



# Newsletter



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## FEATURED NEWS

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### BetterBuxus® Restores Boxwood as an Iconic Landscape Plant in Europe

By Didier Hermans, Herplant BV, Beerse, Belgium

BetterBuxus® is the brand name of resistant *Buxus* cultivars, developed for resistance to boxwood blight (*Calonectria pseudonaviculata*) by Herplant BV in collaboration with the Institute of Agriculture in Belgium (ILVO) starting in 2007. These cultivars were obtained and selected through traditional breeding between different species of *Buxus* and are therefore hybrids.

There are four cultivars available, resistant to box-blight and each with its own specific applications. **BetterBuxus® Renaissance** is a low, compact *Buxus* hybrid. Characteristics

are the small, dark green leaves, ideal for low hedges in broderie style. **BetterBuxus® Babylon Beauty** is a low, broad-growing *Buxus* hybrid. The light green leaves and its strong spreading growth make it extremely suitable as a ground cover. **BetterBuxus® Heritage** is a compact to upright growing *Buxus* hybrid. Characteristics are the beautiful glossy, medium green leaves, very suitable for hedges and making topiaries. **BetterBuxus® Skylight** is a strong-growing *Buxus* hybrid. The glossy, medium green foliage and its strong vigour make it very suitable for ball shapes and volume applications. These cultivars are marketed exclusively in Europe for historical gardens and boxwood lovers and for the time being will not be available on the open market. In the U.S., BetterBuxus is called BetterBoxwood®



Four BetterBuxus® cultivars (from left to right): Babylon Beauty, Skylight, Heritage, and Renaissance

(<https://betterboxwood.com/>) and will be available exclusively from Everde Growers ([www.everde.com](http://www.everde.com)).

The first major projects of BetterBuxus® planting were planted in early 2020 with a focus on historic castle gardens in Europe. These castle gardens are used to working with *Buxus* and are true *Buxus* ambassadors. As a result of Boxwood Blight and boxwood tree moth, the image of *Buxus* in Europe fell sharply. The use of BetterBuxus cultivars in these gardens is restoring confidence in this iconic plant in Europe. To date, BetterBuxus® cultivars have been planted in fifty historic gardens of seven European countries. On the website [www.betterbuxus.com](http://www.betterbuxus.com) we provide more information on each project.

Three years after its first introduction, with hundreds of thousands of plants planted, it is clear that these resistant cultivars are great solutions to boxwood blight and eliminate the needs of chemical fungicide treatment. According to the initial studies, these cultivars are also more tolerant to boxwood tree moth than *B. sempervirens*. With these cultivars, boxwood tree moth can be easily managed with bioproducts ([www.buxuscare.com](http://www.buxuscare.com)).

### DELIVERABLES

(Sep to Nov 2023)

#### Research

4 Conference proceedings

#### Extension & Outreach

5 Extension presentations

25 Samples diagnosed

35 Email/phone inquiries answered

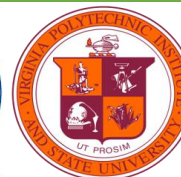
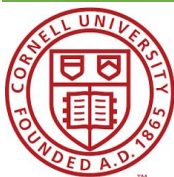
2335 People reached with articles/news

#### Education

4 Postdoctoral associates

2 Graduate students

1 Intern



Unlike many other evergreen plants, Betterbuxus® plants have a strong root system and can thrive on all soil types. They do require slightly higher fertilisation than ordinary *Buxus sempervirens*.

BetterBuxus® is protected by trademark law and the plants are individually protected by plant breeders' rights.

### **Resolve and Patience Work against Boxwood Blight** By Michael S. Gaines, President of CW Arborists Ltd., Sagaponack, NY and a member of the BBIG Advisory Panel

Boxwood blight has taken tremendous tolls. Blight is responsible for ruining many boxwood plantings. Historic gardens, home gardens and commercial plantings have all been under-protected. The disease had generated a lot of uncertainty and general hysteria early on. The topic of blight continues to carry similar sentiment in many circles. The major fear is that the disease will continue to wipe out this iconic landscape plant indiscriminately. Surely, this disease is very destructive and there is no silver bullet for its control, at least not yet. As an arborist and landscape professional, I have helped businesses and homeowners alike manage the Boxwood Blight—continuing to protect boxwood plantings that their families have treasured for generations on Eastern Long Island, NY and along the Connecticut shoreline. This presentation is to share some of my observations and experience.



Michael presenting at recent BBIG project directors and associates meeting on November 15, 2023

My approach to preserving boxwood plantings at sites of infection consists of three major components: 1) reduction of pathogen inoculum available for new infections by appropriate mulching, 2) creating environments that suppress the blight pathogen and disease through selective pruning/removal, critical water management procedures and other basic cultural practices, and 3) treating with fungicides, soil amendments and nutrition when needed. This is easier to say than do because as you all know, boxwood plantings in private gardens are commonly in close proximity to pools, herb and

vegetable gardens, decks with barbecue grills and a myriad of further hinderances. There may be other compounding factors such as mixed plantings or free - roaming pets that prevent access to the plantings to allow fungicide treatment where and when it is needed.

To address these potential access problems and make the multi-component approach work as well as possible, I start by meeting with property owners, communicating available tools and how they work, as well as the importance for the owner to be an integral part of the team to win the battle against this disease. To date, gardens where we have had the most success with managing an initial infection, where disease flare spots have completely disappeared and boxwood plantings fully recovered, are those where property owners fully cooperated, reacted quickly and gave priority to fungicide treatment over competing interests such as social events that could delay quick response.

Boxwood blight has proven to be quite manageable in my experience both on Long Island and in Connecticut where cool humid weather conditions strongly favor disease development. The most crucial step is to build a team with property owners and get everyone on board with resolve and patience. I am pleased with all the outreach programs that the BBIG Team has put together. With all the ongoing research innovation, I am optimistic that boxwood blight in the landscape will become even more manageable in the future.

## **FEATURED RESEARCH**

### **Uncovering the Myth of the Boxwood Blight Pathogen Rapid Decline in U.S. Garden Soil** By Xiaoping Li and Ping Kong, Virginia Tech, Virginia Beach, VA

In a recent report, authors observed that populations of the boxwood blight pathogen *Calonectria pseudonavicularata* declined rapidly in the soil of all five gardens across United States (California, Illinois, New York, South Carolina, and Virginia) after removal of blighted boxwood plants. They hypothesized that this

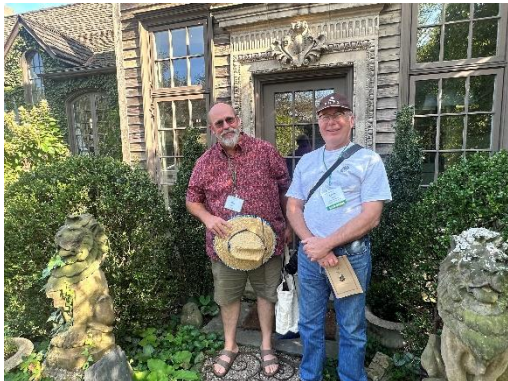
rapid decline was due in part to the activities of garden soil microbial communities. Here we tested this hypothesis by sequencing the soil bacterial communities in the same gardens with the latest DNA technology.

We found that these garden soils all were dominated by *Rhizobiales* and *Burkholderiales*. These two groups each is known to contain many bacterial species and strains capable of suppressing pathogens and promoting plant growth. Specifically, 66 bacterial species were identified to have potential biological control activity. The most abundant species were *Pseudomonas* spp. and *Bacillus* spp., both dominating current biocontrol product market. Discovery of this great variety of beneficial bacterial species with high capacity in these garden soils supports the above hypothesis. This study helps understand the rapid decline of the blight pathogen in the boxwood garden soil. It also highlights the important role of soil microorganisms in clean gardens and provides new horizon to managing boxwood blight and potentially other diseases by leveraging beneficial bacteria already in the garden soil through better cultural practices.

## EXTENSION HIGHLIGHTS

### Boxwood Heath and Care Featured in the 2023 American Boxwood Society Annual Symposium By Fred Gouker, USDA-ARS, Floral & Nursery Plant Research Unit, Beltsville, MD

The 2023 American Boxwood Society (ABS) annual Symposium was held in the "Garden State" of New Jersey on September 21 and 22. Among attendees were landscape designers, researchers, curators, and horticulturists, including three BBIG Team members – Lynn Batdorf, former boxwood curator at the U.S. National Arboretum (USNA) in Washington DC, Michael Gaines, President of CW Arborists in Sagaponack, NY, and myself – USNA boxwood breeder.



BBIG Advisory Panel members - Mikes Gaines (left) and Lynn Batdorf during the tour of Jardin de Buis

The symposium included educational lectures on the care and health of boxwood by specialists in the field. Specifically, this year's focus was on the importance of soil in the health care of boxwood. Lynn Batdorf gave an excellent lecture on boxwood history and taxonomy. Fred Gouker, and Chris Von Kohn, current USNA boxwood curator hosted a Q&A session on the latest boxwood research.

Also included in the two-day symposium were tours of some fantastic private and public landscapes that would normally be difficult to access. The first day of tours included [Marty Carson's Garden](#) (a beautifully curated private estate), [Luna Parc](#), and [Ken Druse](#) and Louis Bauer's private garden (including multiple boxwood hedges along with many well curated woody landscape plants). The last tour of the day was at Jardin de Buis, where ABS president Andrea Fillippone gave us a tour of her home and property designed and built by her and Eric T Fleisher, which included many forms of boxwood planted throughout the landscape. The evening concluded with an ABS board meeting, a silent auction of items donated by ABS members, and a dinner. On Friday, the tours started out with a guided tour by co-owner and garden designer Graeme Hardie at [Mountsier Garden](#) (a beautiful 2.3 ac private, formal garden), next was Janet Mavec's garden (a.k.a Bird Haven Farm and the former 100 ac home of Harriet Stratemeyer Adams) which had several dozen original boxwood hedges planted by the former children's literature syndicate of the Nancy Drew novels. The final tour was at Willowood Arboretum, which had excellently curated boxwood accessions scattered throughout the grounds. Finally, the evening concluded at Jardin de Buis with demonstrations of how to prepare custom garden soils by Eric T Fleisher, a talk and, and a closing dinner. Additionally, on Saturday Sept. 23<sup>rd</sup>, there was optional tour of public gardens in New York City led by Eric T Fleisher that saw behind the scenes aspects of garden design and care in Battery Park City, the High Line, and Brooklyn Bridge Park. All those in attendance got a behind the scenes look at some amazing public and private garden spaces that was greatly enjoyed and reaffirmed for all participants that boxwood plays an integral part in landscape development and in public and private garden designs.

## Other Major Extension and Outreach Programs By Margery Daughtrey, Connell University, Riverhead, NY

BBIG and [the National Plant Diagnostic Network](#) (NPDN) teamed up to jointly host a NPDN Symposium: Boxwood Blight Insight Group on January 17, 2024 from 1:00 to 4:00 PM Eastern Time, sharing with diagnosticians and other first responders the latest discoveries and technology development, so those in the field can incorporate the best identification methods and encourage the use of better management strategies.

The [Boxwood Blight Task Force](#) has an updated list of cultivars resistant to both boxwood blight and leafminer.

## PROJECT MEETING BRIEF

**BBIG Leadership Team** and [Advisory Panel](#) held their 12<sup>th</sup> quarterly project meeting on September 1, 2023, starting with featured presentation – Efficacy of flutriafol and other triazole fungicides against boxwood blight by **Gabriel Sacher** and **Jay Pscheidt**, followed by research and extension updates and a short presentation on *Calonectria henricotiae* hunting expedition in Spain and France by **Chuan Hong** and **Ping Kong**, as well as discussion on a range of other topics. The featured presentation and follow-up discussion formulated strategies to leverage funding for additional fungicide drench research. Specifically, **Bennett Saunders** submitted a request to IR-4 for funding on September 1, 2023 and attended and presented his case at the [2023 Environmental Horticulture Priority Setting Workshop](#) on October 10 to 12, 2023. Also attended the workshop and helped make the case included **Jay Pscheidt**, **Fulya Baysal-Gurel**, **Louisa Santamaria**, **Jerry Weiland** and **Chuan Hong**.

Three monthly **Project Leadership Team** Meetings were held on September 13, October 11, and November 7, 2023, respectively. Four major focal points of discussion were planning for: 1) another outreach program for the diagnostic community in partnership with NPDN, 2) new sessions on the BBIG Boxwood Seminar series, 3) topics for Featured News in the upcoming issues of the BBIG Newsletter, and 4) continuing fungicide drench research. With all the hard work by **Karen Snover-Clift** and **Margery Daughtrey**, the outreach program titled NPDN Symposium – Boxwood Blight Insight Group has been scheduled for January 17 from 1:00 to 4:00 PM Eastern Time with detailed agenda to be announced in an upcoming issue of BBIG Monthly. Additional topics and potential speakers have been identified with priority given to junior scientists on the Team where possible. Proposed Featured News topics are 1) major research and extension products and accomplishments, and 2) interview with Advisory Panel Members.

The thirteenth BBIG Project Director/Associate meeting was held on November 15, 2023 with **Michael Gaines**, President of CW Arborists and a member of BBIG Advisory Panel as the invited speaker. His presentation helped the team better understand the landscaping sector of the horticulture industry.

## ANNOUNCEMENTS

Congratulations to Bhawana Ghimire on successfully defending her doctoral dissertation under the direction of **Fulya Baysal-Gurel** in Tennessee State University.

## RECENT PRESENTATIONS

### At Professional Conferences, Seminars or Webinars

1. Ghimire, B., Liyanage, K., Pendyala, B., Patras, A., Hall, C., and Baysal-Gurel, F. 2023. Understanding nursery grower's perspectives on managing boxwood blight disease and developing innovative control methods (Oral talk). ASHS Annual Meeting in Orlando, FL, July 31 to August 4.
2. Ghimire, B., Liyanage, K., Pendyala, B., Patras, A., Hall, C., and Baysal-Gurel, F. 2023. Understanding nursery grower's perspectives on managing boxwood blight disease and developing innovative control methods (Scholar's Ignite Session). ASHS Annual Meeting in Orlando, FL, July 31 to August 4.
3. Kong, P. and Hong, C. X. 2023. *Burkholderia* sp. SSG – A powerful broad-spectrum biocontrol agent and biostimulant. 7<sup>th</sup> Partnership in Biocontrol, Biostimulant & Microbiome Congress USA 2023 in Raleigh, NC, October 24 to 25.

4. Omolehin, O., Kong, P., Hemmings, G., Taylor, A., Tseng, H. T., Taylor, C., and Hong, C. X. 2023. Field performance of multiple biocontrol agents against boxwood blight in a disease hotspot of western North Carolina. 7<sup>th</sup> Partnership in Biocontrol, Biostimulant & Microbiome Congress USA 2023 in Raleigh, NC, October 24 to 25.

#### **At Extension and Outreach Programs**

1. Baysal-Gurel, F. 2023. Boxwood diseases. MTSU-Plant science class. October 4.
2. Baysal-Gurel, F., Ghimire, B., Liyanapathirana, and P., Parajuli, M. 2023. Boxwood blight. The Horticultural Inspection Society - Southern Chapter Meeting, McMinnville, TN, September 20.
3. Ghimire, B. 2023. Boxwood blight. Bartlett Tree Experts. Charlotte, NC, September 18.
4. Hong, C. X. 2023. Boxwood Blight and other signature programs. Attendees of the 2023 Annual Conference of the International Plant Propagator Society – Southern Region, Virginia Beach, VA, October 23.
5. Hong, C. X. 2023. Boxwood Blight and other signature programs. Old Dominion Faculty of Biology Department, Virginia Beach, VA, November 6.

## 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  
Jo Anne Crouch, USDA, ARS, Foreign Disease & Weed Science Research, Ft. Detrick, MD  
James LaMondia, Connecticut Agricultural Experiment Station, Windsor, CT  
Jay Pscheidt, Oregon State University, Corvallis, OR  
Luisa Santamaria, Oregon State University, Aurora, OR  
Nina Shishkoff, USDA, ARS, Foreign Disease & Weed Science Research, Ft. Detrick, MD  
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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