



Successful Gardening through Extension

Volume 2, Issue 1 – Spring 2017

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A Glance inside this Issue

| | |
|--|---|
| Boxwood Blight | 1 |
| Spruce Diseases: Cytospora Canker | 2 |
| Aphids | 3 |
| Exciting Plants: <i>Actinidia arguta</i> | 5 |
| Events of Interest | 6 |
| VCE – Master Food Volunteer | 7 |

Boxwood Blight

If you are a boxwood lover, this is a disease that can make you shutter. Boxwood blight is caused by the fungus *Calonectria pseudonaviculata*. This disease can result in the defoliation and decline of susceptible boxwood. The first incidence of the disease in Virginia was at a commercial nursery in Carroll County in 2011. Since 2013, boxwood blight has been found in



Figure 1. Brown leaf spots on boxwood. Photo by Mary Ann Hansen (VCE Publication PPWS-29NP)

other commercial nursery and retail locations, as well as in landscapes across Virginia. The fungus spreads through contact with contaminated plant material, such as container and field-grown boxwood and through the use of boxwood as holiday decorations. Another way boxwood blight can spread is through the use of contaminated garden equipment (pruning tools, clothing, or anything else that has contacted the fungal spores).

Symptoms of boxwood blight include brown leaf spots (Figure 1) that eventually lead to defoliation of the plant. Black streaking (Figure 2) is also commonly seen on the stems. The interesting aspect of this disease is that some boxwood cultivars can be asymptomatic, these cultivars are referred to as partially resistant (a list of partially resistant cultivars is available in the Virginia Cooperative Extension Publication Best Management Practices for Boxwood Blight

in the Virginia Home Landscape). In some instances, the use of fungicides can mask the symptoms of boxwood blight in susceptible cultivars.

Other members of the Boxwood family (*Buxaceae*) have been shown to be susceptible to boxwood blight. These include *Pachysandra terminalis* (Japanese spurge), *Pachysandra procumbens* (Allegheny spurge), and *Sarcococca* species (sweetbox). Infected plants of these species can spread the disease to boxwood in the landscape. Symptoms of boxwood blight on Japanese spurge include

the brown leaf spots as describe on boxwood. A good rule of thumb is to be careful when introducing any new members of the Boxwood family to the landscape.

To avoid boxwood blight in your landscape, make sure to carefully inspect plants before purchase for symptoms of the disease. Ask nursery personnel if the boxwoods are from producers participating in the Boxwood Blight Cleanliness Program (VDACS program with participating nurseries). Always keep in mind that, partially resistant cultivars can spread the fungus even without any outward symptoms. Also be aware that plants treated with fungicides can suppress symptom development which could lead to spread of the fungus after planting in your landscape. Bring any suspected samples to your local extension office for testing at the Virginia Tech Plant Disease Clinic.



Figure 2. Black streaking on stems. Photo by Mary Ann Hansen (VCE Publication PPWS-29NP)

For more information, please view the following articles or contact your local extension office

(<http://ext.vt.edu/offices.html>):

- *Boxwood Blight – An Emerging Threat to the Pennsylvania Landscape*. Penn State Extension. 2014. http://extension.psu.edu/publications/ee0138/extension_publication_file.
- Bush, E. et al. *Best Management Practices for Boxwood Blight in the Virginia Home Landscape*. Virginia Cooperative Extension (VCE) Publication PPWS-29NP. 2016. <https://pubs.ext.vt.edu/PPWS/PPWS-29/PPWS-29-pdf.pdf>.
- Ivors, K. *Prevention and Management of Boxwood Blight*. North Carolina State University, Department of Plant Pathology. 2013. <https://yancey.ces.ncsu.edu/wp-content/uploads/2013/02/Boxwood-Blight-Guide-01.03.13.pdf?fwd=no>.
- Virginia Boxwood Blight Task Force - <http://www.ext.vt.edu/agriculture/commercial-horticulture/boxwood-blight.html>

Spruce Diseases: Cytospora Canker

Several species of spruce (*Picea*) are commonly planted in Virginia as windbreaks, screens, or as specimen trees. The species planted in Virginia landscapes include, *Picea abies* (Norway spruce) and *Picea pungens var. glauca* (Colorado blue spruce). They prefer exposed (full sun) locations with, acidic, well drained soils. Locations with sandy soils, hilly, or mountainous terrain provide ideal growing conditions. Spruces are not well adapted to hot and dry locations and often suffer when planted in the warmer regions of Virginia. These conditions lead to stressed plants, which are more susceptible to pests and diseases.

Cytospora canker is one of those diseases that takes advantage of the stressing conditions. This disease is caused by the fungus *Cytospora kunzei* and mainly infects Colorado blue and Norway spruce. This fungus can also infect other coniferous evergreens including Douglas fir, Eastern Hemlock, and larch. Trees more than 15 to 20 years old are the most likely to be infected.



Figure 3. White resin from canker. Photo by University of Illinois Plant Clinic

Trees that are infected, have cankers that can form on stems and on branches mainly at the contact point between branch and trunk. The cankers can cause branch death, usually starting at the bottom of the tree, which spread upward throughout the tree. Symptoms include the presence of white resin (pitchy sap; Figure 3) within the cankers. The white resin can drip down the stem or trunk in severe infections.

Cytospora canker is best controlled by reducing plant stress, watering during drought conditions, and by removing dead branches during dry conditions (wet foliage can spread the spores of the fungus through contact with pruning equipment). Make sure to disinfect pruning equipment with rubbing alcohol or a 10 percent bleach solution between cuts. It is also

suggested to apply a three to four-inch layer of organic mulch, such as hardwood mulch, under the full spread of the plant canopy to help maintain soil moisture and moderate soil temperatures.

For more information, please view the following articles or contact your local extension office (<http://ext.vt.edu/offices.html>):

- Albers, J.; M. Albers. *Spruce Problem Diagnosis for Yard Trees*. Minnesota Department of Natural Resources – Forestry. http://files.dnr.state.mn.us/assistance/backyard/treecare/forest_health/whitesprucedagnosis.pdf. Assessed 2 February 2017.
- *Spruce Diseases*. The Morton Arboretum. <http://www.mortonarb.org/trees-plants/tree-and-plant-advice/help-diseases/spruce-diseases>. Assessed 2 February 2017.
- *Spruce Diseases*. Penn State Extension. <http://extension.psu.edu/pests/plant-diseases/all-fact-sheets/spruce-diseases>. 2017. Assessed 2 February 2017.
- *Spruce Problems (Pest and Cultural Issues)*. Plant Clinic Report University of Illinois Extension. <http://web.extension.illinois.edu/plantclinic/downloads/Plant%20Clinic%20Report%20Spruce.pdf>. Assessed 2 February 2017.

Aphids

Aphid season is quickly approaching and they can be a menace whether in your home landscape, greenhouse, nursery, or in the vegetable garden. Aphids are small, soft bodied insects about 1/10th of an inch long. There are hundreds of aphid species, which range from host specific species to other species which will eat any plant in sight. Aphids can be commonly found on a wide variety of plants including ornamentals, field crops, fruit trees, and vegetables. Color can also vary depending on the species, with black, brown, gray, green (Figure 4), lavender, pink, red, and yellow commonly seen.



Figure 4. Green Peach Aphid. Photo by University of California



Figure 5. Tobacco Mosaic Virus Symptoms. Photo by Heidi Wollaeger, MSU Extension

Aphids are usually found in clusters, on or near new succulent, plant growth. They feed by sucking up plant juices, mainly phloem fluid. While they feed, aphids can transmit viruses from one plant to another. Cucumber and tobacco mosaic virus (Figure 5) are commonly transmitted by aphids. High infestations can lead to leaf curling, wilting, stunting of shoot growth, and delay in flowering and fruit development. Aphids also secrete a sweet, sticky substance called honey dew. This honey dew can lead to the growth of sooty-mold fungi, which can interfere with photosynthesis by decreasing light levels on leaf surfaces.

Aphids reproduce parthenogenetically (reproducing without mating) and give birth to live young. All resulting offspring are female and soon mature and begin reproducing in the same manner (sometimes

as fast as seven days). As a colony increases in age and size, some members begin forming wings so that they can move to other plants in the area.

Commonly seen aphids include the following:

- Giant bark aphid
- Green peach aphid
- Cabbage aphid
- Chrysanthemum aphid
- Foxglove aphid
- Melon aphid
- Rose aphid
- Spirea aphid
- White pine aphid
- Woolly aphid

For control options, please consult the Pest Management Guides:

- Field Crops - <https://pubs.ext.vt.edu/456/456-016/456-016.html>
- Home Grounds and Animals (Homeowners) - <https://pubs.ext.vt.edu/456/456-018/456-018.html>
- Horticultural and Forest Crops (Commercial Producers) - <http://pubs.ext.vt.edu/456/456-017/456-017.html>
- Mid-Atlantic Commercial Vegetable Production Recommendations - <https://pubs.ext.vt.edu/456/456-420/456-420.html>
- Spray Bulletin for Commercial Tree Fruit Growers - <https://pubs.ext.vt.edu/456/456-419/456-419.html>

and for more information, please view the following articles or contact your local extension office (<http://ext.vt.edu/offices.html>):

- Day, E. *Aphids*. VCE Publication ENTO-82NP. 2014. https://pubs.ext.vt.edu/444/444-220/444-220_pdf.pdf.
- Sanderson, J. *Greenhouse Aphid Management*. Cornell Cooperative Extension. <http://www.greenhouse.cornell.edu/pests/pdfs/insects/Aphids.pdf>. Assessed 14 February 2017.
- Szendrei, Z. *Aphids appearing in commercial vegetable fields*. Michigan State University – Department of Entomology. http://msue.anr.msu.edu/news/aphids_appearing_in_commercial_vegetable_fields. Assessed 14 February 2017.
- Wollaeger, H. *Common questions and answers about tobacco mosaic virus*. Michigan State University Extension. http://msue.anr.msu.edu/news/common_question_and_answers_about_tobacco_mosaic_virus. Assessed 14 February 2017.
- eGroBlog – Overhead costs: aphids (control options in greenhouse echo systems): http://www.egroblog.com/show_blog.php?ID=50

Exciting Plants: *Actinidia arguta*

Actinidia arguta is better known by the common name hardy kiwi (Figure 6), but even this name might be unfamiliar to most people. Hardy kiwi is related to kiwi fruit (*Actinidia deliciosa*) commonly found at the supermarket. They are both native to Asia, with hardy kiwi originating in Northern China and Siberia, while kiwi fruit is native to Southern China. Kiwi fruit is cold hardy to USDA hardiness zone 7B, with protection from the severe cold weather. In Virginia, this means that the preferred home of kiwi fruit would be south of Richmond towards the Tidewater area. The hardy kiwi on the other hand is cold hardy to USDA hardiness zone 4 (tolerating temperature down to -25°F), which means it can be grown throughout the commonwealth. Late spring freezes can be an issue but the plants usually recover quickly. Flowering occurs from May to June, with the flowers usually hidden under the leaves.

The fruits are about the size of a grape but this size can vary by the cultivar grown. They are also not covered by fuzz, are green, and can be eaten without peeling. Hardy kiwi is also a healthy snack containing high vitamin C (10 times higher than an orange), as much potassium as a banana, and high fiber. The flavor of the fruit varies among the cultivars but has been described as similar to



Figure 6. Hardy Kiwi - *Actinidia arguta* 'Ananasnaya'. Photo by Shawn Appling

kiwi fruit; banana; strawberry; mint; or pear. The fruits can be stored up to two months in the refrigerator.

Hardy kiwi requires male and female plants for fruit production (the plants are dioecious), and can be planted with one male plant for every six female plants. The plants are very vigorous growers and can climb to 25 to 30 feet in height or width depending on the support structure. Hardy kiwi begins fruiting at about five years old and can produce 10 gallons of fruit per year once mature. Another related species *Actinidia kolomikta* (super hardy kiwi) is cold hardy to USDA hardiness zone 3 (tolerating temperature down to - 45°F) and has the distinction of having pink and white variegated leaves. Common cultivars of both species include ‘Arctic Beauty’ (male and female plants); ‘Ananasnaya’; ‘Dumbarton Oaks’; ‘Geneva’; ‘Issai’ (partially self-fertile); ‘Ken’s Red’ (male and female plants); and ‘Meader’ (male and female plants). Although not commonly grown this plant has great potential in the home garden and as a commercially grown fruit.

For more information, please view the following articles or contact your local extension office (<http://ext.vt.edu/offices.html>):

- Dirr, M. “*Actinidia arguta*; *Actinidia deliciosa*; *Actinidia kolomikta*”. Manual of Woody Landscape Plants. Champaign, Illinois: Stipes Publishing, 1998. 64-67. Print
- *Hardy Kiwi*. Penn State Extension. <http://extension.psu.edu/plants/gardening/fphg/hardy-kiwi>. 2017. Assessed 7 February 2017.
- *Hardy Kiwi - Actinidia arguta*. Cornell University Department of Horticulture. <http://www.fruit.cornell.edu/mfruit/kiwifruit.html>. 2016. Assessed 7 February 2017.
- Mainland, C.; C. Fisk. *Kiwifruit*. North Carolina Cooperative Extension Horticulture Information Leaflet 208. 2006. <https://content.ces.ncsu.edu/kiwifruit>.

Events of Interest

- **Winter Vegetable School on February 23rd - Leesburg, VA - or February 24th - Charlottesville, VA - (9:00 am to 4:30 pm).** February 23rd - Rust Library, 380 Old Waterford Rd NW Leesburg, VA 20176; for more information, contact VCE - Loudoun at 703-777-0373 or snaille@vt.edu. February 24th - Albemarle County Office Building, 1600 5th Street Extended Charlottesville, VA 22902; for more information, contact VCE - Greene at 434-985-5236 or seweaver@vt.edu.
- **Horticulture Dayz on March 8th and March 9th (8:00 am to 3:35 pm).** Northern Virginia 4-H Educational Center, 600 4-H Center Dr. Front Royal, VA 22630. *Enjoy two days of horticulture with educational presentations on turf and tree topics. This training is designed for commercial landscapers, parks and recreation staff, arborists, and nursery workers.* For more information, please contact Sharon Broyles or Tim Ohlwiler, VCE – Fauquier at 540-341-7950 or sbroyles@vt.edu; tohlwile@vt.edu.
- **Christmas Tree Grower Meetings on March 14th (3:00 pm to 5:00 pm) and May 30th (5:00 pm to 8:00 pm).** *The owner will take us on a walking tour of the farm and share his knowledge and experiences with us. Guest speakers will include Beth McClelland, VDACS Office of Plant and Pest Services on March 14th and Sarah Long, Virginia Department of Forestry on May 30th.* March 14th: Loudoun Nursery, 16463 Short Hill Road Purcellville, VA 20132. For more information, please contact VCE – Loudoun at 703-777-0373 or flores69@vt.edu. May 30th: Glengary Tree Farm, 5537 Glengary Lane Amissville, VA 20106. For more information, please contact VCE – Culpeper at 540-727-3435 or ashawn6@vt.edu.

- **Loudoun Master Gardeners' 8th Annual Gardening Symposium on March 18th (9:00 am to 5:00 pm).** Ida Lee Recreation Center, Social Hall, 60 Ida Lee Dr. NW Leesburg, VA 20176. For more information, please contact www.loudouncountymastergardeners.org.
- **Hydroponic Greenhouse Production on March 21st (9:00 am to 4:00 pm).** Albemarle County Office Building, 1600 5th St Ext Charlottesville VA 22902. *Topics include: Introduction to Hydroponic Production Systems; Edible Crop Nutrition and Lighting; Energy Efficiency and Environmental Management; Hands-on, Interactive Tour of Local Hydroponic Production Facility; Tapping into Markets.* For more information, please contact VCE – Greene at 434-985-5236 or seweaver@vt.edu.
- **Educational Day at Battlefield Farms on March 28th.** Battlefield Farms Inc. 23190 Clarks Mountain Rd Rapidan, VA 22733. For more information, please contact State Master Gardener Coordinators' Office at jfreebor@vt.edu.
- **Christmas Tree Primer: Cultural Techniques and Real World Experiences on March 31st (9:30 am to 4:00 pm).** Warrenton-Fauquier Visitor Center, 33 Calhoun Street Warrenton, VA 20186. *Attendees will get an overview of Christmas tree production techniques; identification and control methods for common Christmas tree pests and diseases; financing and market analysis; labor and liability issues; and grower experiences in Christmas tree production. Demonstrations and presentations will be given by industry professionals and Extension faculty.* For more information, please contact VCE – Culpeper at 540-727-3435 or ashawn6@vt.edu.
- **Northern Shenandoah Master Gardeners Present Gardening in the Valley on April 1st (8:00 am to 4:00 pm).** Lord Fairfax Community College, 173 Skimisher Ln. Middletown, VA 22645. For more information, please contact <http://nsvmga.org/>.
- **Home Food Preservation Class on April 15th (9:30 am to 3:30 pm).** VCE – Culpeper, 101 South West St. Culpeper, VA 22701. *Participants will learn how to can fruits and vegetables using a pressure canner and water bath canner along with how to make jams and jellies.* For more information, please contact Becky Sheffield, FCS Agent, VCE – Culpeper at 540-727-3435 Ext. 344 or rebes13@vt.edu.

Virginia Cooperative Extension



Virginia Cooperative Extension is looking for persons interested in becoming a Master Food Volunteer (MFV). A MFV helps Extension reach more residents with up-to-date, research based knowledge by assisting with community events, workshops and programs that involve food, nutrition and physical activity.

Anyone interested in cooking, nutrition, food safety or physical activity can apply. Applicants should possess a desire to enhance their skills and knowledge and enjoy working with people. There is no prior educational requirement to become a MFV.

Volunteers must complete 30 hours of training that is conducted in 4 sessions. In return, a MFV is asked to return 30 hours of volunteer work within a year or completing the training.

Examples of service opportunities include health fairs, food demonstrations, food pantries or food giveaways, 4-H youth programs, judging at fairs, afterschool programs, job skill training, and health ministries. A volunteer can also develop an opportunity that meets their interests.

Training dates: April 29, May 5, 12 and 19

Time: 9 am – 3 pm

Location: Madison Extension Office

Cost: \$90 (materials and supply cost) Scholarships available upon request.

Application deadline: April 14

For more information or to register, contact Becky Sheffield, FCS Agent, at 540-727-3435 Ext. 344 or at rebes13@vt.edu.

*If you are a person with a disability and desire any assistive devices, services or other accommodations to participate in this activity, please contact Becky Sheffield, Culpeper Extension Office, at 540/727-3435 x344 during business hours of 8:00 a.m. and 5:00 p.m. to discuss accommodations 5 days prior to the event. *TDD number is (800) 828-1120.*