

Evaluation and Selection of Atlantic White Cedar Taxa

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Introduction to Atlantic White Cedar:

Atlantic white cedar is a member of Cupressaceae and is the only *Chamaecyparis* native to the eastern United States. Specifically, Atlantic white cedar is found along the eastern seaboard of North America from Maine to Florida and west into Mississippi, and is hardy from Zone 3 to 8. It grows mostly in pure stands along stream banks, in wet depressions and fresh-water bogs and occurs on shallow, peat covered soils underlain with sand.

In the wild, Atlantic white cedar is columnar in youth, forming a narrow spire-like crown at maturity and reaching a height of 12 to 15 meters (40 to 50 feet). However, cultivars of Atlantic white cedar show a wide range of growth habits. A collection of 45 taxa at the University of Georgia and the Center for Applied Nursery Research in Dearing, Georgia, includes compact, pyramidal, spreading, juvenile, blue, green, yellow and variegated forms.

Atlantic white cedar tolerates wet soils and performs well in garden situations. Because of rapid growth and variable growth habits, cultivars of Atlantic white cedar have the potential for groundcovers, shrubs, hedges, screens, groupings, specimens or Christmas trees.

Research:

The focus of this research is to screen Atlantic white cedar for disease resistance utilizing three fungi that are problematic on Leyland cypress. These fungi are *Seiridium*, *Botryosphaeria* and *Phyllosticta*. Growth and development data will be recorded on Atlantic white cedar taxa growing in the field and in containers. Results from disease resistance screening, coupled with growth and development data, will be used to select cultivars of Atlantic white cedar as alternatives to Leyland cypress, and to select superior cultivars of Atlantic white cedar for their potential in the contemporary landscape.

Growth Data for Atlantic White Cedar Taxa

The following information is based on one season's growth (March - October), considering an average starting liner height of 6 inches. Plants were potted up from liners in 3 inch pots to 3 gallon containers on March 11, 1997 and growth data were taken October 21, 1997. Plants were grown in full sun. Medium consisted of 6.25 parts bark : 1 part sand by volume. Osmocote 24-4-7 was incorporated in the medium at a rate of 10 to 16 pounds, lime at 10 pounds, talstar at 2 pounds, micromax at 2 pounds and gypsum at 1.6 pounds, all per cubic yard. The plants were not pruned at any time during the growing season.

***Chamaecyparis thyoides* Measurements as of 10-21-97**

| Plant (Source) | Height (inches) | Width(inches) |
|----------------------------------------------|------------------------|----------------------|
| 'Andelyensis' (Appalachian) | 16.25 | 10.25 |
| 'Andelyensis' (Arnold Arboretum) | 13.00 | 9.33 |
| Arnold Arboretum 1022-84 | 36.00 | 34.83 |
| Arnold Arboretum 129681 | 23.20 | 24.60 |
| Arnold Arboretum 13047 | 33.00 | 27.00 |
| 'Aurea' (Dilworth) | 24.67 | 26.08 |
| 'Blue Sport' (Dilworth) | 34.50 | 31.75 |
| Compact Form (Okefenokee) | 29.25 | 21.50 |
| 'Compacta Glauca' (Smotherman) | 18.00 | 27.50 |
| Dodd Form (Tom Dodd Nurseries) | 32.00 | 23.25 |
| 'Ericoides' | 16.50 | 14.50 |
| 'Glauca' (Smotherman) | 19.00 | 26.67 |
| 'Little Jamie' (Smotherman) | 10.50 | 6.50 |
| 'Meth Dwarf' (Greer) | 11.00 | 7.50 |
| Raulston Form (J.C. Raulston) | 36.20 | 21.00 |
| 'Red Star' | 17.00 | 10.00 |
| 'Rubicon' (Hines) | 15.60 | 8.40 |
| 'Shiva' (Towe) | 20.80 | 17.80 |
| 'Top Point' (Greer) | 9.00 | 6.00 |
| 'Twombly Blue' (Ken Twombly) | 25.75 | 31.75 |
| 'Variegata' (Dilworth) | 20.00 | 18.00 |
| 'Emily' (Formerly Webb #1) (Superior Trees) | 35.50 | 24.75 |
| 'Rachel' (Formerly Webb #2) (Superior Trees) | 25.00 | 20.80 |
| 'Webb Gold' (Superior Trees) | 19.75 | 22.25 |
| #23-WL (Fern Valley Farms) | 29.50 | 28.50 |
| #23-WL Witch's Broom (FVF) | 31.50 | 22.50 |

Chamaecyparis thyoides

Notes from the Center for Applied Nursery Research (10-9-97)
(Winter foliage data taken 12-9-97)

- 'Andelyensis' (Appalachian) -Color is pfitzer sage green. 16" tall × 8" wide.
-30% shade= 18" tall × 6" wide.
-Compact grower.
-Purple tips on winter foliage.
- 'Andelyensis' (Arnold Arb.) -Color is pfitzer sage green. 12" tall × 9" wide.
-30% shade= 17" tall × 8" wide.
-Compact grower.
-Purple tips on winter foliage.
- AA 1022-84 -Loose, irregular, open form. Fast grower. Growth is stringy like *C.p.* 'Filifera'. Color is pale green. 36" tall × 24" wide.
-30% shade= 32" tall × 24" wide. Heavy grasshopper damage.
-Grey-green winter foliage with significant needle drop.
- AA 129681 -More uniform, spreading. Color is medium green. 24" tall × 24" wide.
-30% shade= 24" tall × 27" wide. Spreading, open.
-Grey-green winter foliage.
- AA 13047 -Upright graceful growth. Not dense. Blue-green glaucous foliage.
34" tall × 15" wide
-30% shade= 28" tall × 24" wide. Heavy grasshopper damage.
-Grey-blue-green winter foliage.
- 'Aurea' -Yellow-green foliage. Loose and open form. Gold is more prevalent on new growth. 26" tall × 20" wide.
-30% shade= 22" tall × 18" wide. Yellow coloration is reduced.
-Bronze-gold winter foliage.
- 'Blue Sport' -Blue-green foliage. Upright growth with potential for strong central leader. 34" tall × 15" wide.
-30% shade= 28" tall × 15" wide. More open.
-Nice blue winter foliage.
- Compact form (Okfenokee) -Bright green foliage. Upright growth with potential for strong central leader. 28" tall × 18" wide.
-30% shade= 32" tall × 18" wide.
-Green with purple tips on winter foliage.

- 'Compacta Glauca'(Smoth.) -Blue-green foliage. (med.) Spreading. 12" tall × 24" wide.
 -30% shade= 8" tall × 25" wide.
 -Blue winter foliage.
- Dodd form -Bright green. Looser and open but with central leader. 34" tall × 18" wide.
 -30% shade= 36" tall × 18" wide.
 -Purple tips on winter foliage. Significant needle drop.
- 'Ericoides' -Foliage is grey-green and juvenile. Needles at 90° angle to stem. Open. 17" tall × 11" wide.
 -30% shade= 22" tall × 8" wide. Open and spreading.
 -Purple winter foliage.
- 'Glauca'(Shumacher) -Blue-green foliage and spreading habit. 12" tall × 24" wide.
 -30% shade= 11" tall × 22" wide.
 -Blue winter foliage.
- 'Little Jamie' - Pfitzer sage green. 10" tall × 5" wide.
 -30% shade= 13" tall × 5" wide.
 -Green winter foliage with slightly purple tips.
- 'Meth Dwarf' - Pfitzer sage green. 11" tall × 8" wide.
 -30% shade= 13" tall × 6" wide.
 -Green winter foliage with slightly purple tips.
- Okefenokee seedlings -Irregular. 40" tall.
 -30% shade= Irregular. 40" tall × 22" wide.
 -Green winter foliage with significant needle drop.
- Raulston Form -Off grey-green, more green than grey. Central leader. Softer texture. 36" tall × 14" wide.
 -30% shade= 42" tall × 18" wide.
 -Vigorous grower
 -Green winter foliage with significant needle drop.
- 'Red Star' ('Rubicon') -Medium green. 16" tall × 7" wide.
 -30% shade= 13" tall × 5" wide. Loose and open.
 -Blue-green winter foliage with purple tips.

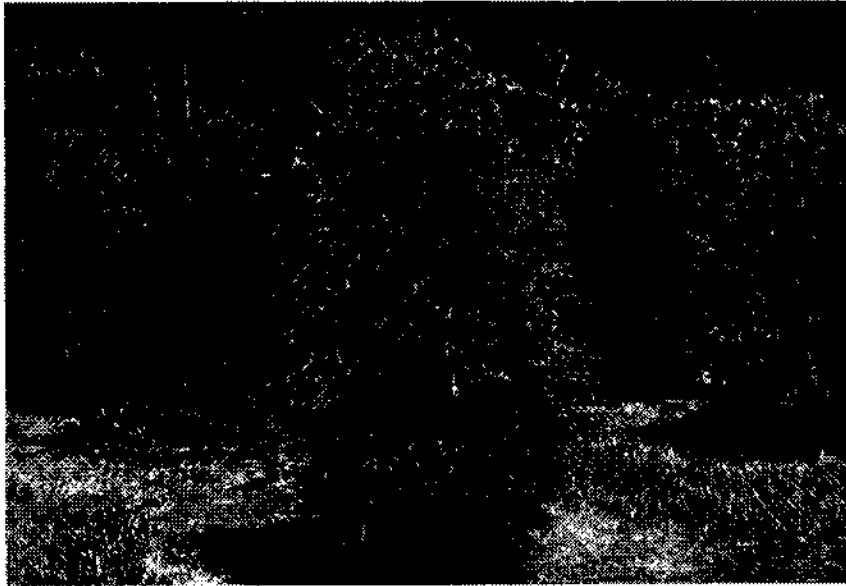
- 'Rubicon' ('Red Star') -Medium green. 15" tall × 6.5" wide.
 -30% shade= 14" tall × 6" wide. Loose and open.
 -Blue-green winter foliage with purple tips.
- 'Shiva' -Dull grey-green foliage, distinctly juvenile. Very dense. 18" tall × 16" wide.
 -30% shade= 13" tall × 14" wide. *Pestalotia* diseased shoot tips similar to what occur on *Cryptomeria*.
 -Soft green winter foliage.
- 'Top Point' -Pfitzer sage green. 9" tall × 5.5" wide.
 -30% shade= 10" tall × 5" wide.
 -Green winter foliage with slightly purple tips.
- 'Twombly Blue' -Blue-green foliage. Open with potential for central leader. 33" tall × 18" wide.
 -30% shade= 28" tall × 14" wide. Very loose and open.
 -Grey-blue winter foliage with significant needle drop.
- 'Variegata' -Open growth. Blotchy creamy yellow. Had not burned or scorched. 16" tall × 18" wide.
 -30% shade= 22" tall × 12" wide.
 -Blotchy gold winter foliage.
- 'Emily' (Formerly Webb #1) -Bright green foliage. Central leader. 38" tall × 18" wide.
 -30% shade= 42" tall × 22" wide.
 -Vigorous grower.
 -Purple tips on winter foliage. Some needle drop.
- 'Rachel' (Formerly Webb #2) -Bright green foliage. Central leader. 22" tall × 15" wide.
 -30% shade= 30" tall × 17" wide.
 -Green winter foliage with purple tips. No needle drop.
- 'Webb Gold' -Creamy yellow variegation suffused over canopy. More prominent on new growth. Irregular but dense. Gold is richer in full sun. 18" tall × 18" wide.
 -30% shade= 18" tall × 20" wide. More cream coloration than gold.
 -Retains gold on winter foliage.
- #23 WL (FVF) -Green foliage. Loose. 28" tall × 24" wide.
 -30% shade= 32" tall × 22" wide.
 -Grey-green winter foliage.

- #23 WL Witches Broom -Looser than Dodd form. Green. 29" tall × 18" wide.
 -30% shade= 31" tall × 24" wide.
 -Grey-green winter foliage.

Superior *Chamaecyparis thyoides* Taxa

- ‘Rachel’ (Formerly Webb #2) is a vigorous grower with a strong central leader. The foliage is a bright green in the summer and has purple tips in the winter. ‘Rachel’ holds its needles well and has potential to remain full all winter. Its upright, dense habit makes it a definite candidate for an alternative to Leyland cypress.
- ‘Blue Sport’ grows upright and has potential for a central leader. It has the bluest foliage of the collection and retains its color into fall and winter.
- ‘Shiva’ has a loose rounded growth habit with distinctly juvenile foliage. Foliage is grey-green and very dense. Winter foliage is a soft green with little to no needle drop.
- ‘Webb Gold’ has a somewhat irregular habit but is dense nevertheless. It features a creamy yellow variegation which is suffused over the canopy. Variegation is more prominent on new growth and is retained into fall and winter with little or no needle drop.
- Compact Form (Okefenokee) is a vigorous upright grower with bright green summer foliage. Winter foliage has purple tips and there is little needle drop.
- ‘Andelyensis’ is preferred as a compact or dwarf form. Its foliage is distinctly juvenile and is pfitzer sage green with purple tips in fall and winter. Its habit is pyramidal and upright yet compact.

Protocol for the Cutting Propagation of Atlantic White Cedar (*Chamaecyparis thyoides* L.)



- Take cuttings in late fall or early winter (October-December) after the first cold spell; however, cuttings can be rooted year-round.
- Make cuttings 10 to 15 cm (4 to 6 inches) long.
- Strip the bottom 1/3 of needles from the cutting.
- Dip cuttings in 3000 ppm indole-3-butyric acid-potassium salt (KIBA) for 5 seconds (quick dip).
- Stick the cuttings 1 inch deep in a media of 3 parts perlite to 1 part peat.
- Place the cuttings under intermittent mist. Bottom heat will speed up the rooting process.
- Cuttings root in 4 to 6 weeks.
- Remove the cuttings from the mist and topdress each cell with a slow release fertilizer.