

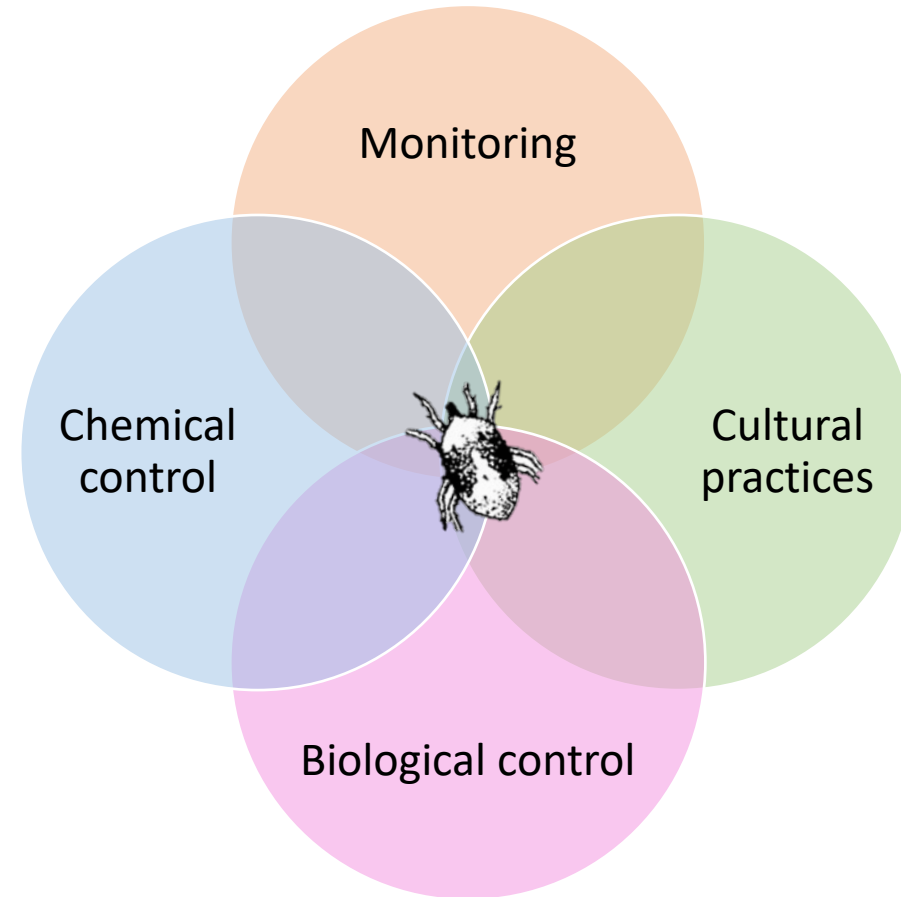
Compatibility of Chemical and Biological Control Against Spider Mites and Other Management Practices

Alexandra M. Revynthi

Maria A. Canon, Livia M.S. Ataide

Integrated Mite Management (IMM)

- Monitoring
- Chemical control
- Cultural practices
- Biological control



Biological Control and Pesticides

- All pesticides will have some impact, including fungicides!
- Need to reduce the impact through proper selection, method and timing of application
- Pesticides highly detrimental:
 - Bifenthrin, permethrin; lambda-cyhalothrin, cyfluthrin; carbaryl, chlorpyrifos

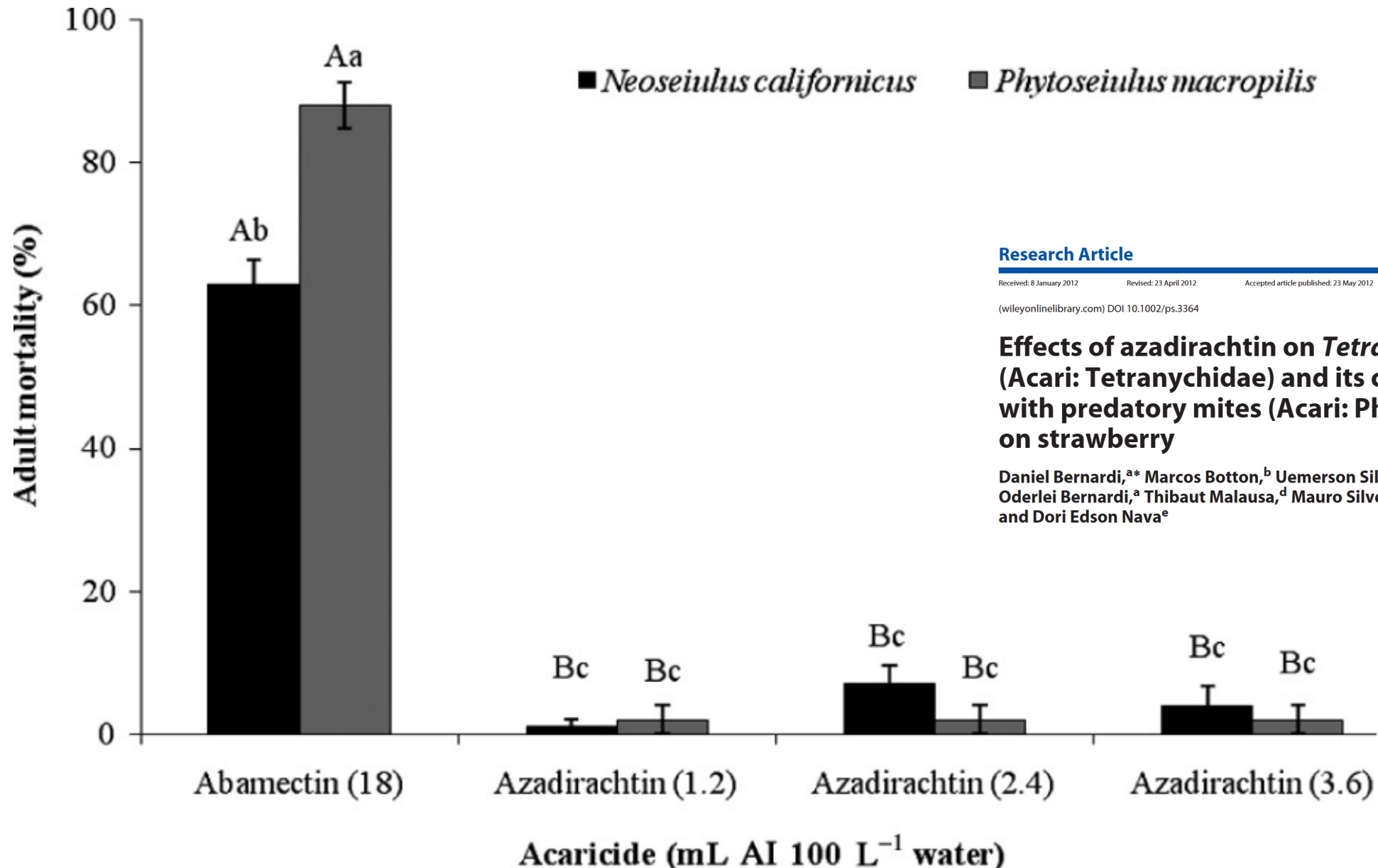
Biological Control and Pesticides

- Side Effects Manual
 - Biobest (<https://www.biobestgroup.com/en/side-effect-manual>) or
 - Koppert (<https://www.koppertus.com/news-information/ipm-app/>)
- Select the natural enemy and the pesticide and will get the level of toxicity and persistence

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Compatibility of Predacious Mites and Acaricides



Research Article

Received: 8 January 2012

Revised: 23 April 2012

Accepted article published: 23 May 2012

Published online in Wiley Online Library: 14 July 2012

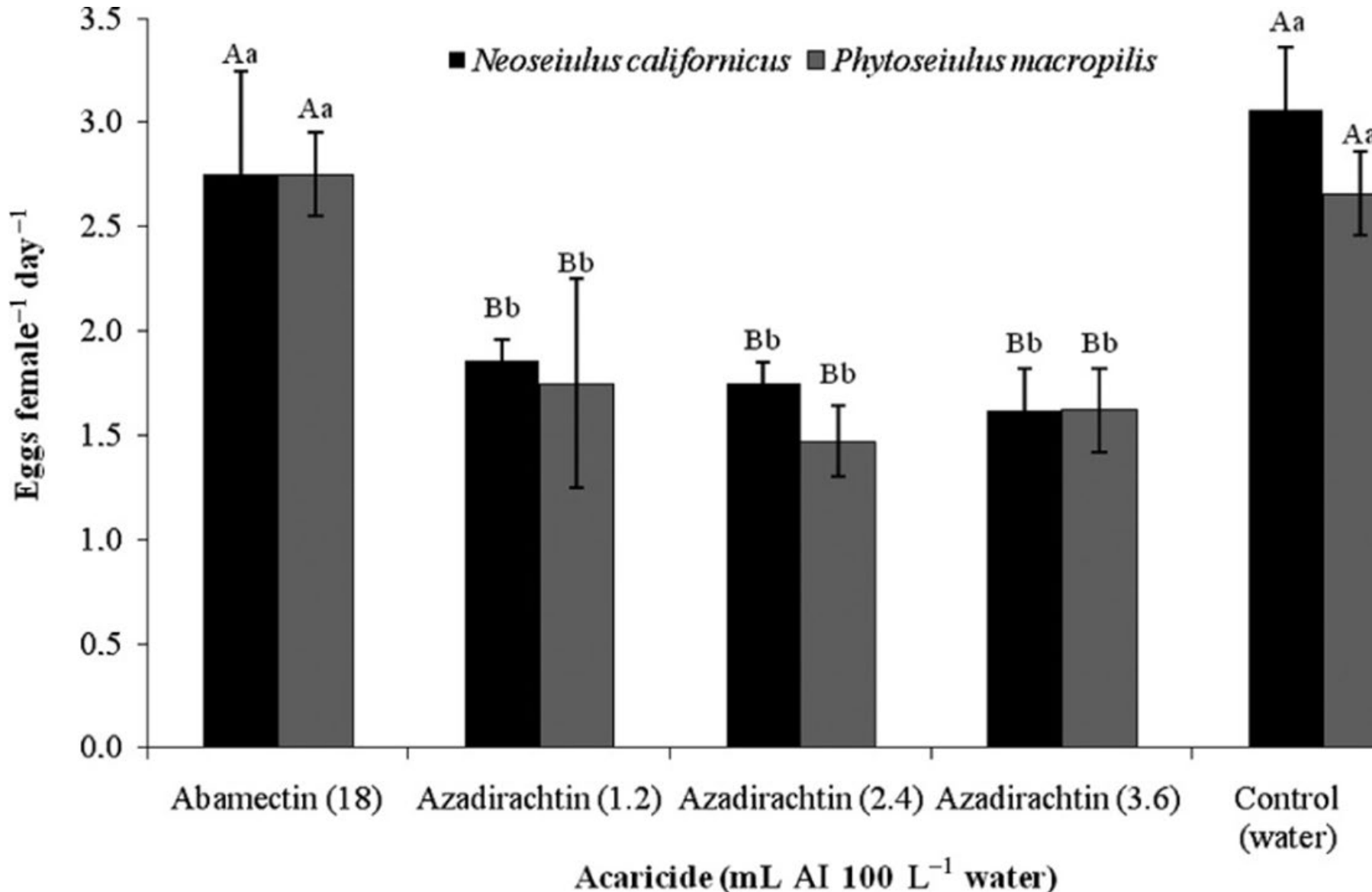
(wileyonlinelibrary.com) DOI 10.1002/ps.3364

Effects of azadirachtin on *Tetranychus urticae* (Acari: Tetranychidae) and its compatibility with predatory mites (Acari: Phytoseiidae) on strawberry

Daniel Bernardi,^{a*} Marcos Botton,^b Uemerson Silva da Cunha,^c Oderlei Bernardi,^a Thibaut Malausa,^d Mauro Silveira Garcia^c and Dori Edson Nava^e

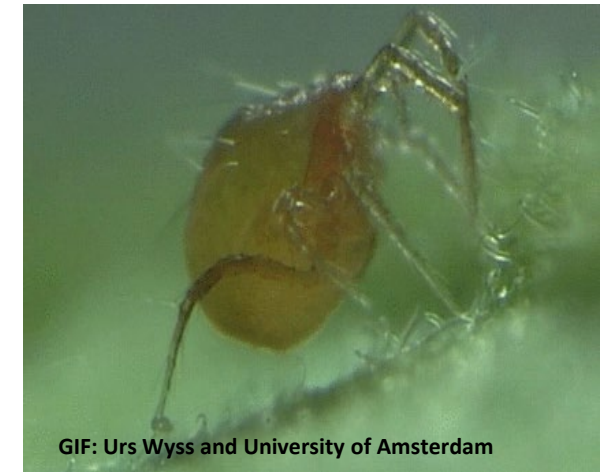


Compatibility of Predacious Mites and Acaricides



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Compatibility of Predacious Mites and Acaricides

Can predatory mites aid in the management of the citrus leprosis mite?

Jaqueline F. Della Vechia¹, Daniel J. Andrade², Aline D. Tassi¹, Amy Roda³, Edzard van Santen⁴ and Daniel Carrillo^{1*}

Check for updates

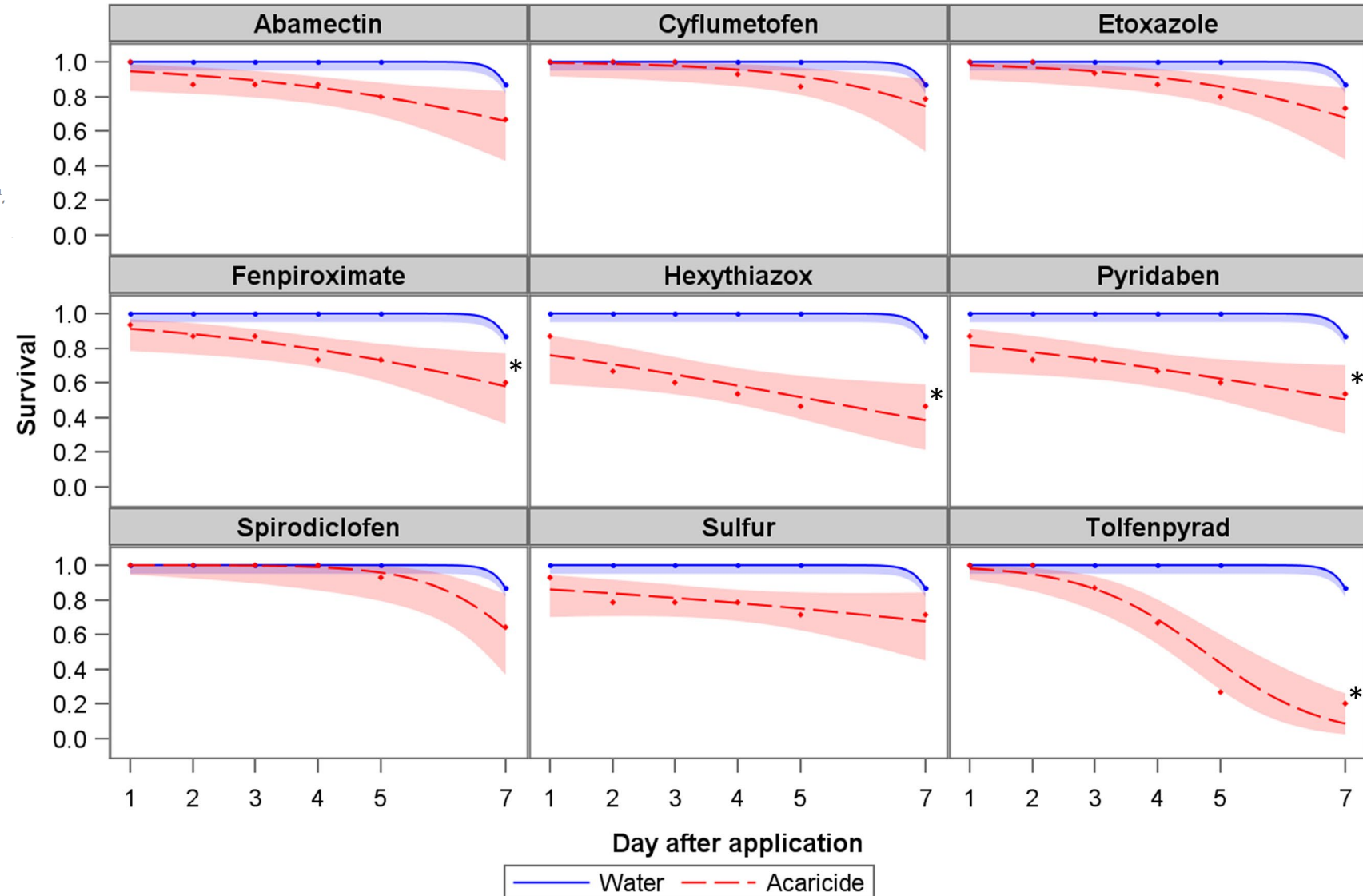
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EDITED BY
 David Ezra,
 Agricultural Research Organization (ARO),
 Israel

REVIEWED BY
 Qiong Rao,
 Zhejiang Agriculture and Forestry
 University, China



Photo: Daniel Carrillo, UF/IFAS



Compatibility of Predacious Mites and Acaricides

Check for updates

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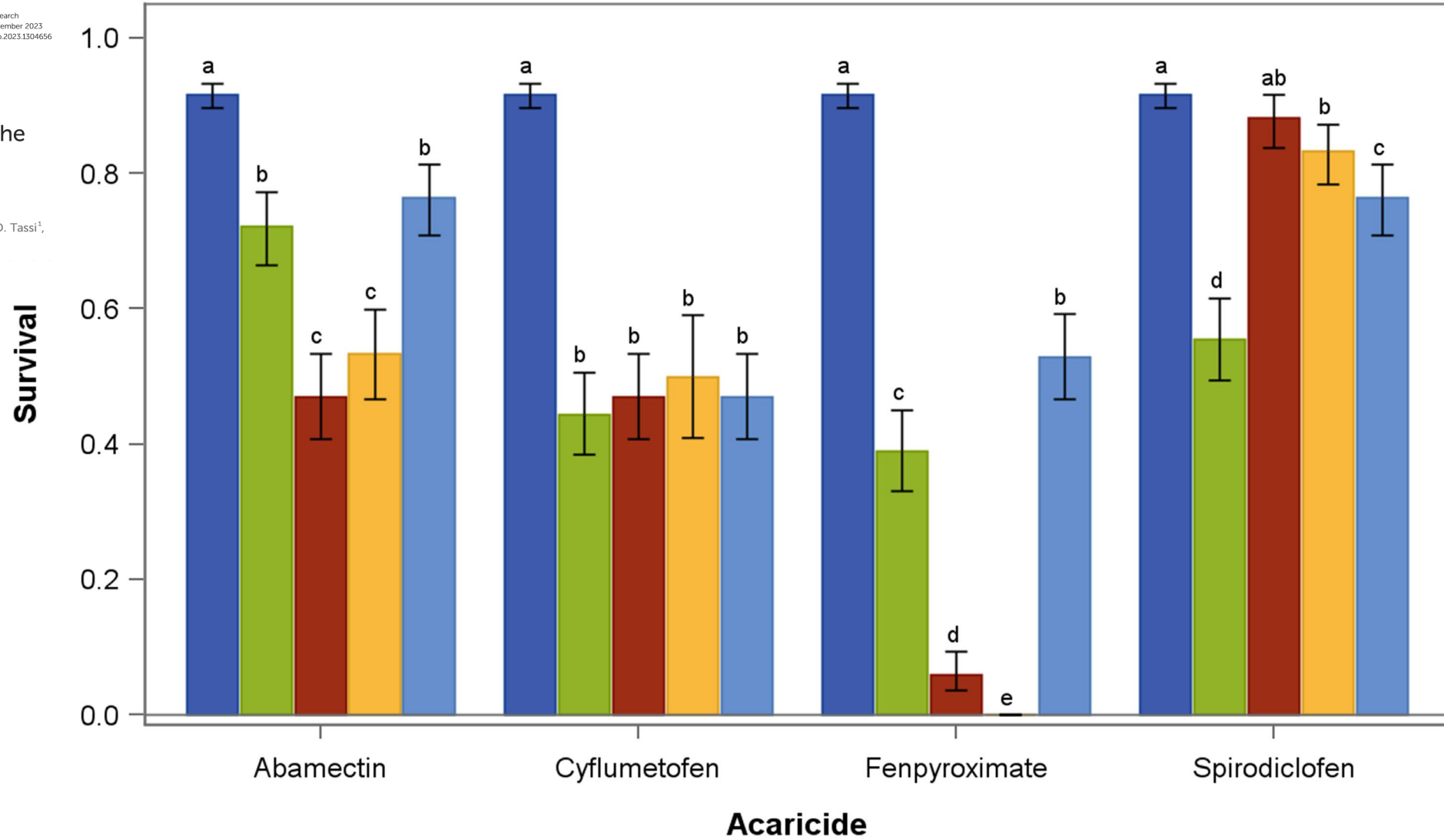
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Photo: Daniel Carrillo, UF/IFAS

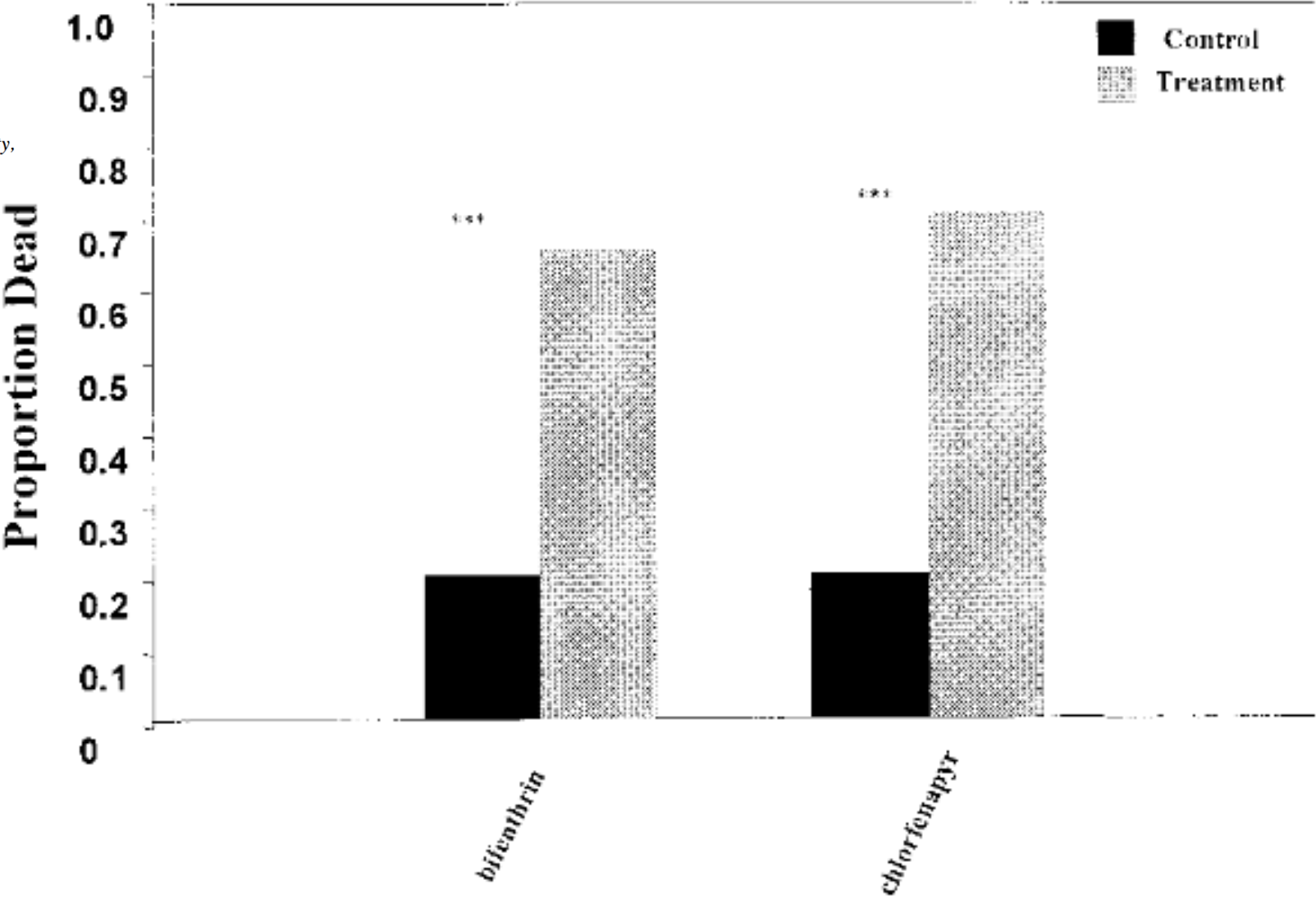
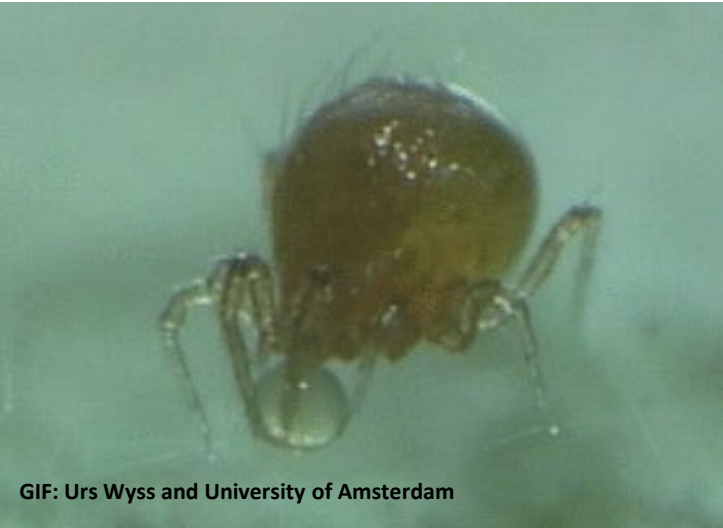


Compatibility of Predacious Mites and Insecticides

HORTSCIENCE 37(6):906-909, 2002.

Compatibility of Acaricide Residues with *Phytoseiulus persimilis* and Their Effects on *Tetranychus urticae*

Kenneth W. Cote, Edwin E. Lewis, and Peter B. Schultz
Department of Entomology, Virginia Polytechnic Institute and State University,
216 Price Hall, Mail Code 0319, Blacksburg, VA 24061



Compatibility of Predacious Mites and Insecticides

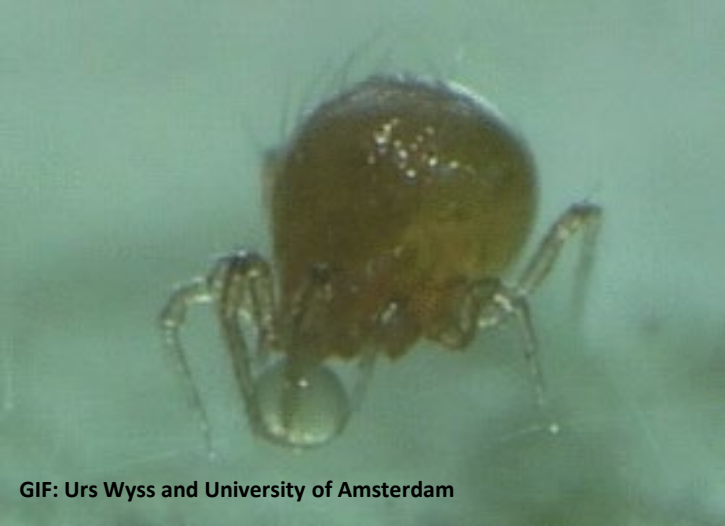
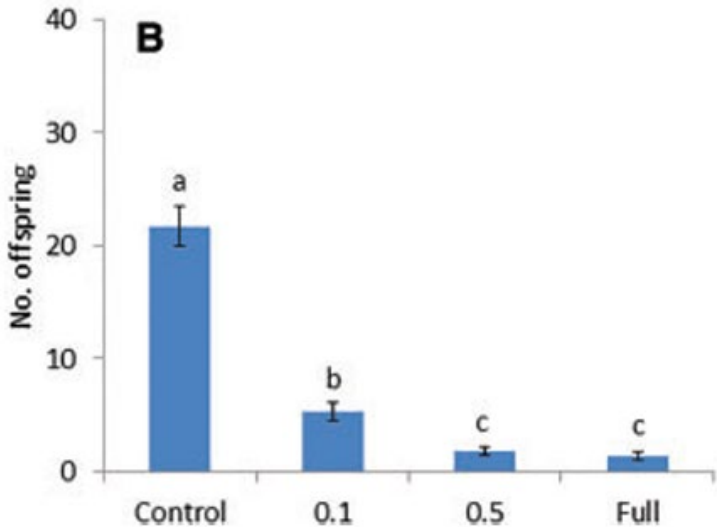
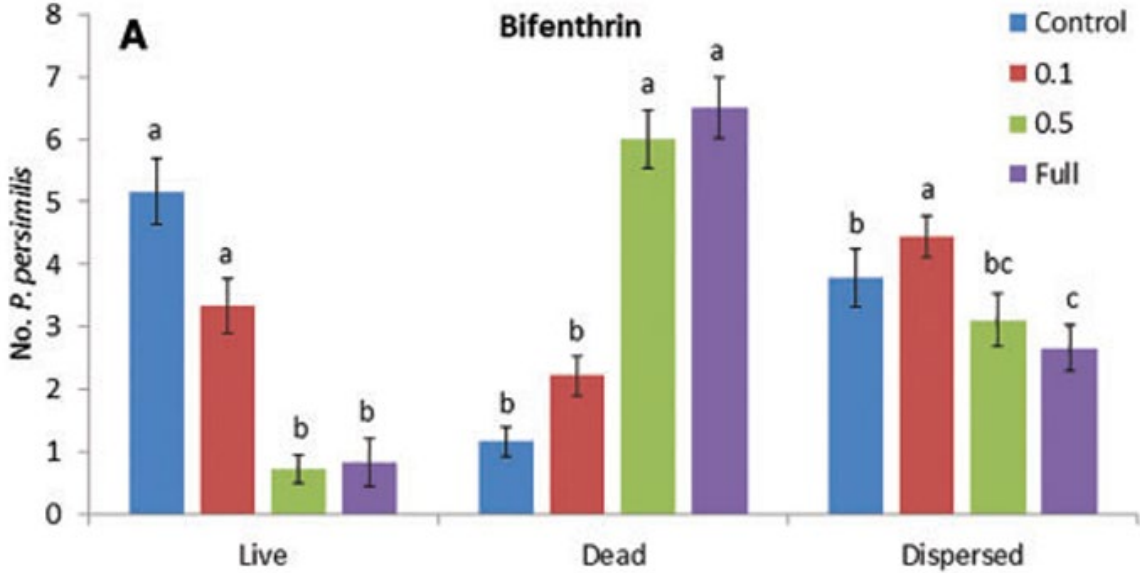
Journal of Economic Entomology, 109(6), 2016, 2298–2308
 doi: 10.1093/jee/tow234
 Advance Access Publication Date: 23 October 2016
 Research article



Biological and Microbial Control

Effects of Insecticides and Fungicides Commonly Used in Tomato Production on *Phytoseiulus persimilis* (Acari: Phytoseiidae)

J. L. Ditillo,¹ G. G. Kennedy,¹ and J. F. Walgenbach^{2,3}



GIF: Urs Wyss and University of Amsterdam

Compatibility of Predacious Mites and Insecticides

Journal of Economic Entomology, XX(XX), 2024, 1–14
<https://doi.org/10.1093/jee/toae220>
 Research



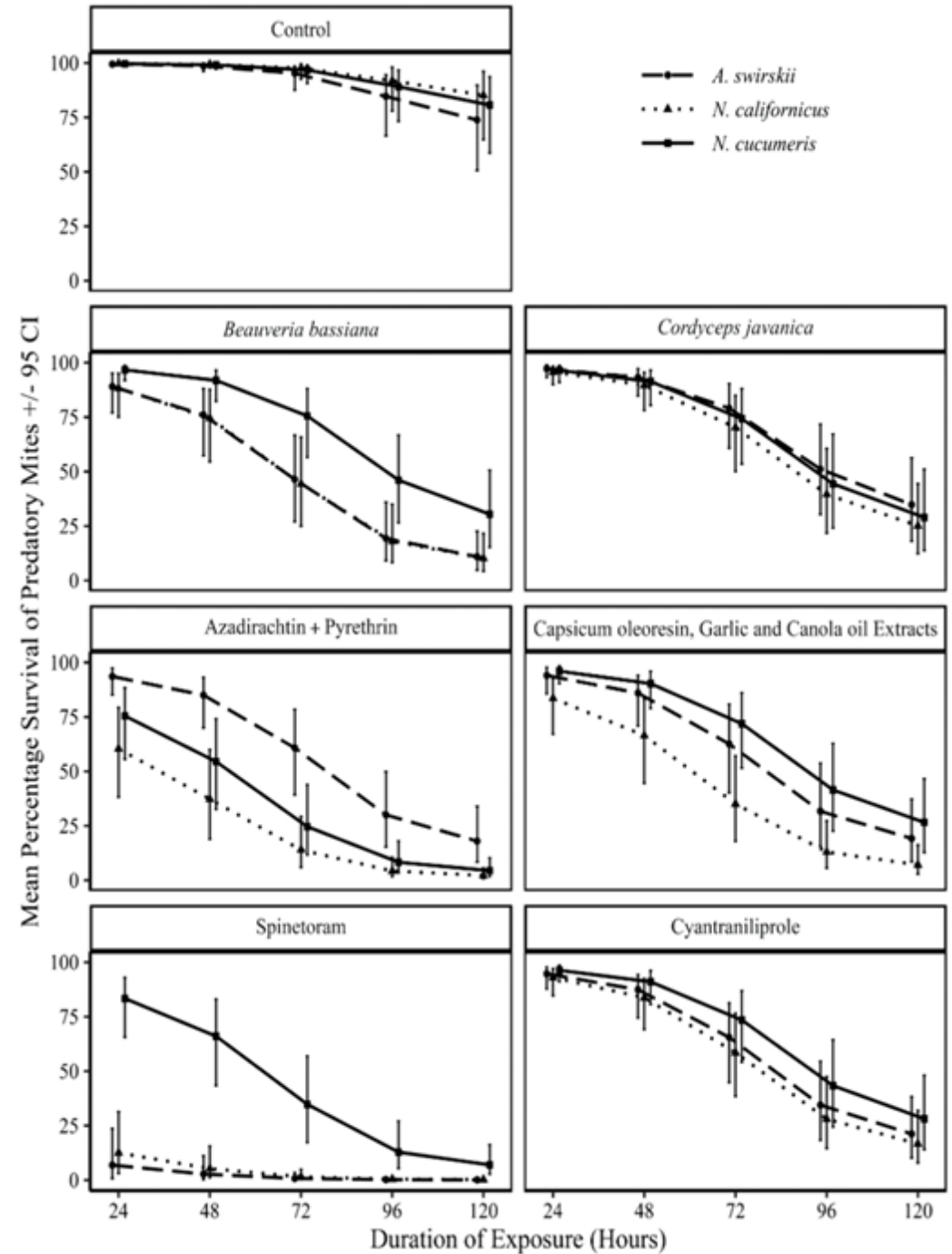
Ecotoxicology

Residual effect of commonly used insecticides on key predatory mites released for biocontrol in strawberry

Allan Busuulwa^{1,*}, Simon S. Riley², Alexandra M. Revynthi³, Oscar E. Liburd⁴, Sriyanka Lahiri¹



Photo: Daniel Carrillo UF/IFAS



Compatibility of Predacious Mites and Microbial Insecticides

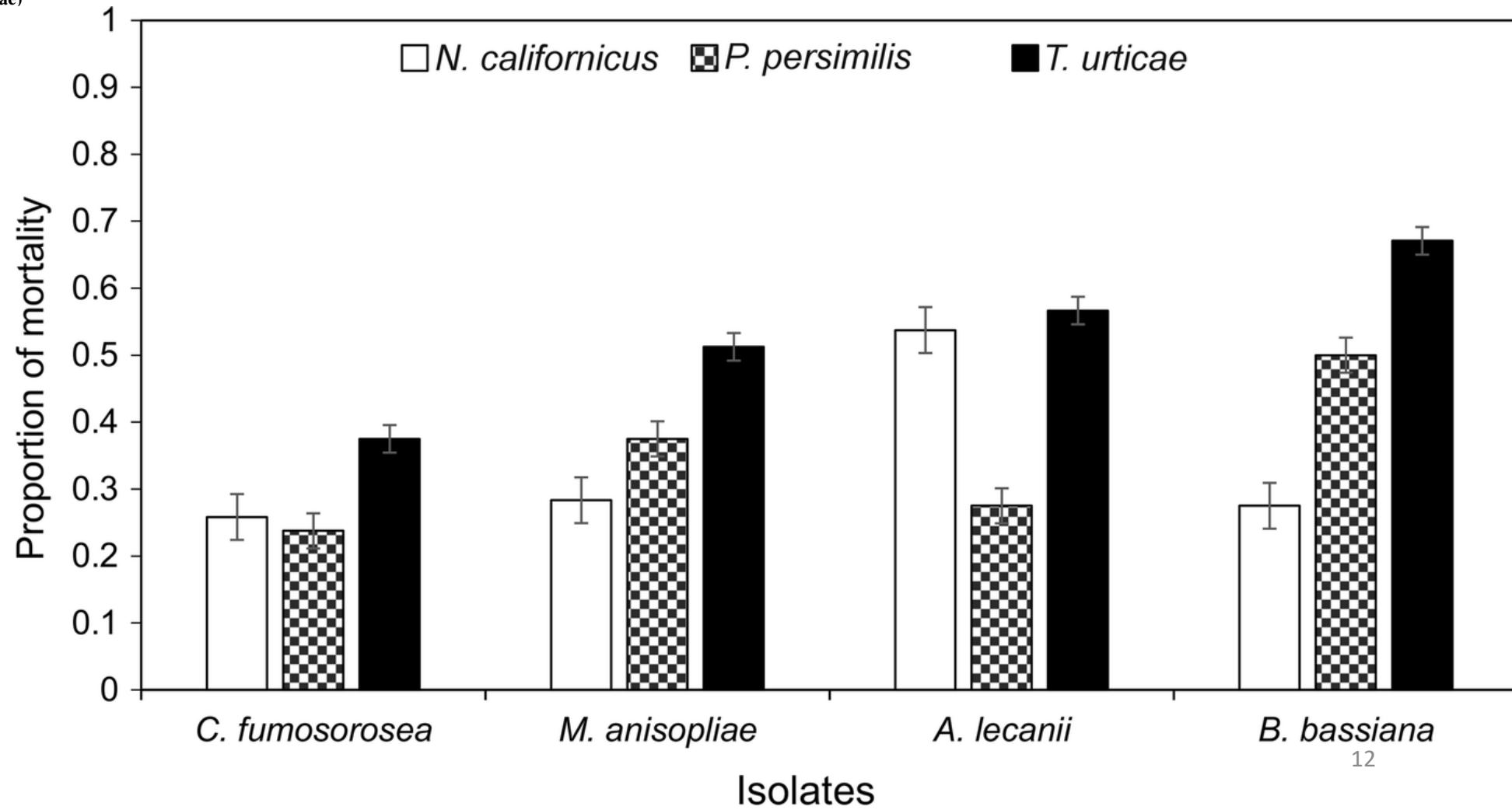
BioControl (2020) 65:433–445
<https://doi.org/10.1007/s10526-020-10004-3>



ORIGINAL ARTICLE

Interaction between predatory mites (Acari: Phytoseiidae) and entomopathogenic fungi in *Tetranychus urticae* populations

Oscar Castillo-Ramírez · Ariel W. Guzmán-Franco · Ma.Teresa Santillán-Galicia · Fernando Tamayo-Mejía



Compatibility of Predacious Mites and Microbial Insecticides

Systematic & Applied Acarology 22(11): 1924–1935 (2017)
<http://doi.org/10.111158/saa.22.11.11>

ISSN 1362-1971 (print)
ISSN 2056-6069 (online)

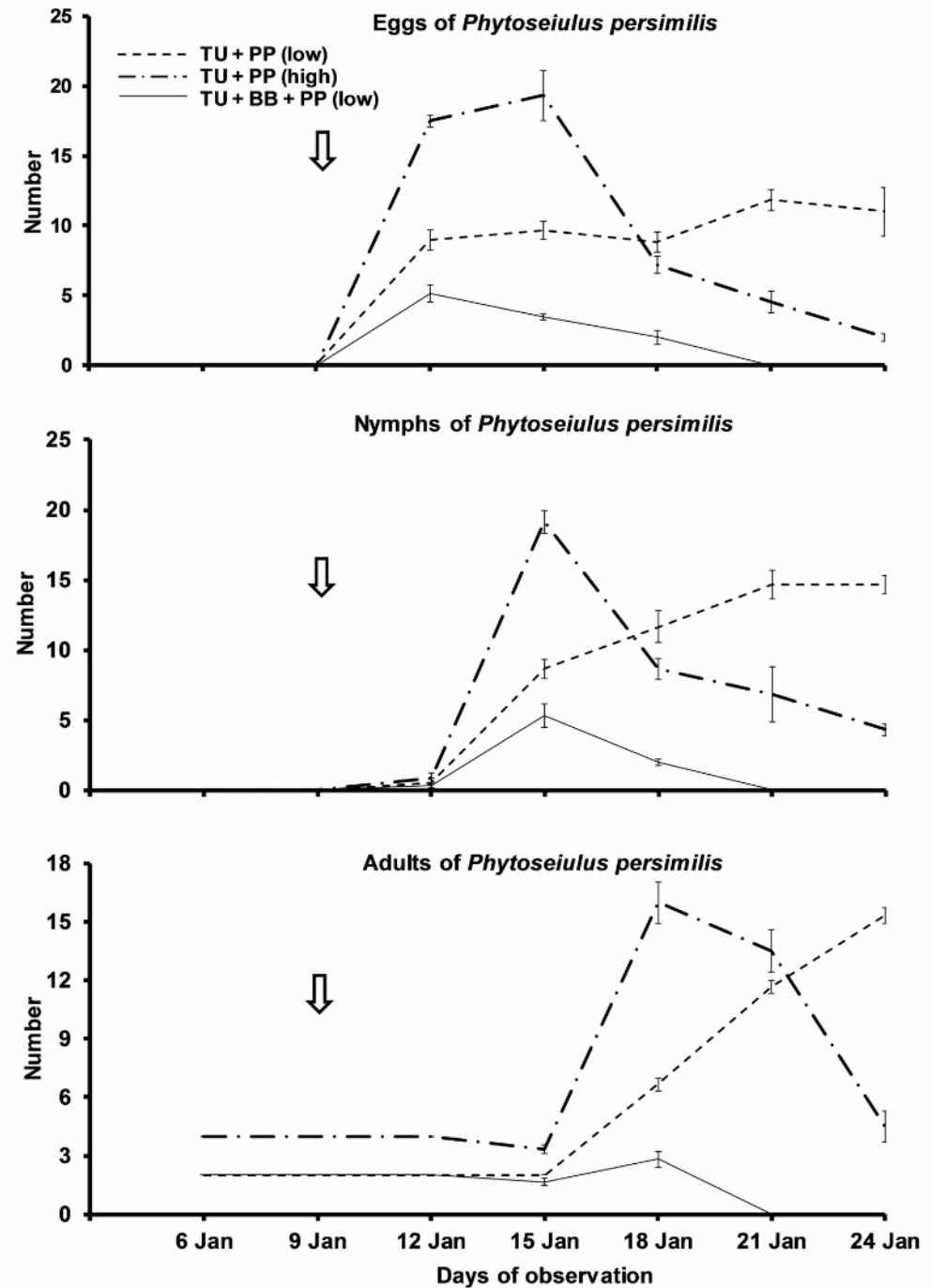
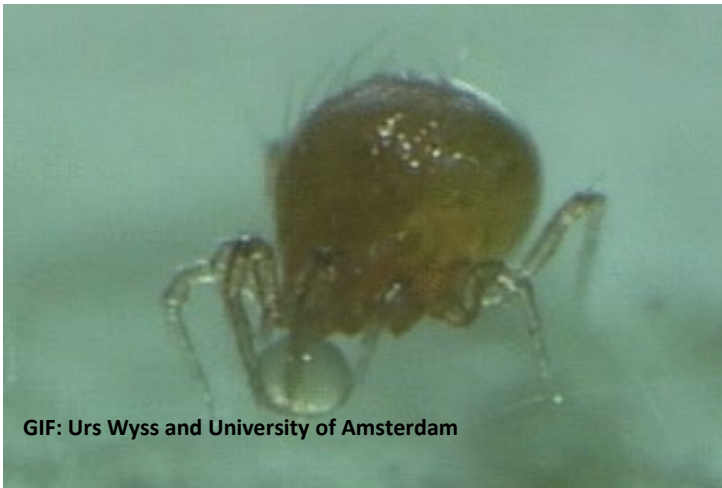
Article

Synergism of *Beauveria bassiana* and *Phytoseiulus persimilis* in control of *Tetranychus urticae* on bean plants

MOHAMMAD SHAEF ULLAH^{1,2} & UN TAEK LIM^{2*}

¹Laboratory of Applied Entomology and Acarology, Department of Entomology, Bangladesh Agricultural University, Mymensingh-2202, Bangladesh

²Department of Plant Medicals, Andong National University, Andong 760-749, Republic of Korea; email: utlim@andong.ac.kr



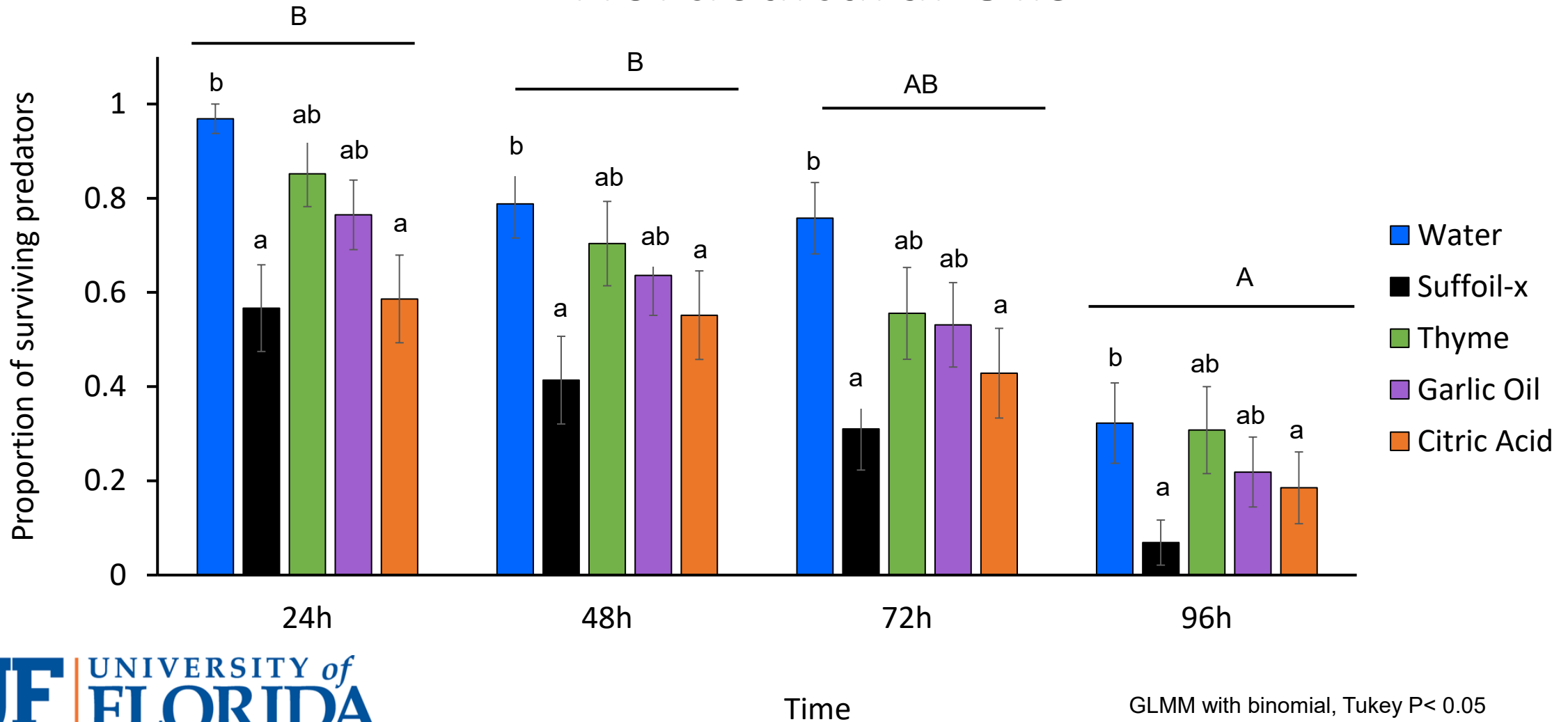


Compatibility of Predacious Mites and Horticultural Oils

Product Name	Active Ingredient	Group	Rate	Site	EPA Registration #
Bee safe 3-in-1	Sesame oil	Unclassified	3 fl oz/1gal	S, G, N, L	FIFRA 25 (b) exempt
Nuke EM	Citric Acid	Unclassified	8 fl oz/1 gal	S, G, N, L	FIFRA 25 (b) exempt
Bush Doctor Force of Nature Insect Repellent	Garlic oil	Unclassified	1.5 fl oz/1 gal	S, G, N, L	FIFRA 25 (b) exempt
Sierra Natural Science 217 C	Rosemary oil	Unclassified	4 fl oz/ 20 fl oz	S, G, N, S	FIFRA 25 (b) exempt
Thyme Guard	Thyme oil	Unclassified	2 qt/ 100 gal	S, G, N, L	FIFRA 25 (b) exempt
SuffoilX	Mineral Oil	Unclassified	2%	G, N, L	48813-1-68539



Compatibility of Predacious Mites and Horticultural Oils



Compatibility of Predacious Mites and Fungicides

Experimental and Applied Acarology (2024) 93:253–272
<https://doi.org/10.1007/s10493-024-00928-1>

REVIEW

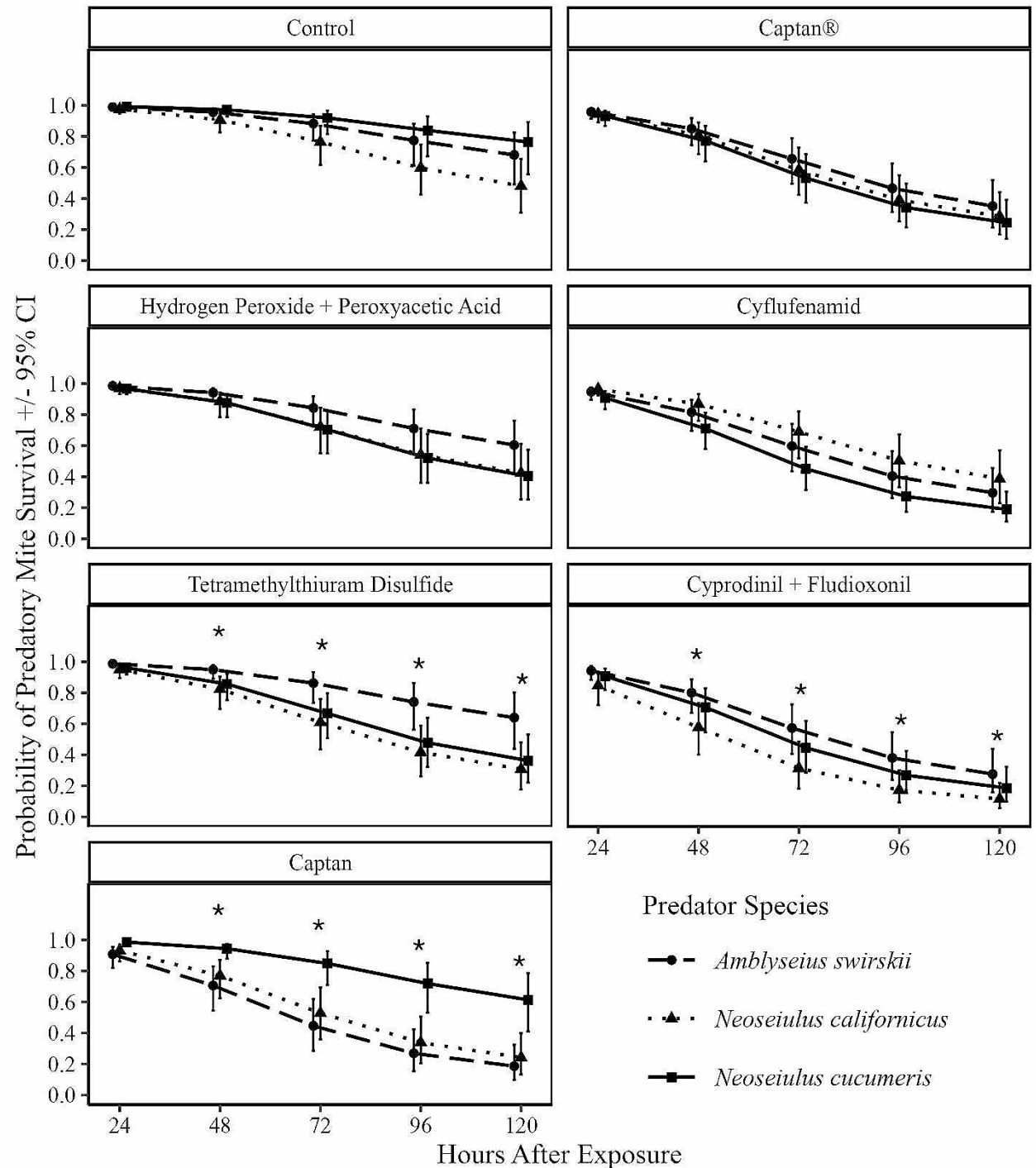


Residual effect of commonly used fungicides in strawberries on *Amblyseius swirskii*, *Neoseiulus cucumeris*, and *Neoseiulus californicus* (Mesostigmata: Phytoseiidae)

Allan Busuulwa¹ · Alexandra M. Revynthi² · Oscar E. Liburd³ · Sriyanka Lahiri¹



Photo: Daniel Carrillo UF/IFAS



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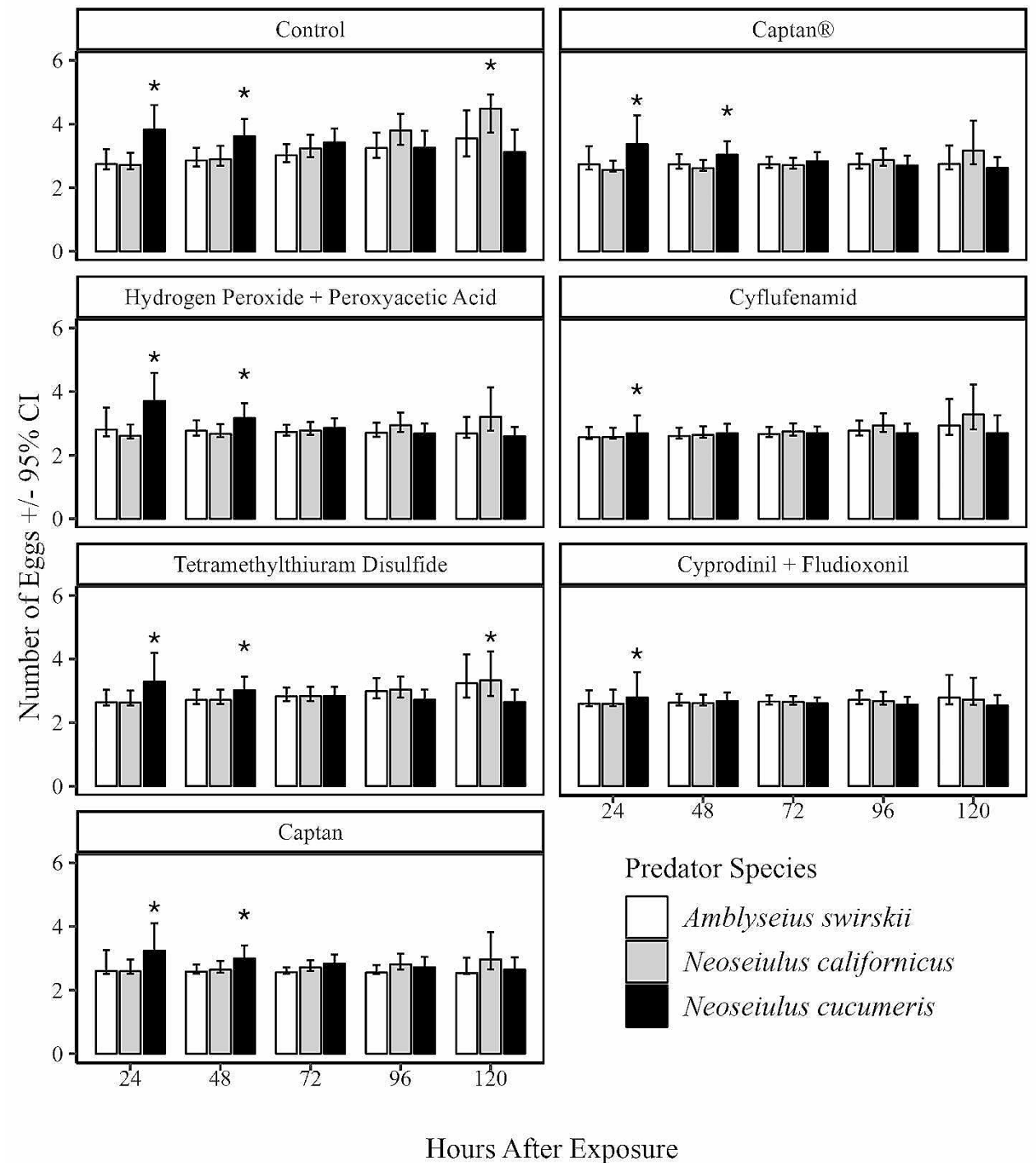


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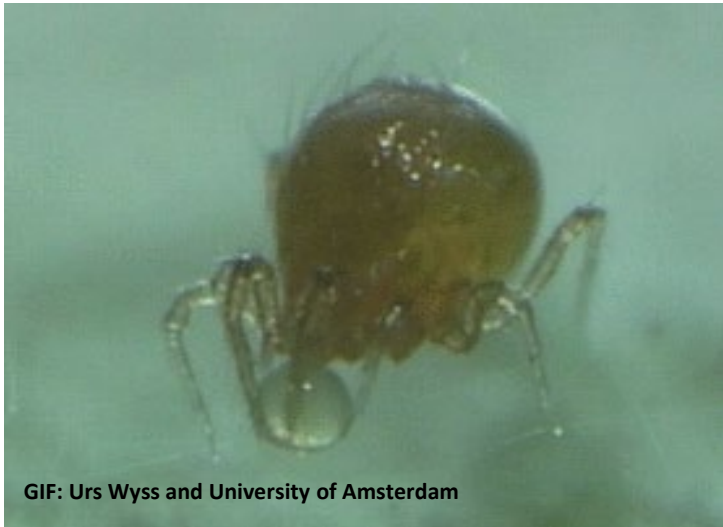
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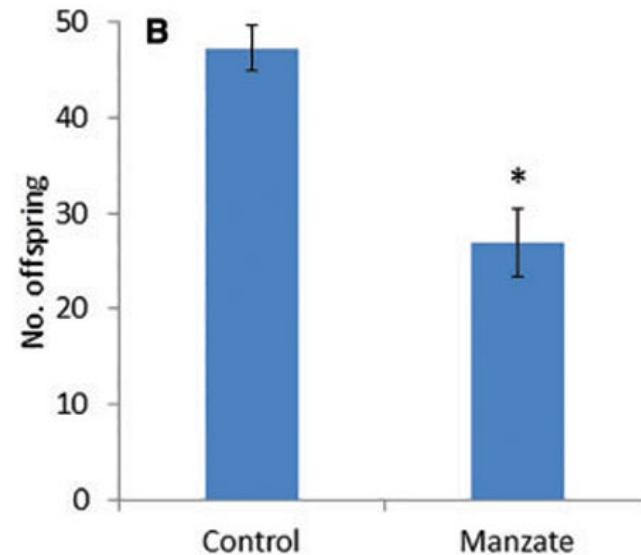
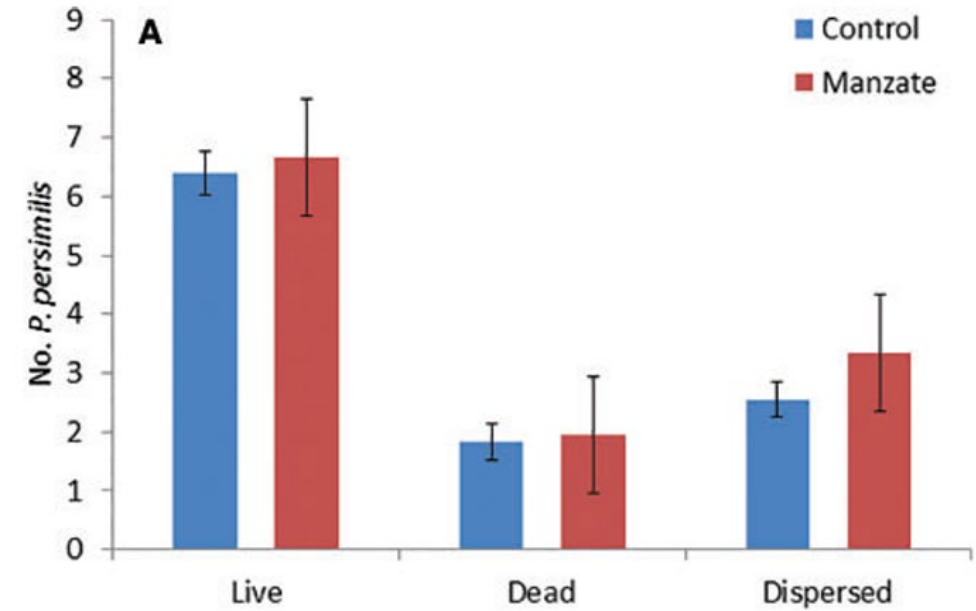
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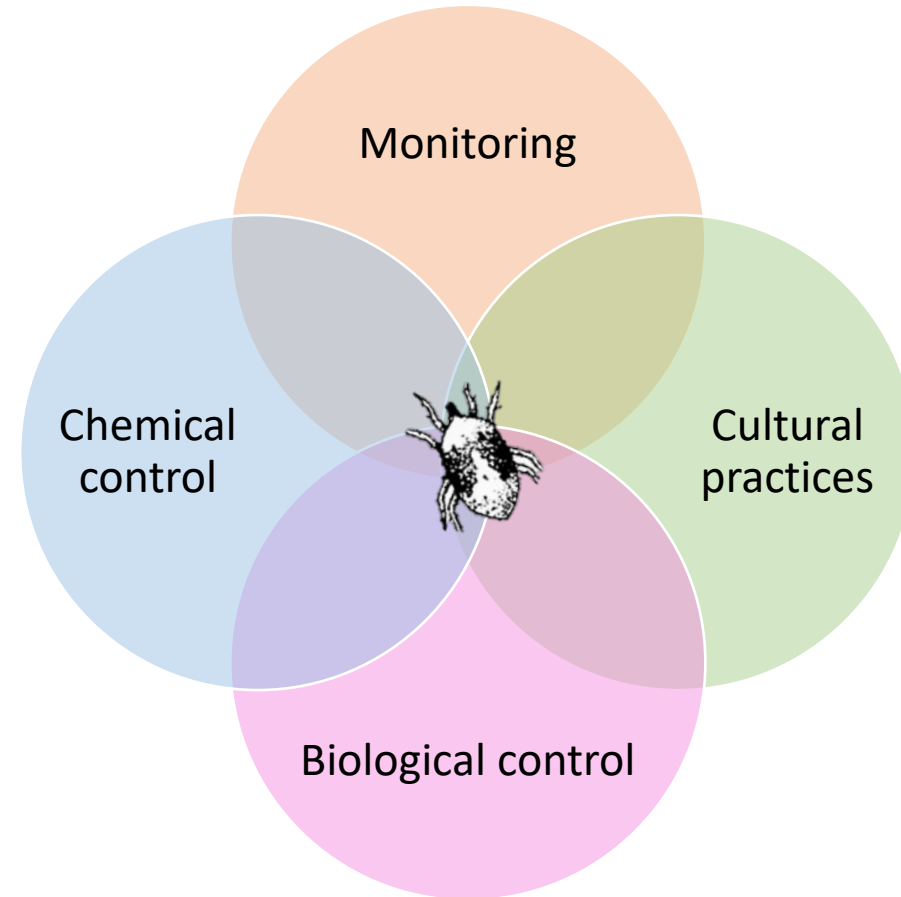


GIF: Urs Wyss and University of Amsterdam



Integrated Mite Management (IMM)

- Monitoring
- Chemical control
- Cultural practices
- Biological control



Monitoring

- Scouting is essential in order to reduce/prevent fluctuations
- Look for damage
- The underside of leaves must be checked
- Leaves within the center of the plant often have lower infestations

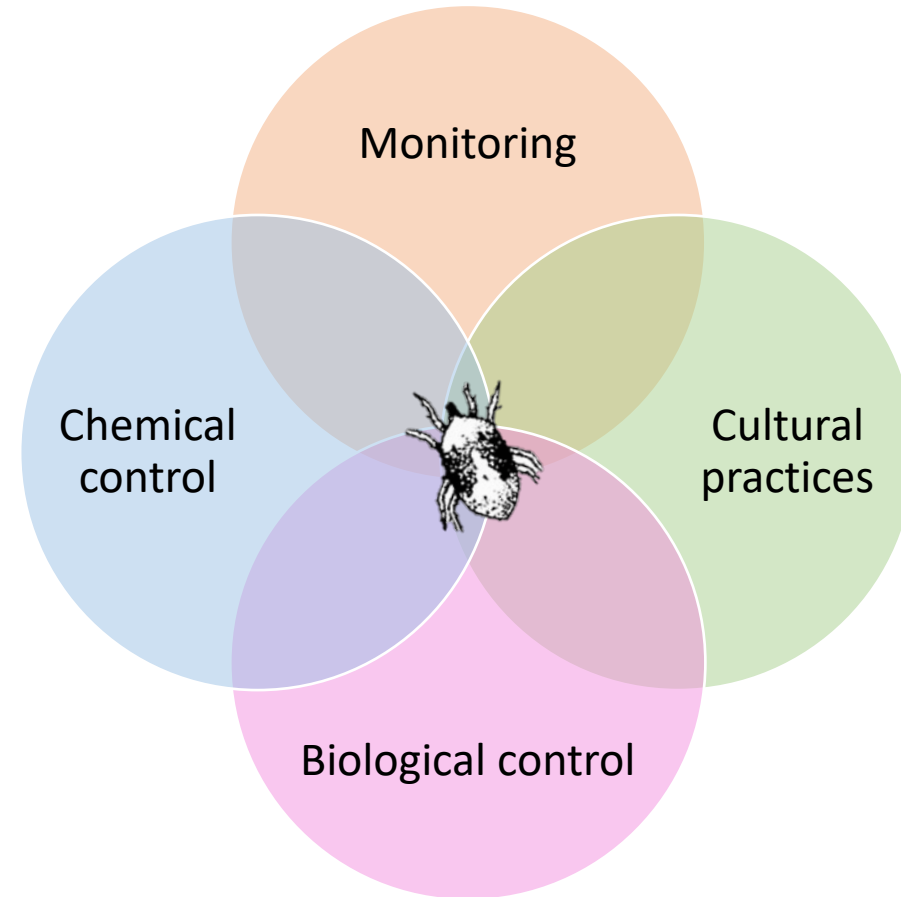


Cultural Practices

- Avoid over fertilizing plants
- Avoid water-stressed plants
- Remove weeds and or other potential host plants
- Overhead irrigation may reduce mite populations

Integrated Mite Management (IMM)

- Monitoring
- Chemical control
- Cultural practices
- Biological control



Resources

UF | IFAS
UNIVERSITY of FLORIDA

< Give University of Florida >

Q | RESOURCES v

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Tropical Research And Education Center

Spider Mites

Spider mites are persistent pests of numerous specialty ornamental crops, such as hibiscus, palms, viburnum, orchids, marigold, dracaena, and roses. These pests cause a significant reduction in marketable product quality and yield. Heavy infestations may also cause leaf drop and, ultimately, the death of entire plants.

Resources

- Twospotted Spider Mite, *Tetranychus urticae*
<http://edis.ifas.ufl.edu/pdffiles/IN/IN30700.pdf>
- Clover Mite *Bryobia praetiosa* <https://edis.ifas.ufl.edu/in776>



Thank you!

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