MARGARET SKINNER, Research Professor and Extension Entomologist

Affiliation: Department of Plant & Soil Science, The University of Vermont
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Websites: http://www.uvm.edu/~entlab/; https://www.uvm.edu/~saffron/; https://www.uvm.edu/~htunnel/

Education:

University of Vermont	Ph.D.	1987 - 1993	Major: Entomology
University of Vermont	M.S.	1984 - 1987	Major: Entomology
Ohio Wesleyan University	B.A.	1968 - 1972	Major: Sociology
American Univ. of Beirut, Beirut, Lebanon		1971	Junior Year Abroad

Work Experience:

I am a key member of the Entomology Research Laboratory, a team of scientists committed to developing effective biological control and IPM strategies for forest, greenhouse and vegetable insect pests that are environmentally sound, economically viable and sustainable. Insect pest problems are addressed with an interdisciplinary approach. Emphasis is placed on practical aspects of research to solve 'real world' problems and encourage their implementation through extension and education.

1993 - present Research Full Professor & Extension Entomologist (2009); Res. Assoc. Prof. & Ext. Entomologist (2001-2008), Research Assist. Prof. & Ext. Entomologist (1993-2001)

Conduct/ed research on biological control, entomopathogenic fungi and IPM of a wide array of arthropod pests in forests, vegetable crops and greenhouse ornamentals and cut flowers, Work has included lab, greenhouse and field trials with western flower thrips, silverleaf whiteflies and spider mites; biological control of Sunn Pest in West Asia and greenhouse pests in Lebanon and Colombia; lab and forest trials with winter ticks, lecanium and elongate hemlock scale, thrips and hemlock woolly adelgid, pear thrips, brown marmorated stink bug and tarnished plant bug; and field research on integrated tick management. Coordinate Tri-state IPM educational programs for greenhouse and high-tunnel growers. Founded the North American Center for Saffron Research and Development, supports research and outreach to growers regarding this emerging high value crop. Coordinate highly successful saffron workshops since 2017, attracting over 100 registrants annually.

2018 - present Adjunct Faculty, Biology Dept., American University of Beirut, Beirut, Lebanon.

Conduct research on biological control and IPM of arthropod pests in greenhouse ornamentals and vegetables; carry out training on IPM for growers, agricultural engineers and graduate and undergraduate level.

1984 - 1993 Research Technician - Univ. of Vermont Entomology Research Laboratory

1974 – 1988 Human service provider for mentally handicapped adults in residential and vocational settings to promote independence.

Memberships:

- New England Center of Excellence in Vector-Borne Diseases Expert Team. 2022-present
- High Tunnel Specialty Crop Production Coordination Committee (USDA). 2021-present
- North American Center for Saffron Research and Development, co-founder, 2017-present
- Northern Tri-State New England Greenhouse Advisory Group, coordinator, 1996-present
- Greenhouse and Ornamentals Commodity Work Group, co-leader. 2001-present

Author/Co-author of >200 Refereed & non-Refereed Publications (2019 to present)

Barbar, Z., M. Skinner & B.L. Parker, Phytoseiidae species (Acari: Mesostigmata) as predators of thrips and whiteflies: A REVIEW. Insects. In review. 30 pp.

Davari, A., C.F. Sullivan, M.S. Rea**, M. Skinner** & B.L. Parker. **2024.** Effects of Ultraviolet-C exposure on western flower thrips, *Frankliniella occidentalis* and ornamental plants. Plants. In review.

Abou Jawdah, Y., N. Ezzeddine, A. Fardoun, S. Kharoubi, H. Sobh, H.S. Atamian, **M. Skinner** & B.L. Parker. **2024.** Bio-based integrated pest management of three major cucumber pests: whiteflies, thrips, and spider mites, in high plastic tunnels using two local phytoseiid mites. Plants. In press.

Abou Jawdah, Y., N. Ezzeddine, H. Sobh, **M. Skinner** & B.L. Parker. **2024**. Compatibility of *Phytoseiulus persimilis* (Acari: Phytoseiidae) with *Beauveria pseudobassiana* (Hypocreales: Cordycipitaceae) for the development of integrated pest management programs for greenhouse vegetable crops. Advances in Agriculture. In press.

Tobi, D., **M. Skinner**, A. Ghalehgolabbehbahani, N.C. Rosberg, C.F. Sullivan, P. Reese & B.L. Parker. **2023**. Greenhouse heating efficiency through soap bubble insulation. J. of Environmental Technology & Management. In press.

Sullivan, C.F., Davari, A., J.S. Kim, B.L. Parker & **M. Skinner**. **2023**. Evaluation of a guardian plant system to suppress *Frankliniella occidentalis* (Thysanoptera: Thripidae) in greenhouse ornamentals. Pest Management Science. https://onlinelibrary.wiley.com/doi/full/10.1002/ps.7556

Skinner, M. & C.F. Sullivan. **2023.** Native Solitary Bees and How You can Support Them. The Dirt; VNLA Fall Newsletter. https://www.scribd.com/document/676908992/Fall-Issue-of-the-Dirt-2023#from_embed

Ghalehgolabbehbahani, A., C.F. Sullivan, A. Davari, B.L. Parker, A. Razavi & **M. Skinner**. **2022**. Biological control of *Rhizoglyphus robini* using the entomopathogenic fungus, *Metarhizium brunneum* and predatory mite, *Strateiolaelaps scimitus* under laboratory conditions. Experimental and Applied Acarology. I DOI: 10.1007/s10493-022-00719-6

Sullivan, C.F., B.L. Parker & **M. Skinner**. **2022**. A review of commercial *Metharhizium*- and *Beauveria*-based biopesticides for the biological control of ticks in the USA. Insects: 13. https://doi.org/10.3390/

Ghalehgolabbehbahani, A., O. Vestrheim, **M. Skinner**, J. Li, & S.T. Schneebeli. **2022**. Nuclear magnetic resonance-based quality assessment of Vermont-grown saffron (*Crocus sativus* L.)—Optimal drying conditions and mechanistic implications. ACS Food Sci. Tech. https://doi.org/10.1021/acsfoodscitech.1c00404

Abou-Haidar, A., P. Tawidian, H. Sohh, **M. Skinner**, B. Parker & Y. Abou-Jawdah. **2021**. Efficacy of *Phytoseiulus persimilis* and *Amblyseius swirskii* for integrated pest management for greenhouse cucumbers under Mediterranean environmental conditions. The Canadian Ent. DOI: https://doi.org/10.4039/tce.2021.15

Sullivan, C.F., B.L. Parker, J.S. Kim & **M. Skinner**. **2021**. Effectiveness of granular formulations of *Metharhizium anisopliae* and *Metarhizium brunneum* (Hypocreales: Clavicipitaceae) on off-host larvae of *Dermacentor albipictus* (Acari: Ixodidae) Biocontrol Science & Tech. https://www.tandfonline.com/doi/full/10.1080/09583157.2021.1926428

Ghalehgolabbehbahani, A., **M. Skinner**, B.L. Parker, A. Razavi, P. Reese & A. Davari. **2021**. A standardized method for rearing *Rhizoglyphus robini* (Astigmata: Acaridae). J. Plant Dis. Prot. 128: 623-626. https://doi.org/10.1007/s41348-020-00381-3

Sullivan, C.F., B.L. Parker, A. Davari, M.R. Lee, J.S. Kim & **M. Skinner**. **2020**. Evaluation of spray applications of *Metharhizium anisopliae*, *Metarhizium brunneum* and *Beauveria bassiana* against larval winter ticks, *Dermacentor albipictus*. Experimental and Applied Acarology 82: 559-570. doi.org/10.1007/s10493-020-00547-6

Sullivan, C.F., B.L. Parker, A. Davari, M.R. Lee, J.S. Kim & **M. Skinner**. **2020**. Pathogenicity of *Metharhizium anisopliae* and *Metarhizium brunneum* isolates and efficacy of Met52 G against winter tick larvae. Arthropod Management Tests 45(1): 1-3. doi:10.1093/amt/tsaa100

Daher, S., Y. Abou Jawdeh, M. Haider, A. Abou Haidar, B. Parker, **M. Skinner** & I. P. Saoud. **2019**. Integrating Agriculture with Aquaculture and Biological Pest Management- Does it Work? World Aquaculture, December: 58-61.

Trissi, A.N., M. El-Bouhssini, **M. Skinner** & B.L. Parker. **2019.** Sublethal effect of *Beauveria bassiana* on feeding and fecundity of the sunn pest, *Eurygaster integriceps* Puton (Hemiptera: Scutelleridae). Bulletin OEPP/EPPO 8 pp.

Skinner, M., B.L. Parker & C.F. Sullivan. **2019**. Chapter 15. Integrated Pest Management in Greenhouse and Other Protected Cultivation Systems. In: Current and Future Developments in IPM; Eds: M.

Kogan & L. Higley, Burleigh Dodds Sci. Publ. Cambridge, UK. www.taylorfrancis.com/books/9780429275395

Skinner, M., A. Ghalehgolabbehbahani & B.L. Parker. **2022.** Saffron and Solar Farms: A Win/Win for the Environment and Agriculture. Inspire Webinar. 250 attendees.

Skinner, M., S. Case, A. Ghalehgolabbehbahani & B.L. Parker. **2022.** Saffron: How to Grow the Most Expensive Crop in the World**.** Mid Atlantic Fruit and Vegetable Convention.

Parker, B.L., **M. Skinner**, A. Ghazanfari & E. White. **2022**. Encouraging Progress on Thrips Management with Ultraviolet Light. American Floral Endowment Thrips & Botrytis Research Newsletter, Issue One (February). https://endowment.org/wp-content/uploads/2022/02/UVarticleFeb2022.pdf

Skinner, M. & C.F. Sullivan. **2022.** Plant-Mediated Systems for High Tunnels. Mid Atlantic Fruit and Vegetable Convention.

Parker, B.L., **M. Skinner** & E. White. **2021**. Evaluating Thrips Control with UV Light. American Floral Endowment Thrips & Botrytis Research Newsletter, Issue Three (October). https://endowment.org/wp-content/uploads/2021/10/Parker-UV-light-Report-October-2021.pdf

Skinner, M., A. Ghalehgolabbehbahani & J. Pylypiv. **2021**. The Potential of Saffron for Small Farmers. Podcast #14. Wisconsin Extension System. https://soundcloud.com/cutting-edge-podcast/cutting-edge-episode-14-saffron

Sullivan, C.F & **M. Skinner**. **2019**. How to Create Pollinator Friendly Landscapes: Part 1 & 2: Pollination: The Bees Have It!. Univ. of Vermont Master Gardener Program.

Skinner, M., A. Davari, C.E. Frank Sullivan, S. Gouli, A. Ghalehgolabbehbahani & B.L. Parker. **2019**. Biological control of Western flower thrips (WFT), *Frankliniella occidentalis* using a self-sustaining granular fungal treatment. University of Vermont, Entomology Research Laboratory, Burlington, VT.

Davari, A., **M. Skinner** & B.L. Parker. **2019**. Evaluation of *Beauveria bassiana* isolate ERL 836 GR for management of western flower thrips (WFT). Univ. of VT Entomol. Research Lab, Burlington, VT.

Skinner, M., A. Davari & B.L. Parker. **2019**. Ultraviolet Light for Integrated Pest Management of Western Flower Thrips. Amer. Floral Endowment Newsletter. https://endowment.org/botrytis-thrips/

Skinner, M., A. Ghalehgolabbehbahani & B.L. Parker. **2019.** Saffron: The Next Best Thing for Crop Diversification. Mid Atlantic Vegetable & Berry Conference. 10 Dec. 2019. Manchester, NH.

Skinner, M., A. Ghalehgolabbehbahani & B.L. Parker. **2019.** Where can you order saffron corms?, 6 Dec. 2019. North Amer. Center for Saffron Research & Development, Univ. of VT, Burlington VT.

Presentation, Workshop/Conference Coordination & Media Coverage/Interviews:

Skinner, M. 2023. The ABC's of Saffron Production. Rodale Institute's 1st Annual Specialty Crop Symposium, Aug. 23, 2023. Rodale Institute-Pocono Organic Center, Blakeslee, PA. In person, 75 attendees.

Skinner, M. 2023. Habitat Plants and IPM in Vegetable Greenhouses. At Rodale Institute's 1st Annual Specialty Crop Symposium, Aug. 23, 2023. Rodale Institute-Pocono Organic Center, Blakeslee, PA. In person, 75 attendees.

Skinner, M., B.L. Parker & A. Ghalehgolabbehbahani. 2023. 7th annual saffron workshop "The How's and Why's of Growing and Selling Saffron" March 23 and 30, 2023. On line 75 attendees.

Ghalehgolabbehbahani, A. & **M. Skinner. 2023.** The ABC's of Saffron Post-Harvest Handling" at 7th annual saffron workshop "The How's and Why's of Growing and Selling Saffron" March 23, 2023. On line 75 attendees.

Sullivan, C.F., H. Bryant & **M. Skinner. 2024.** Revitalizing your Tunnel Vision: 2023 High Tunnel Production Conference. Dec. 6-7, 2023. West. Lebanon, NH. In person 150 attendees.

Skinner, M. & B.L. Parker. **2023.** Agriculture & Solar Energy for the Northeast: A Winning Partnership? 28 Nov. 2023. Online. 50 attendees.