American Arborvitae
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(Thuja occidentalis)

General Description
A small to medium upright tree with a stout, buttressed trunk, native to Minnesota. Compact dwarf cultivars are widely used in landscapes. The tree is hardy in all zones but prefers a semi-moist site. Other common names are White Cedar and Eastern Arborvitae. An uncertain combination of winter conditions may cause infrequent winter injury in the Northern United States. The largest tree in North Dakota is 45 feet tall with a canopy spread of 30 feet.

Leaves and Buds
Bud Arrangement - Opposite.
Bud Color - Dark green, hard to distinguish from leaves.
Bud Size - 1/8 inch.
Leaf Type and Shape - Simple, scale-like imbricate leaves in four rows, juvenile leaves are short awl-like.
Leaf Surface - Soft, smooth.
Leaf Length - 1/12 inch.
Leaf Width - 1/8 inch.
Leaf Color - Dark green to yellow-green by cultivar. Little fall or winter color change.

Flowers and Fruits
Flower Type - Monoecious, both male and female rather inconspicuous.
Flower Color - Purplish-brown.
Fruit Type - Cones 1/2 inch long with 8 to 10 scales, seed 1/8 inch long.
Fruit Color - Light brown cones, seed light brown, winged.

Form
Growth Habit - Narrow, columnar crown at young age, becoming more broadly pyramidal in branch habit.
Texture - Fine, summer and winter.
Crown Height - 15 to 40 feet.
Crown Width - 10 to 20 feet.
Bark Color - Gray, shredding bark. Older bark has shallow fissures in a network of flat ridges.
Root System - Variable, shallow, spread to crown dripline.

Environmental Requirements
Soils
Soil Texture - Prefers deep moist loam in well-drained soils, will tolerate sandy soils with high water table.
Soil pH - 6.0 to 8.0. Will not tolerate saline soils.
Windbreak Suitability Group - 1, 1K, 3, 4, 4C.

Cold Hardiness
USDA Zone 3.

Water
Prefers moist soils. May not withstand periods of extended drought.

Light
Partial to full sun. Susceptible to sporadic winter burn and may benefit from shading in January-April when young.

Uses
Conservation/Windbreaks
Small conifer for farmstead windbreaks.

Wildlife
Good for cover, nesting and food.

Agroforestry Products
Wood - Fence posts, boxes, bowls, cups and furniture.
Medicinal - Decoction has been used for intermittent fevers, rheumatism, dropsy, coughs, toothaches and scurvy. Thuja species are a source of thujaicins, an antibiotic.

Urban/Recreational
Dwarf, compact cultivars are commonly used in foundation plantings around homes and buildings, and in public landscape areas.

Cultivated Varieties
Brandon Pyramidal Arborvitae (Thuja occidentalis ‘Brandon’) - Columnar form.
Globe/Woodward Globe Arborvitae (T. occidentalis ‘Globosa’/‘Woodward Globe’)
Hetz Midget Arborvitae (T. occidentalis ‘Hetz Midget’) - 2 to 3½ feet, oval to globe in form. Hardy.
Holmstrup Arborvitae (T. occidentalis ‘Holmstrup’) - Compact pyramidal form.
Pyramidal Arborvitae (T. occidentalis ‘Fastigiata’) - Columnar form.
Siberian Arborvitae (T. occidentalis ‘Wareana’) - Highly recommended for Northern Plains, dense, broadly pyramidal, winterburn resistant, thicker, leathery foliage.
Techny Arborvitae (T. occidentalis ‘Techny’) - Loose, tall-growing, dark green cultivar.
Numerous additional cultivars are available.

Related Species
Eastern Red-cedar (Juniperus virginiana)
Rocky Mountain Juniper (J. scopulorum)

Pests
Spider mites can buildup in hot, dry weather; occasionally bagworm in areas east of the Northern Plains. Extracts of this plant are toxic to certain insect pests.