowledgements
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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 2015-34383-23710, 2017-34383-27100, 2019-34383-29973 and 2020-34383-32455 with substantial cooperation and support from the State Agricultural Experiment Stations and USDA-ARS.

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Abstract

F6123 is a new fungicide being developed by FMC for the control of powdery mildew, rusts, scab, black spot (*Diplocarpon rosae*), and other foliar diseases. The IR-4 Project completed 25 crop safety trials on 13 environmental horticulture plant species or genera during 2019 to 2020. At this time, sufficient information has not yet been generated for reliable conclusions on F6123 crop safety. In these limited number of trials, F6123 applied foliar caused minimal or no injury in 12 species or genera; however, drench application caused significant injury in 8 species or genera.

Introduction

F6123 is a new fungicide being developed by FMC for the control of powdery mildew, rusts, scab and black spot (*Diplocarpon rosae*), and other foliar diseases. The IR-4 Project completed 25 crop safety trials on 13 environmental horticulture plant species or genera during 2019 to 2020.

Materials and Methods

Two trials were typically conducted for each crop species or genera, with F6123 was applied as drench applied twice at 28-day intervals in one trial or as foliar treatment applied 4 times at approximately 7-day intervals in the other. The application rates were 7, 14 and 28 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 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.

F6123 was supplied to researchers (See list of researchers in Appendix 1) by FMC.

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 F6123, and 4) more data are needed to make informed recommendations.

Phytotoxicity

Only 2 trials were typically conducted for each crop species or genera, therefore sufficient information has not yet been generated for reliable conclusions on F6123 crop safety. In these limited number of trials, F6123 applied foliar caused minimal or no injury in 12 species or genera; however, drench application caused significant injury in 8 species or genera (Table 4).

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

Table 1. List of F6123 treated crops with no or minimal transitory injury.

None

Table 2. List of F6123 treated crops with no injury at 1X but significant injury at 2X or 4X.

None

Table 3. List of F6123 treated crops with significant injury at 1X.

None

Table 4. List of F6123 treated crops where more information is needed.

*Antirrhinum majus*¹

*Begonia semperflorens*¹

Coreopsis sp.²

*Dahlia x hortensis*²

*Delphinium grandiflorum*²

Pelargonium x hortorum

Phlox sp.¹

Rosa sp.¹

Rudbeckia fulgida var. *speciosa*²

*Tagetes erecta*¹

*Tagetes patula*¹

*Viola x wittrockiana*¹

*Zinnia elegans*²

¹ No or minor injury in 1 trial

² No or minor injury in 2 trials

Table 5 Detailed Summary of Crop Safety Testing with F6123.

Notes: Table entries are sorted by crop Latin name. Only those trials with research reports received by 9/20/2020 are listed below.

| PR# | Crop | Production Site | Researcher | State | Year | Application Type | Results |
|-------|---|-----------------|------------|-------|------|------------------|--|
| 33758 | Clubed Begonia (<i>Begonia semperflorans</i>) 'Dragon Wing Red' | Greenhouse | Freiberger | NJ | 2019 | Drench | Low to severe injury increasing with rates (7, 14 and 28 fl oz per 100 gal). |
| 33758 | Clubed Begonia (<i>Begonia semperflorans</i>) 'Dragon Wing Red' | Greenhouse | Freiberger | NJ | 2019 | Foliar | Minor injury with 7, 14 and 28 fl oz per 100 gal applied 4 times; minor stunting at 4X. |
| 33768 | Coneflower, Orange, var. <i>speciosa</i> (<i>Rudbeckia fulgida</i> var. <i>speciosa</i>) | Field Container | Harvey | WA | 2019 | Drench | No injury with 7, 14 and 28 fl oz per 100 gal applied twice at 28-day interval. |
| 33768 | Coneflower, Orange, var. <i>speciosa</i> (<i>Rudbeckia fulgida</i> var. <i>speciosa</i>) | Field Container | Harvey | WA | 2019 | Foliar | No injury with 7, 14 and 28 fl oz per 100 gal applied 4 times at 7-day intervals. |
| 33756 | Dahlia Hybrids (<i>Dahlia x hortensis</i>) 'Figaro Mix' | Greenhouse | Freiberger | NJ | 2019 | Drench | Minor injury with 7, 14 and 28 fl oz per 100 gal. |
| 33756 | Dahlia Hybrids (<i>Dahlia x hortensis</i>) 'Figaro Mix' | Greenhouse | Freiberger | NJ | 2019 | Foliar | No injury or growth reduction with 7, 14 and 28 fl oz per 100 gal applied 4 times. |
| 33769 | Garden Snapdragon (<i>Antirrhinum majus</i>) 'Montego Yellow' | Greenhouse | Freiberger | NJ | 2019 | Drench | Moderate to severe injury increasing with rates (7, 14 and 28 fl oz per 100 gal). |
| 33769 | Garden Snapdragon (<i>Antirrhinum majus</i>) 'Montego Yellow' | Greenhouse | Freiberger | NJ | 2019 | Foliar | Minor injury with 7, 14 and 28 fl oz per 100 gal applied 4 times. |
| 33755 | Geranium, Zonal (<i>Pelargonium x hortorum</i>) 'Patriot White Imp.' | Greenhouse | Freiberger | NJ | 2019 | Drench | Severe injury with 7, 14 and 28 fl oz per 100 gal. |
| 33755 | Geranium, Zonal (<i>Pelargonium x hortorum</i>) 'Patriot White Imp.' | Greenhouse | Freiberger | NJ | 2019 | Foliar | Moderate injury with 7, 14 and 28 fl oz per 100 gal applied 4 times. |
| 33762 | Marigold, African (<i>Tagetes erecta</i>) 'Taishan Orange' | Greenhouse | Bodine | NJ | 2020 | Drench | Minor injury with 7, severe with 14 and 28 fl oz per 100 gal applied twice. |
| 33762 | Marigold, African (<i>Tagetes erecta</i>) 'Taishan Orange' | Greenhouse | Bodine | NJ | 2020 | Foliar | No injury or growth reduction with 7, 14 and 28 fl oz applied 4 times weekly. |
| 33763 | Marigold, French (<i>Tagetes patula</i>) 'Durango Red' | Greenhouse | Bodine | NJ | 2020 | Drench | No injury or growth reduction with 7, minor with 14, and severe with 28 fl oz per 100 gal applied twice. |
| 33763 | Marigold, French (<i>Tagetes patula</i>) 'Durango Red' | Greenhouse | Bodine | NJ | 2020 | Foliar | No injury or growth reduction with 7, 14 and 28 fl oz applied 4 times weekly. |
| 33753 | Pansy, Large Flowering; Wittrock's Violet (<i>Viola x wittrockiana</i>) 'Spring Matrix DP Orange' | Greenhouse | Freiberger | NJ | 2019 | Drench | Minor to severe injury increasing with rates (7, 14 and 28 fl oz per 100 gal) applied twice. |
| 33753 | Pansy, Large Flowering; Wittrock's Violet (<i>Viola x wittrockiana</i>) 'Spring Matrix DP Orange' | Greenhouse | Freiberger | NJ | 2019 | Foliar | No injury with 7 and 14 fl oz per 100 gal applied 4 times weekly; very minor with 28 fl oz. |
| 33761 | Phlox (<i>Phlox</i> sp.) | Field Container | Harvey | WA | 2019 | Drench | Severe injury with 7, 14 and 28 fl oz per 100 gal applied twice at 28-day interval. |

| PR# | Crop | Production Site | Researcher | State | Year | Application Type | Results |
|-------|---|-----------------|------------|-------|------|------------------|---|
| 33761 | Phlox (Phlox sp.) | Field Container | Harvey | WA | 2019 | Foliar | No injury with 7, 14 and 28 fl oz per 100 gal applied 4 times at 7-day intervals. |
| 33757 | Siberian Lackspar (Delphinium grandiflorum) | Field Container | Harvey | WA | 2019 | Drench | No injury with 7, 14 and 28 fl oz per 100 gal applied twice at 28-day interval. |
| 33757 | Siberian Lackspar (Delphinium grandiflorum) | Field Container | Harvey | WA | 2019 | Foliar | No injury with 7, 14 and 28 fl oz per 100 gal applied 4 times at 7-day intervals. |
| 33760 | Tickseed (Coreopsis sp.) | Field Container | Harvey | WA | 2019 | Drench | No injury with 7, 14 and 28 fl oz per 100 gal applied twice at 28-day interval. |
| 33760 | Tickseed (Coreopsis sp.) | Field Container | Harvey | WA | 2019 | Foliar | No injury with 7, 14 and 28 fl oz per 100 gal applied 4 times at 7-day intervals. |
| 33767 | Rose (Rosa sp.) | Field Container | Harvey | WA | 2019 | Foliar | No injury with 7, 14 and 28 fl oz per 100 gal applied 4 times at 7-day intervals. |
| 33759 | Zinnia, Elegant (Zinnia elegans) | Field Container | Harvey | WA | 2019 | Drench | No injury with 7, 14 and 28 fl oz per 100 gal applied twice at 28-day interval. |
| 33759 | Zinnia, Elegant (Zinnia elegans) | Field Container | Harvey | WA | 2019 | Foliar | No injury with 7, 14 and 28 fl oz per 100 gal applied 4 times at 7-day intervals. |

Appendix 1: Contributing Researchers

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