Pseudotsuga menziesii
Douglas-fir

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INTRODUCTION

Douglas-Fir grows 40 to 60 feet and spreads 15 to 25 feet in an erect pyramid in the landscape (Fig. 1). It grows to more than 200 feet tall in its native habitat in the West. Hardiness varies with seed source, so be sure it was collected from an area with suitable cold-hardiness to the area in which it will be used.

GENERAL INFORMATION

Scientific name: Pseudotsuga menziesii
Pronunciation: soo-doe-SOO-guh men-ZEE-zee-eye
Common name(s): Douglas-fir
Family: Pinaceae
USDA hardiness zones: 5 through 6 (Fig. 2)
Origin: native to North America
Uses: screen; specimen; Christmas tree; no proven urban tolerance
Availability: generally available in many areas within its hardiness range

DESCRIPTION

Height: 40 to 60 feet
Spread: 15 to 25 feet
Crown uniformity: symmetrical canopy with a regular (or smooth) outline, and individuals have more or less identical crown forms
Crown shape: pyramidal
Crown density: moderate
Growth rate: medium
Texture: fine

Foliage

Leaf arrangement: alternate; spiral (Fig. 3)
Leaf type: simple
Leaf margin: entire
Leaf shape: needle-like (filiform)

Figure 1. Young Douglas-fir.

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2. Edward F. Gilman, associate professor, Environmental Horticulture Department; Dennis G. Watson, associate professor, Agricultural Engineering Department, Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida, Gainesville FL 32611.
Leaf venation: none, or difficult to see; parallel
Leaf type and persistence: evergreen; needle leaf evergreen
Leaf blade length: less than 2 inches
Leaf color: green
Fall color: no fall color change
Fall characteristic: not showy

Flower

Flower color: red
Flower characteristics: inconspicuous and not showy

Fruit

Fruit shape: oval
Fruit length: 1 to 3 inches
Fruit covering: dry or hard
Fruit color: brown
Fruit characteristics: does not attract wildlife; no significant litter problem; showy

Trunk and Branches

Trunk/bark/branches: droop as the tree grows, and will require pruning for vehicular or pedestrian clearance beneath the canopy; not particularly showy; should be grown with a single leader; no thorns
Pruning requirement: needs little pruning to develop a strong structure
Breakage: susceptible to breakage either at the crotch due to poor collar formation, or the wood itself is weak and tends to break
Current year twig color: green
Current year twig thickness: medium; thin
Wood specific gravity: 0.48

Culture

Light requirement: tree grows in full sun
Soil tolerances: clay; loam; sand; acidic; alkaline; well-drained
Drought tolerance: moderate
Aerosol salt tolerance: low
Soil salt tolerance: poor
Figure 3. Foliage of Douglas-fir.

Other

Roots: surface roots are usually not a problem  
Winter interest: tree has winter interest due to unusual form, nice persistent fruits, showy winter trunk, or winter flowers  
Outstanding tree: not particularly outstanding  
Invasive potential: little, if any, potential at this time  
Ozone sensitivity: tolerant  
Verticillium wilt susceptibility: not known to be susceptible  
Pest resistance: long-term health usually not affected by pests

USE AND MANAGEMENT

Douglas-Fir is most commonly used as a screen or occasionally a specimen in the landscape. Not suited for a small residential landscape, it is often a fixture in a commercial setting. Allow room for the spread of the tree since the tree looks terrible with lower limbs removed. It is grown and shipped as a Christmas tree in many parts of the country.

The tree prefers a sunny location with a moist soil and is not considered a good tree for much of the South. It grows but struggles in USDA hardiness zone 7. Douglas-Fir transplants best when balled and burlapped and has a moderate growth rate. It tolerates pruning and shearing but will not tolerate dry soil for extended periods. Protect from direct wind exposure for best appearance. Some occasional watering in summer dry spells will help the tree stay vigorous, especially in the southern end of its range.

Cultivars are: ‘Anguina’ - long, snake-like branches; ‘Brevifolia’ - short leaves; ‘Compacta’ - compact, conical growth; ‘Fastigiata’ - dense, pyramidal; ‘Fretsii’ - dense bush, short broad leaves; ‘Glaucac’ - bluish foliage; ‘Nana’ - dwarf; ‘Pendula’ - long, drooping branchlets; ‘Revoluta’ - curled leaves; ‘Stairii’ - variegated leaves.

Pests

Aphids infestations on small trees may be dislodged with a strong stream of water from the garden hose.

Scale and bark beetles may infest Douglas-Fir, especially those under stress.

Diseases

Root rot can be a serious problem on clay and other wet soils.

Needles infected by leaf cast fungi in spring turn brown and fall off.

Several fungi cause canker diseases leading to branch dieback. Maintain tree health and prune out infected branches.