

CONTENTS

Featured News	1
Featured Research	2
Extension Highlights	2
Project Meeting Brief	3
Announcements	4
Recent Publications	4
Recent Presentations	5
Project Directors	6
Advisory Panel	6

FEATURED NEWS

Boxwood ‘Little Missy’ to Gain a New Companion by Kristen Pullen, Woody Portfolio Manager, Star® Roses and Plants, West Grove, PA

In 2014, Star® Roses and Plants introduced Boxwood ‘Little Missy’ to the market. Discovered by Norman Cole, a long-time nurseryman and owner of Cole Nurseries in West Virginia, ‘Little Missy’ is named after Missy Cole, Norman’s wife.

Home gardeners, landscapers, and wholesale nurseries alike are drawn to this plant for its many sought-after traits. As expected for a successful boxwood, ‘Little Missy’ is evergreen and hardy to zone 5 and keeps its glossy, dark green foliage year-round. It is also prized for its size. Mature at 2½’ high

and 3½’ wide, the compact, versatile habit fits well into small gardens. Because of its minimal footprint, prime opportunities to use this boxwood include low hedges, specimen plantings, or flanking entryways and walkways.

While it is slightly slower to grow than larger cultivars as is typical for a compact selection, ‘Little Missy’ can be finished in a year. Starting with the recommended bareroot input, a 3-gallon nursery container will finish in 7–9 months, depending on location. When started from a liner, a 1-gallon nursery container will finish in about 16 months. Growers can also shift a 1-gallon nursery container to a 3-gallon nursery container to finish the plant in 12 months.

Boxwood is one of the most popular landscape shrubs in the North American market, with an estimated 22 million plants in production each year. Naturally, the industry grew concerned when boxwood blight was discovered in the United States. Since the initial discovery of the blight, the industry has been working to breed and select for more resistant cultivars to reduce losses in production and in consumers’ gardens.

In a [2020 USDA publication](#), Boxwood ‘Little Missy’ scored in the top 2% of cultivars resistant to blight. This disease resistance and the versatility of its compact size are two reasons growers see ‘Little Missy’ as an excellent choice among boxwood cultivars. This also translates to homeowners looking for disease-resistant options for their gardens.

The good news is that Star® Roses and Plants is committed to providing the industry with plants that solve a problem, such as blight. To support this goal, they are expanding their offering of blight-resistant boxwood with the introduction of ‘Little Mister’™ Boxwood in 2025. From the same breeder as ‘Little Missy’, ‘Little Mister’™ is twice the size and offers the same great



Blight-resistant ‘Little Missy’ with glossy, dark green foliage and small footprint, perfect for flanking entryways and walkways

DELIVERABLES

(June to August 2023)

Research

- 3 Refereed journal articles
- 7 Conference proceedings

Extension & Outreach

- 2 Trade journal articles
- 4 Extension presentations
- 22 Samples diagnosed
- 32 Email/phone inquiries answered
- 4601 People reached with articles/news

Education

- 4 Postdoctoral associates
- 3 Graduate students
- 2 Interns



Larger, blight-resistant ‘Little Mister’™ with the same great foliage color and dense branching habit, ideal for borders, accents, and foundational plantings

foliage color and dense branching habit. An added benefit to look forward to is its faster finishing time in production. The best news? Blight-resistance testing shows that ‘Little Mister’™ is just as resistant as ‘Little Missy’. Two strong options for low-to-mid borders, accents, or foundation plantings! Using both sizes together is a smart way to add visual appeal and dimension.

With the industry working to introduce blight-resistant boxwood cultivars like this dynamic duo, everyone will be able to continue enjoying this landscape staple for years to come.

FEATURED RESEARCH

Efficacy of flutriafol and other triazole fungicides against boxwood blight by Gabriel Sacher and Jay W Pscheidt, Oregon State University, Corvallis, OR



Fungicide drench for blight mitigation

The efficacy of the highly systemic triazole fungicide, flutriafol, was evaluated by detached leaf assays to assess boxwood blight management over time. Flutriafol applications resulted in less disease in leaves from plants treated with flutriafol as compared to no-fungicide water control treated plants following drench, sprench, and spray applications and both in field and containerized boxwood plants. This effect was observed throughout the boxwood canopy, including both interior canopy and exterior canopy leaves. Protection lasted for many weeks, including at least 20 weeks in one trial.

However, a lag period was observed after flutriafol drench applications, before disease protection. Flutriafol translocated from the root zone to throughout the canopy following soil applications and could be useful in managing boxwood blight and overcoming issues of poor spray coverage.

The fungicides propiconazole, prothioconazole, triflumizole, myclobutanil, and tebuconazole were also evaluated in some experiments with drench and spray applications. Each of these fungicides when applied as a drench treatment resulted in less disease than the no-fungicide water control after a lag period, except triflumizole, which was phytotoxic and dropped from the trial. These triazole fungicides also had observed disease control for up to 15 weeks. This data indicates that translocation from the root zone to the canopy is common among all tested triazole fungicides. No fungicide was as effective as flutriafol following a drench application, though several were more effective as spray applications.

EXTENSION HIGHLIGHTS

Fulya Baysal-Gurel presented on nursery sanitation at the Cultivate’23 conference in Columbus, OH in July, using boxwood as her prime example of the need for careful sanitation practices.

Margery Daughtrey gave presentations to the Tree Committee of the Ladies Village Improvement Society on June 24 and to 100 interns and 40 arborists at Cornell University’s Long Island Horticultural Research & Extension Center, Riverhead, NY at field days on July 13 and 15, respectively.

A fact sheet on [Best Management Practices for Boxwood Blight in Virginia Nurseries](#) was authored by Devin Bily and **Chuan Hong**. Chuan also wrote an article on his lab’s antidesiccant research for the Virginia Nursery and Landscape Association Magazine’s summer issue.

BBIG Knowledge Center had two major updates – expanding the section of Diagnostic Aids to [Diagnostic Aids and Management Strategies](#) for all practical tools and knowledge developed through this project, and adding a new section of [Box Tree Moth](#), both sections already populated with a variety of useful information.

Having finished up the highly successful International Boxwood Seminar Series, BBIG has embarked on a new set of features on boxwood blight research on the Internet. The new series, again produced in collaboration with the Horticultural Research Institute (HRI), highlights the American research progress supported by the SCRI grant that created the BBIG. Our initial seminar was Battling Boxwood Blight by **James LaMondia**, who covered his studies on management of boxwood blight using fungicides, cultural controls and resistant cultivars. This webinar aired on August 23 at 1 pm and will be posted shortly at the [BBIG outreach website](#) for anyone who missed the session or would like to review the information.

PROJECT MEETING BRIEF

BBIG Leadership Team and [Advisory Panel](#) (AP) held their 11th quarterly project meeting on June 2, 2023 with featured presentation - Boxwood blight scouting in nurseries and pathogen detection using moist chambers and *qPCR*, by **Jerry Weiland** and **Mana Ohkura**. Jerry is coordinating a Team developing this into a written protocol to help first responders inspect boxwood production and diagnose boxwood blight samples with confidence. Following other research and extension updates, the AP members had a great discussion. Two of the hot topics were: 1) the stakeholders' increasing interest in box tree moth – an emerging insect pest recently discovered in New York, Michigan and Ohio, and 2) new discovery of fungicide drenches' lasting efficacy against boxwood blight. Accordingly, the BBIG Team has added a new section – [Box Tree Moth](#) – to the Knowledge Center at its outreach website to meet the emerging needs. Also, the research leading to the discovery will be the featured presentation at the upcoming quarterly meeting with AP members on September 1, 2023, so we can brainstorm and explore together on how to expand this research and move it forward.

Three monthly **Project Leadership Team** Meetings were held on June 14, July 12, and August 9, 2023, respectively. One major focus of these meetings was to plan the knowledge and technology transfer from lab to field. As the BBIG research results and accomplishments are finalized, this information will be more heavily featured in BBIG outreach materials. Specifically, at the June meeting, we discussed the new materials developed by the BBIG Team and their postings, along with existing materials in the [Knowledge Center](#) of the BBIG outreach website. At the July meeting, we discussed the launch of a new webinar series – BBIG Boxwood Seminar Series for the Team to present their latest research and innovations. At the August meeting, we considered **Karen Snover-Clift**'s proposal to have a Day of Boxwood Blight for the National Plant Diagnostic Network and discussed potential topics and presenters to move this extension and outreach program forward.

BBIG hosted a new webinar on the [Team Capacity-Building Seminar series](#) - A combined approach for early in-field detection of beech leaf disease using near-infrared spectroscopy and machine learning, by **Dr. Carrie Fearer** of University of New Hampshire on July 20, 2023. Among the attendees were our collaborators, in addition to Project Directors and their associates – Postdoctoral Associates, Graduate Students, Summer Interns, as well as Advisory Panel members.

BBIG Project Directors and Associates, joined by the AP Chair – **Dr. Jill Calabro** and AP member, **Jennifer Gray**, held their 12th quarterly project meeting on August 7, 2023, hearing and discussing the research leading to the discovery of fungicide drench's lasting efficacy at the **Pscheidt Lab** of Oregon State University and other major research and extension accomplishments and charting strategies forward.



Briana Pecora (left) and Taylor Phelps (right), two newest BBIG Team members, presenting BBIG at the Annual Meeting of American Phytopathological Society in Denver, CO (credit – Douglas Luster)



BBIG Team gathered in Denver when attending the Annual Meeting of American Phytopathological Society (Credit: Fulya Baysal-Gurel)

ANNOUNCEMENTS

Briana Pecora, a Senior at Christopher Newport University (CNU) in Newport News, Virginia, recently joined the Boxwood research team at the Virginia Tech's Hampton Roads Agricultural Research and Extension Center as an intern in May of 2023. Motivated by her immeasurable passion for plants, she has been working closely with members of the BBIG Team to better understand the epidemiology and pathology of boxwood blight. She has been aiding her mentors in manuscript writing and research experiments while learning the microbiology lab routines including how to isolate and culture pathogens in the lab.



Briana graduated from Kempsville High school and Tidewater Community College in 2021 through academy dual enrollment, earning her high school diploma and an associate of business administration. Currently she is about to start her third year at CNU and will be graduating in spring of 2024 with a Bachelor of Science in organismal and environmental biology. After graduating she plans to attend Virginia Tech in fall of 2024 to work towards a masters in plant pathology, and eventually her doctorate.



Taylor Phelps joined the BBIG Team at Virginia Tech as a graduate research assistant in May of 2023. He just began coursework toward a Master of Science in Life Sciences, majoring in Plant Pathology. Prior to joining the lab, he earned a Bachelor of Science in Horticulture from Virginia Tech and held leadership positions in the horticulture industry for several years.

Since joining the lab in May, Taylor conducted a literature review to identify knowledge gaps in boxwood blight epidemiology, specifically related to pathogen dispersal and the biological and environmental factors affecting infection. He also developed the methodology for his first project, focusing on human-mediated dispersal of the boxwood blight pathogen via contaminated tools, and propagated boxwood plants for future projects.

A lifelong plant enthusiast, Taylor is particularly passionate about the intersection between plant pathology and horticulture. He intends to utilize his leadership and professional experience, his love for teaching, and the knowledge he acquires through his studies to educate the public and the next generation of plant pathologists by becoming a professor.

Congratulations to **Mana Ohkura** and **Vanina Castroagudín**. Mana, a Postdoctoral Associate in the Weiland Lab, USDA ARS Horticultural Crop Disease and Pest Management Unit recently landed her dream job as Director of Oregon State University Plant Clinic in Corvallis, OR. Vanina, a Postdoctoral Associate in the Crouch Lab, USDA ARS Mycology & Nematology Genetic Diversity and Biology Lab, landed her dream job as Molecular Biologist at USDA APHIS – Plant Pathogen Confirmatory Diagnostics Lab at Beltsville Agricultural Research Center, Beltsville, MD.

RECENT PUBLICATIONS

Refereed Journal Articles

- Ghimire, B., Liyanage, K. H. E., Hall, C., and Baysal-Gurel, F. 2023. A modified Delphi study on boxwood blight disease management in the US nursery industry. *HortScience* 58(8):898-906 ([open access](#)).
- Kong, P., Li, X. P., Sharifi, M., Bordas, A., and Hong, C. X. 2023. Leaf endophyte community composition and network structures differ between tolerant and susceptible English boxwood. *Phytobiomes Journal* ([open access](#))
- Li, X. P., Omolehin, O., Hemmings, G., Tseng, H. T., Taylor, A., Taylor, C., Kong, P., Daughtrey, M., Luster, D., Gouker, F., and Hong, C. X. 2023. Boxwood phyllosphere fungal and bacterial

communities and their differential responses to film-forming antidesiccants. *BMC Microbiology* 23, 219 ([open access](#)).

Newsletter and Trade Journal Articles

- Bily, D., and Hong, C. X. 2023. Best management practices for boxwood blight in Virginia nurseries. Virginia Cooperative Extension Publication – SPES-516NP ([open access](#)).
- Hong, C. X. 2023. Evaluating antidesiccants as a physical barrier for boxwood blight mitigation under controlled environments. *VNLA News – The Virginia Nursery and Landscape Association Magazine*. (Summer issue):10-13.

RECENT PRESENTATIONS

At Professional Conferences, Seminars or Webinars

1. Daughtrey, M., Luster, D., Calabro, J., Gray, J., Hall, C., Weiland, J., Baysal-Gurel, F., Gouker, F. E., Kong, P., Crouch, J. A., LaMondia, J. A., Pscheidt, J. W., Santamaria, L., Shishkoff, N., Snover-Clift, K., and Hong, C. X. 2023. Fighting a good fight against an invasive pathogen through an international consortium: the Boxwood Blight Insight Group (BBIG). *Plant Health 2023 – Annual Meeting of the American Phytopathological Society*, Denver, CO, August 12 to 16.
2. Ghimire, B., Parajuli, M., Simmons, T., Liyanapathirana, and Baysal-Gurel, F. 2023. Comparative performance of fungicides, host plant defense inducers and antitranspirant in management of boxwood blight. *Plant Health 2023 – Annual Meeting of American Phytopathological Society in Denver, CO*, August 12 to 16, 2023.
3. Kodati, S. and LaMondia, J. 2023. Duration of protection offered by fungicides against boxwood blight. *Plant Health 2023 – Annual Meeting of American Phytopathological Society in Denver, CO*, August 12 to 16, 2023.
4. Kong, P., and Hong, C. X. 2023. *Burkholderia* sp. SSG – a powerful new management tool for crop health and production. 12th International Congress of Plant Pathology, Lyon, France, August 20 to 25.
5. Li, X. P., Weiland, J., Ohkura, M., Kong, P., and Hong, C. X. 2023. Comparative analysis of boxwood shoot endophytic microbiota between two major boxwood production regions in the United States. *Plant Health 2023 – Annual Meeting of the American Phytopathological Society*, Denver, CO, August 12 to 16.
6. Ohkura, M., Scagel, C., and Weiland, J. 2023. The effect of host volatiles on the sporulation and germination of *Calonectria pseudonaviculata*, the causal agent of boxwood blight. *Plant Health 2023 – Annual Meeting of American Phytopathological Society in Denver, CO*, August 12 to 16, 2023.
7. Omolehin, O., Kong, P., Hemmings, G., Taylor, A., Tseng, H. T., Taylor, C., Li, X. P., Khaliq, I., Daughtrey, M., Luster, D., and Hong, C. X. 2023. Field performance of selected biological control agents for protecting Vardar Valley boxwood from infection by *Calonectria pseudonaviculata*. *Plant Health 2023 – Annual Meeting of the American Phytopathological Society*, Denver, CO, August 12 to 16.

At Extension and Outreach Programs

1. Baysal-Gurel, F. 2023. Sanitation practices in nursery production. *Cultivate'23*, Columbus, OH, July 17, 2023.
2. Daughtrey, M. L. 2023. Identifying and coping with diseases of ornamental plants. Tree Committee Meeting, Ladies Village Improvement Society, East Hampton, NY. June 24, 2023.
3. Daughtrey, M. L. 2023. Solving Disease Problems of Ornamental Plants. Intern Field Day. Cornell University Long Island Horticultural Research & Extension Center, Riverhead, NY, July 11.
4. Daughtrey, M. L. 2023. Research and diagnosis for diseases of woody plants. Nursery Section. Plant Science Day. Cornell University Long Island Horticultural Research & Extension Center, Riverhead, NY, July 13.

PROJECT DIRECTORS

Chuan Hong (Project Leader), Virginia Tech, Virginia Beach, VA
Margery Daughtrey (Extension Leader), Cornell University, Riverhead, NY
Douglas Luster (Research Leader), USDA, ARS, Foreign Disease & Weed Science Research, Ft. Detrick, MD
Charles Hall, Texas A&M University, College Station, TX
Jerry Weiland, USDA, ARS, Horticultural Crops Disease and Pest Management Unit, Corvallis, OR
Fulya Baysal-Gurel, Tennessee State University, McMinnville, TN
Fred Gouker, USDA, ARS, Floral & Nursery Plants Research, Beltsville, MD
Ping Kong, Virginia Tech, Virginia Beach, VA
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James LaMondia, Connecticut Agricultural Experiment Station, Windsor, CT
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Karen Snover-Clift, Cornell University, Ithaca, NY

ADVISORY PANEL & LIAISON TO AMERICANHORT

Jill Calabro (Chair), Sr Product Development Manager, Valent USA Corporation, Walnut Creek, CA
Lynn Batdorf, Boxwood Cultivar Registration Authority, International Society for Horticultural Science
Frank Collier, Owner, Pleasant Cove Nursery, Rock Island, TN
Michael Gaines, President, CW Arborists, Ltd., Sagaponack, NY
Laura Gladwin, Plant Health Manager, Everde Growers, Forest Grove, OR
John Keller, Planning & Research Vice President, Monrovia – Grow Beautifully in CA, CT, GA, OR
Bennett Saunders, General Manager, Saunders Genetics, LLC., Piney River, VA
Richard Schnall, Vice President, Rosedale Nurseries, Inc., Hawthorne, NY
Casey Sclar, H.O. Smith Endowed Director, The Arboretum at Penn State, State College, PA
Mark Sellew, Owner, Prides Corner Farms, Lebanon, CT
Jennifer Gray (Liaison to AmericanHort), Administrator, Horticultural Research Institute, Washington, DC

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