



[Environment Horticulture Program Research Summaries](#)

IR-4 Environmental Horticulture Program V-10433 Crop Safety

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Acknowledgements

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Abstract

V-10433 is a new insecticide being developed by Valent for the control of scales, mealybugs thrips and other insect infesting environmental horticulture crops. The IR-4 Project completed 24 crop safety trials on 16 environmental horticulture plant species or genera during 2018 to 2021. In these trials, V-10433 exhibited no or minimal negative impact on 12 plant species or genera. Four species (*Antirrhinum majus*, *Impatiens walleriana*, *Solenostemon* sp. and *Tagetes* sp.) exhibited minimal or no injury in 3 trials and 8 species or genera exhibited minimal or no injury in the limited number of trials (one or two) for each crop.

Introduction

V-10433 is a new insecticide being developed by Valent for the control of scales, mealybugs thrips and other insect infesting environmental horticulture crops. The IR-4 Project completed 22 crop safety trials on 16 environmental horticulture plant species or genera during 2018 to 2021.

Materials and Methods

V-10433 was applied as foliar treatment typically 3 times at approximately 14 days intervals. The application rates were 11, 22 and 44 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: 18-011, 19-011, 20-005 and 21-005. 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.

V-10433 was supplied to researchers (See list of researchers in Appendix 1) by Valent.

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 V-10433, and 4) more data are needed to make informed recommendations.

Phytotoxicity

Across all crops tested, V-10433 exhibited no or minimal negative impact on 12 plant species or genera. Two species (*Antirrhinum majus* and *Impatiens walleriana*) exhibited minimal or no injury in 3 trials (Table 1) and 10 species or genera exhibited minimal or no injury in the limited number of trials (one or two) for each crop (Table 4).

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

Table 1. List of V-10433 treated crops with no or minimal transitory injury.

Antirrhinum majus
Impatiens walleriana

Solenostemon sp.
Tagetes sp.

Table 2. List of V-10433 treated crops with no injury at 1X but significant injury at 2X or 4X.

None

Table 3. List of V-10433 treated crops with significant injury at 1X.

None

Table 4. List of V-10433 treated crops where more information is needed.

Angelonia sp.¹
*Begonia semperflorens*¹
Dianthus sp.²
Gerbera sp.²

*Impatiens hawkeri*²
*Pelargonium x hortorum*¹
Petunia x hybrida.¹
*Zinnia elegans*²

¹ No injury in 1 trial

² No injury in 2 trials

Table 5. Detailed Summary of Crop Safety Testing with V-10433.

Notes: Table entries are sorted by crop Latin name. Only those trials with research reports received by 11/18/2021 are listed below.

PR#	Crop	Production Site	Researcher	State	Year	Application Type	Results
33633	Angelonia (Angelonia sp.) 'Serena Purple'	Greenhouse	Freiberger	NJ	2018	Foliar	No injury or growth reduction, all plants flowered normally, with 11, 22 and 44 fl oz per 100 gal + surfactant applied 3 times biweekly.
33627	Garden Snapdragon (Antirrhinum majus) 'Snaptastic Yellow'	Greenhouse	Freiberger	NJ	2018	Foliar	No injury or growth reduction, all plants flowered normally, with 11, 22 and 44 fl oz per 100 gal + surfactant applied 3 times biweekly.
33627	Garden Snapdragon (Antirrhinum majus) 'Crimson Red'	Greenhouse	Uber	CA	2020	Foliar	No injury and growth reduction with 11, 22 and 44 fl oz per 100 gal applied 3 times weekly.
33627	Garden Snapdragon (Antirrhinum majus) 'Snaptastic Mix'	Greenhouse	Vafaie	TX	2020	Foliar	No injury or significant growth reduction with 11, 22 and 44 fl oz per 100 gal applied 3 times weekly.
33630	Clubed Begonia (Begonia semperflorens) 'Whopper Rose Bronze Leaf'	Greenhouse	Freiberger	NJ	2018	Foliar	No injury or growth reduction, all plants flowered normally, with 11, 22 and 44 fl oz per 100 gal + surfactant applied 3 times biweekly.
33632	Pink (Dianthus sp.) D. gratianopolitanus "Firewitch"	Greenhouse	Fraelich	GA	2021	Foliar	No injury or growth reduction with 11, 22 and 44 fl oz per 100 gal applied 3 times weekly.
33632	Pink (Dianthus sp.) 'Diabunda Red Picotee'	Greenhouse	Freiberger	NJ	2018	Foliar	No injury or growth reduction, all plants flowered normally, with 11, 22 and 44 fl oz per 100 gal + surfactant applied 3 times biweekly.
33631	Transvaal Daisy (Gerbera sp.)	Greenhouse	Freiberger	NJ	2018	Foliar	No injury or growth reduction, all plants flowered normally, with 11, 22 and 44 fl oz per 100 gal + surfactant applied 3 times biweekly.
33631	Transvaal Daisy (Gerbera sp.) 'Jaguar Yellow'	Greenhouse	Vafaie	TX	2020	Foliar	No injury or significant growth reduction with 11, 22 and 44 fl oz per 100 gal applied 3 times weekly.
33629	Impatiens, New Guinea (Impatiens hawkeri) 'Sunpatiens Cmp White Imp.'	Greenhouse	Freiberger	NJ	2018	Foliar	No injury or growth reduction, all plants flowered normally, with 11, 22 and 44 fl oz per 100 gal + surfactant applied 3 times biweekly.
33629	Impatiens, New Guinea (Impatiens hawkeri) 'Bubble Gum'	Greenhouse	Larson	KY	2021	Foliar	No significant injury at 11, 22 or 44 fl oz per 100 gal applied 3 times at weekly intervals.
33634	Impatiens, Common Garden; Buzzy Lizzy (Impatiens walleriana) 'Super Elfin XP Pink'	Greenhouse	Freiberger	NJ	2018	Foliar	No injury or growth reduction, all plants flowered normally, with 11, 22 and 44 fl oz per 100 gal + surfactant applied 3 times biweekly.
33634	Impatiens, Common Garden; Buzzy Lizzy (Impatiens walleriana)	Greenhouse	Nansen	CA	2019	Foliar	No injury or growth reduction with 11, 22 and 44 fl oz per 100 gal applied 3 times weekly.
33634	Impatiens, Common Garden; Buzzy Lizzy (Impatiens walleriana) 'Super Elfin XP Violet'	Greenhouse	Vafaie	TX	2020	Foliar	No injury or significant growth reduction with 11, 22 and 44 fl oz per 100 gal applied 3 times weekly.

PR#	Crop	Production Site	Researcher	State	Year	Application Type	Results
33638	Geranium, Zonal (Pelargonium x hortorum) 'Calliope Medium Red'	Greenhouse	Freiberger	NJ	2018	Foliar	No injury or growth reduction, all plants flowered normally, with 11, 22 and 44 fl oz per 100 gal + surfactant applied 3 times biweekly.
33636	Petunia (Petunia x hybrida) 'Dreams Salmon'	Greenhouse	Freiberger	NJ	2018	Foliar	No injury or growth reduction, all plants flowered normally, with 11, 22 and 44 fl oz per 100 gal + surfactant applied 3 times biweekly.
33628	Coleus (Solenostemon sp.) S. scutellarioides 'Alabama'	Greenhouse	Doohan	OH	2021	Foliar	No injury or growth reduction at 11, 22, or 44 fl oz per 100 gal after 3 applications 7 days apart.
33628	Coleus (Solenostemon sp.) 'Wizard Mix'	Greenhouse	Freiberger	NJ	2018	Foliar	No injury or growth reduction, all plants flowered normally, with 11, 22 and 44 fl oz per 100 gal + surfactant applied 3 times biweekly.
33628	Coleus (Solenostemon sp.) Coleus sp. 'Hemma'	Greenhouse	Uber	CA	2020	Foliar	No injury and growth reduction with 11, 22 and 44 fl oz per 100 gal applied 3 times weekly.
33635	Marigold (Tagetes sp.) T. patula 'Queen Sophia'	Greenhouse	Doohan	OH	2021	Foliar	No injury or growth reduction at 11, 22, or 44 fl oz per 100 gal after 3 applications 7 days apart.
33635	Marigold (Tagetes sp.) 'AF Taishan Yellow'	Greenhouse	Freiberger	NJ	2018	Foliar	No injury or growth reduction, all plants flowered normally, with 11, 22 and 44 fl oz per 100 gal + surfactant applied 3 times biweekly.
33635	Marigold (Tagetes sp.)	Greenhouse	Nansen	CA	2019	Foliar	No injury or growth reduction with 11, 22 and 44 fl oz per 100 gal applied 3 times weekly.
33637	Zinna, Elegant (Zinnia elegans) 'Zahara XL White'	Greenhouse	Freiberger	NJ	2018	Foliar	No injury or growth reduction, all plants flowered normally, with 11, 22 and 44 fl oz per 100 gal + surfactant applied 3 times biweekly.
33637	Zinna, Elegant (Zinnia elegans)	Greenhouse	Nansen	CA	2019	Foliar	No injury or growth reduction with 11, 22 and 44 fl oz per 100 gal applied 3 times weekly.

Label Suggestions

In this report, all plants exhibited no or minimal injury after foliar treatments of V-10433 at 11, 22 and 44 fl oz per 100 gal, 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 12 plants in Table 1 and Table 4 that showed no injury be placed on the V-10433 label if Valent 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 ornamental plant species according to labeled use instructions. V-10433 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 V-10433 to that crop'.

Appendix 1: Contributing Researchers

Dr. Doug Doohan	Ohio State University Department of Horticulture & Crop Science 1680 Madison Ave Wooster, OH 44691
Mr. Tom Freiberger	Rutgers University Cream Ridge Experiment Station 283 Rt. 539 Cream Ridge, NJ 08514
Dr. Jonathan Larson	University of Kentucky Dept. of Entomology S-225 Agricultural Center North Lexington, KY 40546-0091
Dr. Christian Nansen	University of California, Davis Department of Entomology and Nematology One Shields Avenue Davis CA 95616
Mr. Buzz Uber	Crop Inspection Service 31130 Hilltop Drive Valley Center, CA 92082
Dr. Erfan Vafaie (<i>past affiliate</i>)	Texas A&M University Texas Agrilife Extension Service Overton TX 75684