

Angelica Nurseries, Inc.
BEST MANAGEMENT PRACTICE (BMP)
Boxwood Blight, *Calonectria pseudonaviculata*

Boxwood Blight is caused by the fungus *Cylindrocladium pseudonaviculatum* (syn. *C. buxicola*, *Calonectria pseudonaviculata*). *Buxus* spp., *Sarcococca* spp. and *Pachysandra* spp. are known hosts of Boxwood Blight. These BMP's are to be followed to prevent the introduction of Boxwood Blight into our nursery as well as minimize the risk of spreading in the event it is detected.

I. Incoming Plants - Liners

- A. Utilize suppliers or nurseries that have been officially inspected and found to be apparently free from Boxwood Blight, or that participate in a Boxwood Blight Cleanliness Program compliance agreement.
- B. Regardless of supplier, inspect incoming host plants and or cuttings at the time of delivery. If the host material is symptomatic, contact Maryland Department of Agriculture (MDA) immediately.
- C. Newly received host plants or rooted cuttings shall be isolated by a minimum of 3 meters (approximately 10 feet), by a physical barrier or by another isolation method approved by MDA, from existing host plants in the nursery for at least 30 days.
 - 1. Keep newly received host plants from different suppliers and sources separated.
 - 2. The isolation area will have a surface, such as concrete or landscape fabric, that can be cleaned of plant debris. All plant debris shall be regularly removed and destroyed (burned, buried or bagged) and disposed of in dumpster. The use of leaf blowers is prohibited.
 - 3. No fungicides shall be applied or pruning conducted during the isolation/holding period.
 - 4. The isolation area for incoming host plants must be positioned to prevent water run-off into stored potting media, other host production areas, and water recovery catchments.

II. Incoming Plants - Returns

- A. Returns of host plants will not be accepted.
- B. Exceptions may be considered if all the following conditions are met. In this event, host plants will be accepted into the isolation area and will be treated as newly received host plants. MDA will be notified in the event of any returns.
 - 1. Host plants never left the delivery truck.
 - 2. Were not co-mingled with plants from other sources.
 - 3. Delivery truck is returning directly to our yard.
 - 4. Pre-approval is granted by Angelica.

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BEST MANAGEMENT PRACTICE (BMP)
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III. Delivery Trucks with Incoming Host Plants

- A. Delivery vehicles shall unload host plant material into the isolation area, or if a common loading dock must be used, cleanup and proper disposal shall occur immediately after unloading.
- B. Delivery vehicles are not allowed in any other areas of the property.

IV. Water Management

- A. Whenever possible, overhead watering should be avoided and host plants should be watered as to allow leaves to dry before nightfall. Proper plant spacing will facilitate quicker drying.
- B. Monitor for host plant debris in water run-off. Minimize water run-off such that it does not run from one host plant production area into another or into water recovery catchments. Use filter bales in drainage where needed.
- C. Eliminate standing water in host plant blocks.
- D. Monitor recycled water sanitation system during each use.

V. Sanitation

- A. Sanitation is accomplished by using an effective disinfectant such as quaternary ammonium solution (prepared and maintained at labeled rates), 5% sodium hypochlorite solution/commercial bleach with a minimum of 5.25% NaOCl (7 ounces per gallon) or Zerotel 2.0 (1 ounce per gallon).
- B. Sanitize tools and equipment before entering any blocks that contain host plants.
- C. Before entering any blocks that contain host plants workers need to clean as much soil as possible from shoes and pant legs, then sanitize with solution. Depending on task, hands and arms should be cleaned with 70% ethanol hand sanitizing gel.
- D. After every crop production cycle, remove all crop debris and disinfect propagation mist beds, cutting benches, machines and tools.
- E. Use new or sanitized pots/flats for host plant production. Do not reuse potting mix in host plant production.
- F. Host plant production areas shall be inspected regularly for the accumulation of host plant debris. Minimize host plant debris by regular cleaning of the growing area. Host plants or host plant debris shall not be used in compost.
- G. All host plant debris shall be burned, buried, or bagged and disposed of in dumpster.

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BEST MANAGEMENT PRACTICE (BMP)
Boxwood Blight, *Calonectria pseudonaviculata*

VI. Inspection

- A. Trained IPM personnel should inspect all host plants in the isolation area on a weekly basis, and other host plants monthly throughout the growing season for symptoms of disease.
 - 1. If Boxwood Blight symptoms are suspected, they shall be reported immediately to MDA, in order to have the disease identified.
 - 2. No symptomatic host plants shall be sold until they have been examined, tested and cleared by MDA.
- B. MDA will conduct inspections at least twice throughout the growing season and, if necessary, collect samples to test for the presence of Boxwood Blight.
- C. Any trained employee that observes symptomatic plants shall report them to IPM personnel immediately.
- D. Anyone that comes into contact with suspect plants should take rigorous sanitation measures to ensure they do not spread the fungus.

VII. Training

- A. All full time field employees will be trained in the following:
 - 1. Recognizing basic signs and symptoms of Boxwood Blight. Approved training materials were supplied.
 - 2. Proper sanitation practices to meet the intent of our compliance agreement with MDA.
 - 3. The stipulations of the Boxwood Blight Cleanliness Program compliance agreement.
- B. All new full time field employees will be trained prior to the next growing season subsequent to their hire date.

VIII. Record Keeping and Traceability

- A. Host plant records must be maintained for a minimum of 12 months and include the following:
 - 1. Incoming and returned plants, including quantity and sources.
 - 2. Location of isolation area(s) for incoming host plants.
 - 3. Shipping records (dates, quantities, plants shipped, destinations).
 - 4. All pesticide and fertilizer applications.
 - 5. Records of inspections conducted by trained personnel.
 - 6. Personnel training (dates, attendees, and trainer).

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BEST MANAGEMENT PRACTICE (BMP)
Boxwood Blight, *Calonectria pseudonaviculata*

- B. Reports shall be ran monthly for inventory by location and previous month`s sales of host plants.
- C. The MDA will periodically inspect the necessary records and protocols to ensure compliance with the above mentioned requirements. Interviews of employees may also be conducted to ensure compliance with training requirements.

IX. Employees

- A. Personal vehicles are to access the nursery property on designated roadways only and should proceed directly to employee parking areas. Personal vehicles are restricted from production areas.
- B. No outside yard debris will be accepted onto nursery property.
- C. Any nursery equipment that leaves the property, must be sanitized upon return.
- D. Realize anything you bring onto the nursery that has been in contact with anything in an outside landscape, has the potential for creating an outbreak in our boxwood crop.

X. Visitors

- A. Visitors to our nursery must enter via the main entrance or truck entrance only. They are to proceed directly to the parking area for the building they are accessing. Visitor vehicles are not allowed in any production areas.
- B. Visitors that are here to tour our fields, will do so with a nursery supplied guide in a nursery vehicle.
- C. Visitors will not be allowed to exit tour vehicle in close proximity to boxwood crops. If visitors wish to exit in other areas, they will need to sanitize shoes, pant legs and anything that may come into contact with plants.

XI. Vehicles - Pick Up and Delivery

- A. All vehicles entering the property to load plant material must enter via the main entrance or truck entrance only. They must proceed directly to the loading area.
- B. When vehicle arrives it will be inspected and must be free of soil or plant debris. Dirty vehicles will be turned away or pay a cleaning fee. Fee will be based on vehicle size and is due at time of service (\$2.50 per ft. of bed).
- C. Debris free beds will be sanitized by loading crew prior to loading at no charge.
- D. Tarps will be sanitized by loading crew prior to handling at no charge.
- E. Vehicles may not be partially loaded upon arrival if load contains host plants. Any vehicle partially loaded with no host plants must be cleared before arrival. Exceptions can be made for loads accompanied by proper phytosanitary certificate or compliance agreement.
- F. Delivery trucks must be cleaned of plant debris at point of delivery.