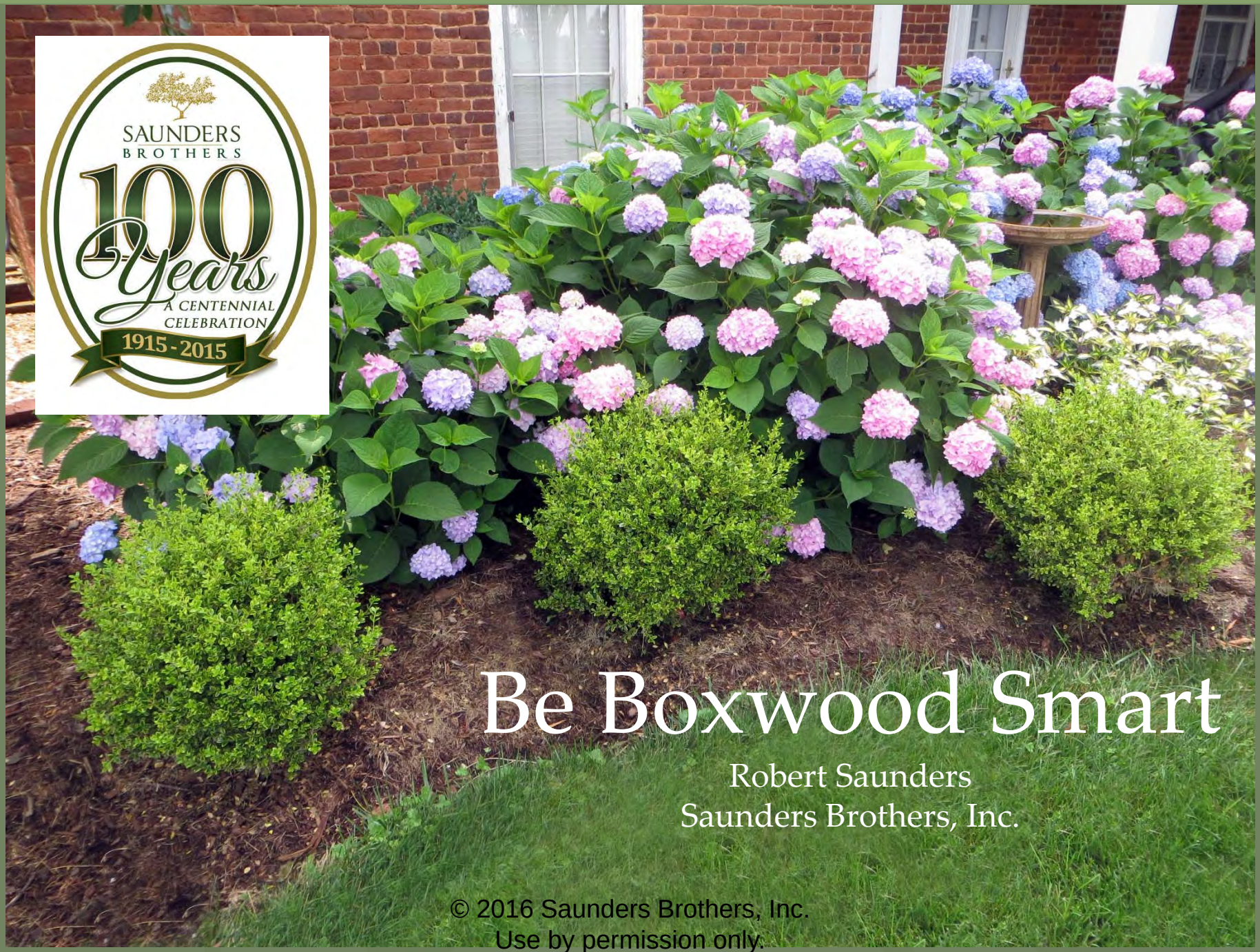


Be Boxwood Smart

Robert Saunders
Saunders Brothers, Inc.

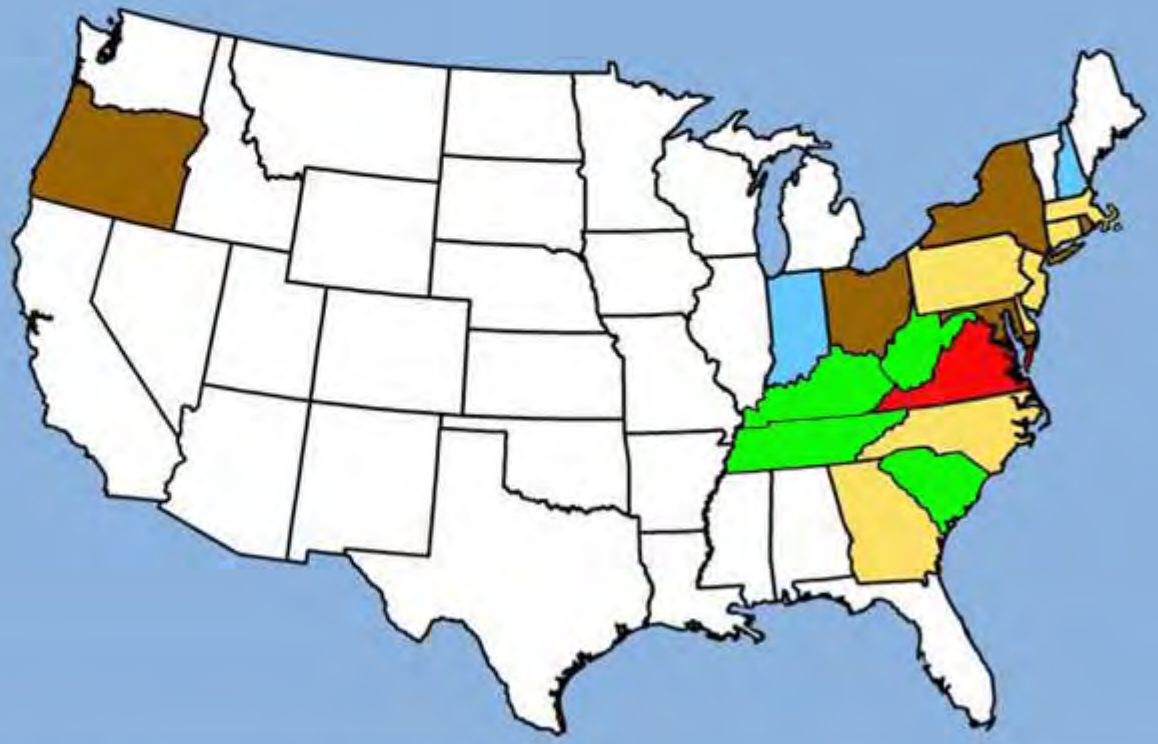
THIS IS NOT BOXWOOD BLIGHT

English Boxwood ONLY!

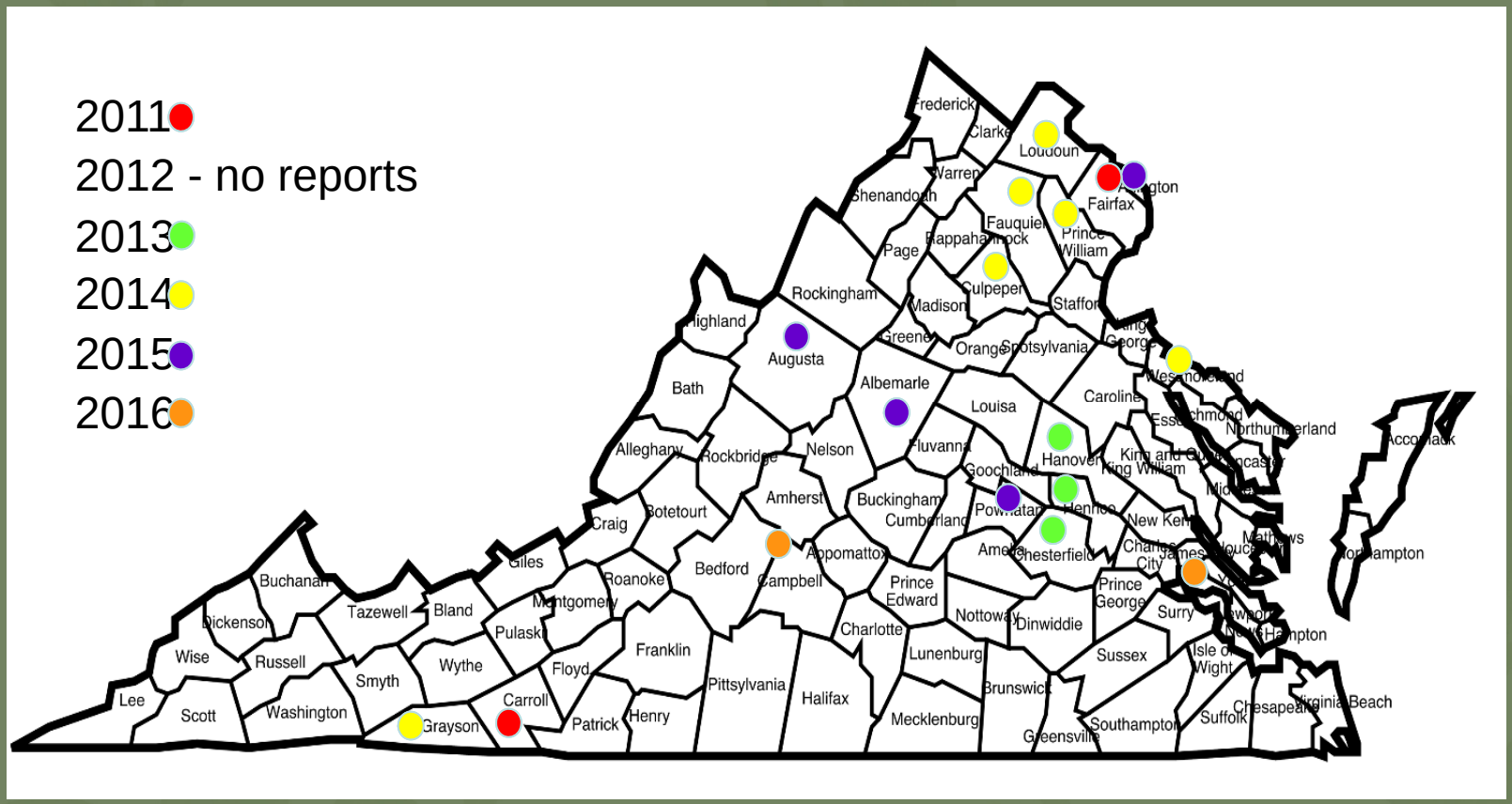
NPDN
National Plant Diagnostic Network
EDUCATE to DETECT

Distribution of Boxwood Blight Disease 2016

- No sampling
- Sampled but not found
- Intercepted or detected, but not established
- Under eradication
- Considered established in parts of the sate



Map based on NAPIS Pest Tracker - http://pest.ceris.purdue.edu/map.php?code=FBBJCXR# and Malpi-Wight et al. 2014



Boxwood Blight

- Fungus that moves by:
  - Water splash
  - Plant to plant contact
  - Debris (long life)
  - Humans and equipment
  - Leafblowers
- Environment driven. (Ebb and flow)
  - Moist foliage
  - Temperature 70-75 F
  - Poor Air Circulation
- Preventing vs. Curing
- Varietal differences
  - English and American are most susceptible

Boxwood Blight

Boxwood Blight

Boxwood Blight

Avoid/suppress blight:

- Practice Best Management Practices.
- Use reputable landscape/maintenance companies.
- In susceptible areas, use tolerant/resistant varieties.
- Clean/lessen the movement of tools/equipment.
- Avoid overhead irrigation on boxwood.
- Good air circulation suppresses blight.
- Limit ‘tipping’ of boxwood.
- Inspect regularly, and if blight is suspected, be smart.

Virginia Cooperative Extension Service

Best Management Practice	Situation
Best Management Practices for Boxwood Blight for Virginia Landscapes, Public Grounds and Historic Gardens	professional landscapers, public grounds and historic garden situations
Best Management Practices for Boxwood Blight in the Virginia Home Landscape	residential boxwood growers
Best Management Practices for Boxwood Blight in Virginia Production Nurseries WITHOUT Boxwood Blight	commercial nursery production
Best Management Practices for Boxwood Blight in Virginia Production Nurseries WITH Boxwood Blight	commercial nursery production
Best Management Practices for Virginia Retail Nurseries WITHOUT Boxwood Blight	retail garden stores
Best Management Practices for Virginia Retail Nurseries WITH Boxwood Blight	retail garden stores
Best Management Practices for Boxwood Blight for Boxwood Greenery Producers	boxwood greenery producers (i.e. used for holiday greenery), and boxwood tippers

Virginia Cooperative Extension Service
Sanitizer recommendations for the boxwood blight pathogen

Note: Only ethanol products provide some control of microsclerotia and other pathogen structures (e.g. mycelium, spores, chlamydospores) in plant debris; thus, it is VERY important to wash off surface soil and/or debris before proceeding with any recommended sanitizing procedure.

http://www.ext.vt.edu/topics/agriculture/commercial-horticulture/boxwood-blight/

Active ingredient	Example of brand name	Concentration	Contact time/application
Ethanol in spray or liquid form	Lysol disinfectant aerosol spray (Brand III)	70% Ethanol or greater or Lysol Disinfectant Spray Brand III with 58% ethanol and 0.1% dimethyl benzyl ammonium saccharinate	For spray applications: Apply to surface and allow to air-dry. For liquid application dip tools for 5 min
Sodium hypochlorite (5.25% or 8.25)	Clorox and other household brands	Prepare 1:9 solution of 5.25% bleach or 1:14 solution of 8.25% bleach. Must be prepared fresh	10-15 min. for equipment surfaces; dip tools for 5 min
Hydrogen dioxide	Oxidate, Zerotol	• Prepare 1:100 – 1:300 solution for use on clean, non-porous surfaces. • Prepare 1:50 solution for use on unclean surfaces.	5-10 min
Hydrogen peroxide, peroxyacetic acid, and octanic acid	Xeroton 3 (X3)	• Prepare 1:500 – 1:1,500 solution for use on clean, non-porous surfaces. • Prepare 1:150 solution for use on unclean, non-porous surfaces. • Prepare 1:300 – 1:1,000 solution for use on tools.	10 min
Phenolic compounds (O-benzyl-p-chlorophenol)	Lysol Brand Concentrate Disinfectant	Prepare solution of 1.25 – 2.5 oz/gal.	At least 5 min

If suspected:

- Limit access to the area
- Take samples and send to a lab
- Be patient

If confirmed:

- Employee precautions
- Fungicides during cleanup
  (Chlorothalonil, tebuconazole, and others)
- Removal of plant top
- Removal of debris
- Removal of roots
- Removal of all debris
- Sterilize everything
- What is next?

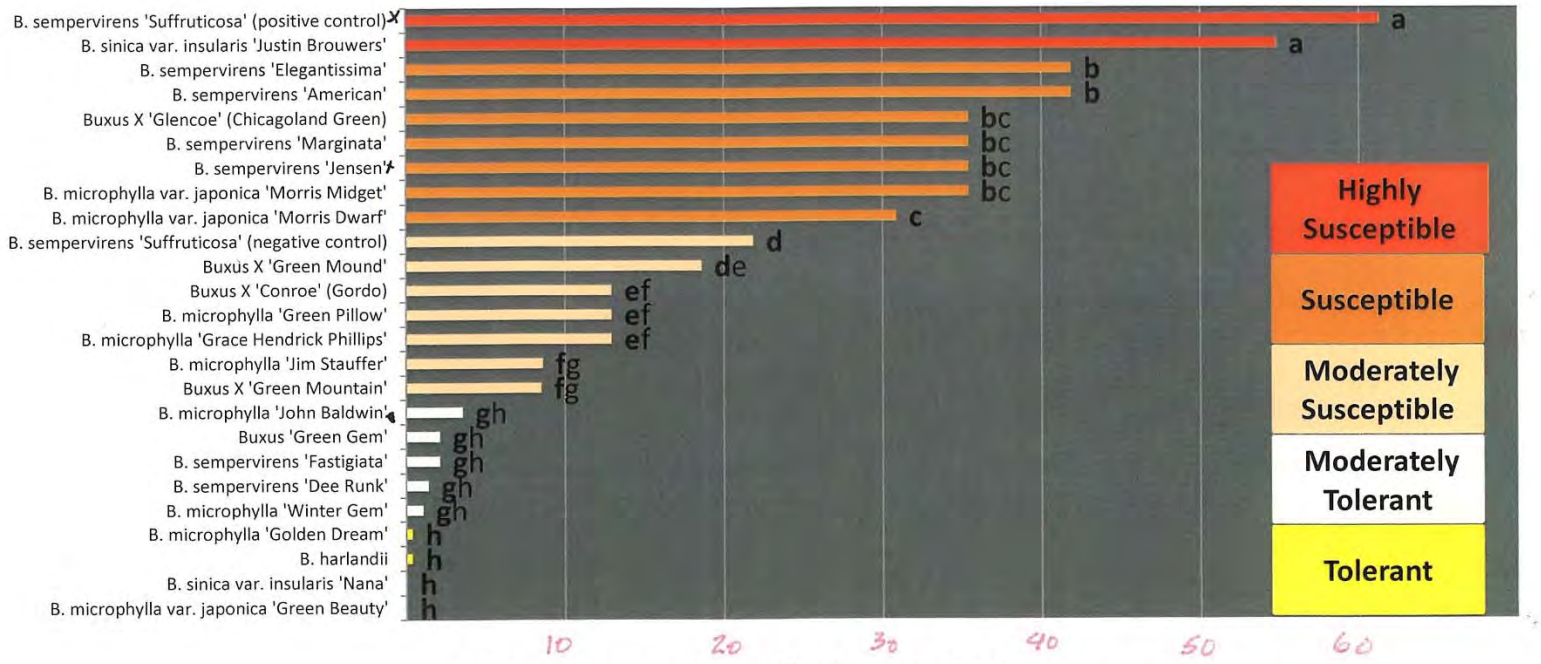
Saunders Brothers
Box Blight Prevention and Action Plan

- Limited access to all production areas (customers and employees)
- Order pickup restrictions (order early, keep a clean truck)
- Saunders Brothers is not purchasing any new boxwood
- Sanitizing equipment and employees
  - 70% isopropyl alcohol (hand tools)
  - Bleach. (Fresh) 1x bleach/10x water
  - Green Shield (footbaths)
  - ZeroTol (large equipment, trucks, containers)
  - Lysol Spray (clothing and boots)
- Use of fungicides in production during peak infection times
- Irrigation changes (minimizing leaf wetness periods)
- Inspections and plan of action
- Watching science
- Focus on resistant cultivars

Varietal Tolerance

Susceptibility of Commercial Varieties to Box Blight

(analysis based on final disease assessment)



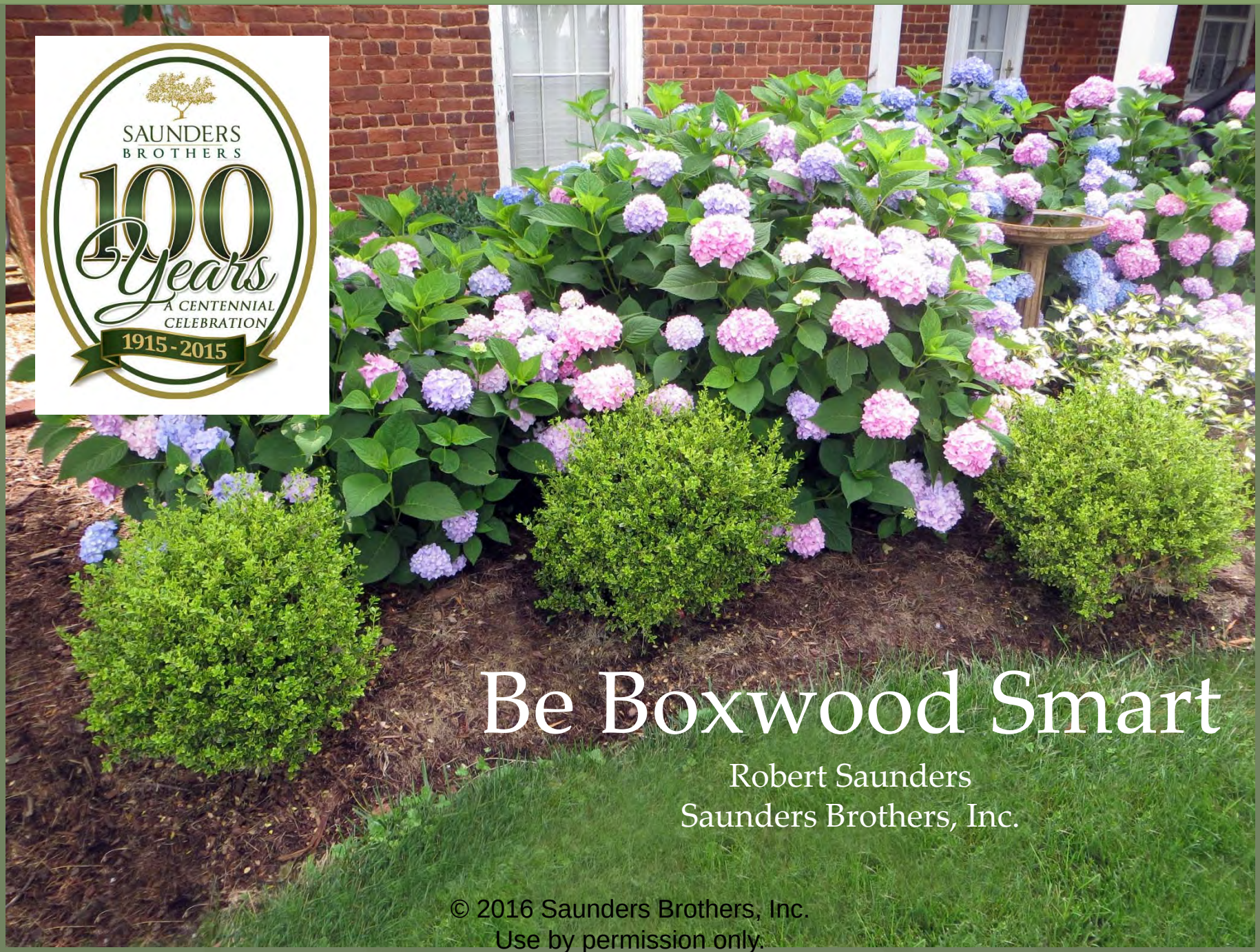
SB1=10.694%

SB2=15.112%

SB3=0.364%

General rules of boxwood blight susceptibility

- Sempervirens are more susceptible (European)
  - English, American, Vardar Valley, Justin Brouwers
- Microphylla, Insularis, harlandii, Koreans are less susceptible (Asian)
  - Green Beauty, Jim Stauffer, John Baldwin
  - Insularis Nana, Franklin's Gem
  - Richard, harlandi
  - Wintergreen/Wintergem
- Green's (Velvet, Mountain, Mound, Gem) are in the middle
- Location of plant as well as habit of plant (air flow in and around)
  - Taller more open plants do well (including sempervirens)
  - Tightly sheared plants can struggle (including microphylla's)



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