



# Newsletter



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## FEATURED NEWS

**Update on Box Tree Moth, An Invasive Pest of Boxwood** by Dan Gilrein, Extension Entomologist, Cornell Cooperative Extension of Suffolk County, NY

Box tree moth (*Cydalima perspectalis*), native to East Asia, is a destructive pest defoliating and killing boxwood. It was found in Europe in 2006 and near Toronto, Canada in 2018, where it has spread to nearby areas in Ontario. Although some references note other hosts, so far only boxwood is being affected in Europe and North America. On the heels of boxwood blight, this new pest is especially



unwelcome for one of our most popular and valued landscape plants. On May 28, 2021, USDA APHIS confirmed box tree moth for the first time in the continental U.S. on imported nursery stock plants from Ontario, Canada. The plants were shipped to the U.S. between August 2020 and April 2021 to seven states and have since been more widely distributed. Insects were found in Michigan, Connecticut, Ohio, and South Carolina. The U.S. has halted all imports of potential host plants (*Buxus* spp., *Euonymus* spp., *Ilex* spp.) from Canada. Federal and State officials are tracing and destroying these imported plants, following up with pheromone trapping and surveys, and working with local partners to raise awareness. NYS Dept. of Agriculture and Markets ([tinyurl.com/BTMinNY](http://tinyurl.com/BTMinNY)) also recently confirmed this pest in western NY near the Canadian border, including moths in traps and caterpillars in boxwood plants at a residential (Youngstown) landscape. Surveillance is continuing and the Department is asking residents to report sightings at [arcg.is/1Df8Se](http://arcg.is/1Df8Se).

During its flight periods in summer, box tree moth can be detected with commercially available traps and pheromone lures. Traps are placed about 3' above ground prior to and while moths are active; standard septa lures are replaced every 4–6 weeks or as recommended. Moths were first seen in Canada on June 13 this year, weeks earlier than in 2019 and 2020, with a second flight expected in late summer. The green striped caterpillars (responsible for all the destruction), their webbing, and leaf chewing damage in boxwood are also distinctive. Jen Llewellyn, Ontario Ministry of Agriculture and Rural Affairs, has posted some photos and information at [tinyurl.com/BTMEarly](http://tinyurl.com/BTMEarly) that are helpful for recognizing and monitoring box tree moth. Notify your State Department of Agriculture ([nationalplantboard.org/membership/](http://nationalplantboard.org/membership/)) or land-grant college diagnostic lab of suspect sightings of moths, caterpillars, and/or plant damage. Include clear photos if possible. The good news is that with early detection, box tree moth can be managed and possibly contained; several insecticides labeled for caterpillars are shown to be effective,

## RECENT DELIVERABLES

June to August 2021

### Research

- 6 Research articles
- 11 Conference proceedings/abstracts
- 1 Seminar

### Extension & Outreach

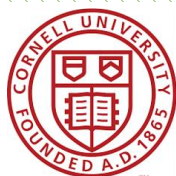
- 2 Field demonstrations
- 2 Workshops/symposia
- 4 Webinars/virtual meetings
- 2 Extension presentations
- 2 Extension publications
- 46 Samples diagnosed
- 157 Email/phone inquiries answered
- 3967 People reached with articles/news

### Education

- 1 Postdoctoral associate
- 1 Graduate student
- 2 Summer interns

### Publicity

- 1 Newsletter interview/report



including those containing *Bacillus thuringiensis* subsp. *kurstaki* (Btk), spinosad, and other active ingredients. When checking boxwood, also watch for possible symptoms of boxwood blight and obtain a diagnosis.

## FEATURED RESEARCH

### Surveying for Boxwood Blight during Oregon’s Record Heat and Drought Event by Jerry Weiland

Three of the five nurseries scheduled to be surveyed in 2021 are complete. All three nurseries had boxwood blight. Data were collected on symptom presence, cultivar affected, plant size and spacing. Preliminary results show that this year's drought and heat in Oregon have affected symptom expression. Symptoms are less common and less severe than in previous years when temperatures were more moderate, and rainfall was more abundant. Leaf spots are mostly absent in 2021, with stem lesions and leaf drop occurring more frequently. Most symptoms developed during the rainy seasons in late 2020 and early 2021. Few new symptoms have developed since the onset of hot, dry weather in June, unless the grower is watering extensively. This has made disease scouting more challenging this year. The most commonly infected cultivars include Winter Gem, Green Gem, Green Mountain, and Green Velvet. The one situation where boxwood blight consistently becomes more severe, regardless of weather patterns, is when the canopies of individual plants merge. This happens most often in propagation and container systems when the plants are placed pot tight (i.e., no space between pots). In propagation flats, this often occurs when the plants are about 6 inches tall (Top right) and in 1-gallon containers, when the plants are about 12 inches tall. In the field, depending on spacing, the canopies often start to merge when the plants are about 18 inches tall (Left). Boxwood blight becomes more severe and spreads more rapidly under these conditions, because the wet and humid environment underneath the canopy is more conducive to infection and disease spread (Bottom right). Similar to what is happening with COVID-19 and people, social distancing (placing your plants further apart) also helps slow the spread of boxwood blight.



## EXTENSION HIGHLIGHT

### BBIG on the Live Stage of the tHRive Knowledge Center at Cultivate’21

BBIG Extension Team worked with AmericanHort/Horticultural Research Institute (HRI) leadership on a Live Stage session at Cultivate’21 in Columbus, Ohio. This session consisted of four presentations by three BBIG Project Directors (Fred Gouker, Chuan Hong and James LaMondia) and one collaborator, Dr. Len Coop of Oregon State University. The session was held on the Trade Show Floor on July 11, allowing extension to those attending the trade show at this key national industry meeting. Among the attendees were several Trustees of AmericanHort and HRI and many growers, arborists, and graduate students. Two BBIG Advisory Panel members (John Keller and Bennett Saunders) also attended to show their support.





**Bilingual Extension Publications** (free to download at the weblinks)

[catalog.extension.oregonstate.edu/em9124p](http://catalog.extension.oregonstate.edu/em9124p)

[catalog.extension.oregonstate.edu/em9124s](http://catalog.extension.oregonstate.edu/em9124s) (Spanish)

[catalog.extension.oregonstate.edu/em9124](http://catalog.extension.oregonstate.edu/em9124) (English)



**Differentiate Boxwood Blight from Volutella Blight by Disease Symptoms** by Xiao Yang

Boxwood blight caused by *Calonectria* spp. can be readily differentiated from *Volutella* blight caused by *Pseudonectria* spp. (synonym: *Volutella* spp.) by symptoms. First, they are different in the disease pattern on the canopy. Boxwood blight usually starts with scattered, relatively small areas due to leaf infection, then spreads to the entire foliage, whereas *Volutella* blight affects one or more relatively large sections of the canopy due to infection on supporting branch bases. Second, boxwood blight causes extensive leaf spots at the early stage of infection, which are rarely associated with *Volutella* blight. Third, boxwood blight causes rapid and excessive defoliation, whereas “straw-colored”, blighted leaves infected by *Pseudonectria* spp. tend to remain attached unless disturbed. Lastly, branches with boxwood blight often have vertical black streaks or cankers, while those with *Volutella* blight often have girdling and loosened bark.



**Boxwood blight**

**vs. Volutella blight**

**PROJECT MEETING BRIEF**

The Project Team organized an Idea Café and presented a poster on BBIG at Plant Health 2021 Online, the annual meeting of the American Phytopathological Society. A recording of the Idea Café is posted at [events.rdmobile.com/Sessions/Details/1174977](http://events.rdmobile.com/Sessions/Details/1174977) (meeting registration required). The poster can be viewed at [api.ltb.io/show/ABDST](http://api.ltb.io/show/ABDST).

Three Project Leaders and the Project Manager met monthly – June 22, July 20, and August 17, discussing project progress, planning project-wide activities, reviewing individual teams’ quarterly progress reports, and preparing this issue of the BBIG Newsletter. Dr. Olanike Omolehin contributed to the preparation of this issue.

All Project Directors and their associates met on August 18, 2021, discussing the project progress and planning for the next quarter. Dr. Jerry Weiland presented a seminar entitled: How is boxwood blight responding to the heat and drought in Oregon nurseries?

Dr. Chuan Hong hosted an introductory meeting with 19 American and European scientists with research experience or interest in boxwood blight epidemiology on August 10, 2021. Hong shared the three principal approaches and three key steps of the disease cycle along with the major environmental factors being considered to delve into blight field epidemiology as outlined in the BBIG project. The group also identified some major knowledge gaps and will meet regularly, with the next meeting scheduled for October 25, 2021.

## NEW TEAM MEMBERS AND PROMOTION



**Dr. Urmila Adhikari** recently joined the BBIG team as a post-doctoral associate (Epidemiologist) at Virginia Tech's Hampton Roads Agricultural Research and Extension Center in Virginia Beach, VA. She obtained her bachelor's degree in agricultural sciences (Plant Pathology) from Tribhuvan University, Nepal and master's degree (Plant Pathology) from Tennessee State University, Nashville. Urmila graduated from North Carolina State University with a Ph.D. in Plant Pathology, where she studied the effects of host and environment on components of *Septoria nodorum* blotch resistance in wheat. In her new role, Urmila is analyzing fungicide and cultivar evaluation field data in order to determine their efficacies. She is also delving into the epidemiology to understand the influence of environmental factors on disease onset and progression, in order to gain better insight into boxwood blight behavior in field settings. She can be reached at [aurmila@vt.edu](mailto:aurmila@vt.edu).

**Gabe Sacher** is a fourth year Ph.D. student in Dr. Jay Pscheidt's lab at Oregon State University. Gabe received a Bachelor of Science in biology from Sonoma State University in 2017, where he worked with microbial fuel cells for the digestion of wine waste under Dr. Michael Cohen. He grew his love for ornamental plants and plant disease while working in a retail nursery and becoming a California Master Gardener. Gabe began working with boxwood blight in Dr. Jerry Weiland's lab, where he investigated the environmental conditions required for boxwood blight infection and disease progression.



Gabe is currently investigating the efficacy of the FRAC group 3 fungicide, flutriafol, as a soil-applied fungicide against boxwood blight. Previous work in the Pscheidt lab suggests that full pesticide coverage of a tightly sheared boxwood plant is difficult to achieve even at high gallon per acre rates. Gabe hypothesizes that by applying flutriafol to the root zone of boxwood, the fungicide will translocate throughout the canopy in sufficient rates to provide a protective effect against boxwood blight, even in areas of the canopy that are hard to reach with traditional sprayers.



Congratulations to **Dr. Fulya Baysal-Gurel** on her recent tenure and promotion to Associate Professor at Tennessee State University (TSU). Well deserved! Fulya has been very productive and she currently serves as the Interim Associate Dean for Research at the College of Agriculture of TSU. On the BBIG team, Fulya leads the research on identifying critical control points for boxwood blight mitigation at production nurseries, while coordinating technology transfer and impact documentation. She can be reached at [fbaysalg@tnstate.edu](mailto:fbaysalg@tnstate.edu).

## COLLABORATION CORNER



The Biocontrol Team met with the Belgium collaborators – Dr. Kurt Heungens and his student, Marie Froyen – on August 9, 2021, sharing the latest data and brainstorming on what could have impacted the survival of selected biological control agents (BCAs) on boxwood foliage, how to dissect and further investigate this matter, and how to improve BCAs' survival and performance under field conditions.

Amanda Taylor of North Carolina Cooperative Extension, Dr. Hsien-Tzer (HT) Tseng and Chad Taylor of North Carolina Department of Agriculture and Consumer Services (NCDA&CS), from left to right in the photo, were evaluating with the Anti-desiccant Team the blight development on boxwood plants treated with different anti-desiccants and fungicide standards in June of 2021. Also working in the same field were Ginger Hemmings of NCDA&CS, and Dr. Olanike Omolehin.

## RECENT PUBLICATION

Yang, X., Castroagudín, V.L., Daughtrey, M.L., Loyd, A.L., Weiland, J.E., Shishkoff, N., Baysal-Gurel, F., Santamaria, L., Salgado-Salazar, C., LaMondia, J.A., Crouch, J.A., Luster, D.G. 2021. A Diagnostic Guide for Volutella Blight Affecting Buxaceae. *Plant Health Progress*. [doi.org/10.1094/PHP-02-21-0052-DG](https://doi.org/10.1094/PHP-02-21-0052-DG)

## PROJECT DIRECTORS

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Fulya Baysal-Gurel, Tennessee State University, McMinnville, TN  
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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  
John Keller, Planning & Research Vice President, Monrovia – Grow Beautifully in CA, CT, GA, OR  
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