

White or Concolor Fir



White or Concolor Fir (*Abies concolor*)

General Description

A large pyramidal tree with rather formal appearance in the landscape somewhat akin to Colorado Blue Spruce. This tree species is included in this book primarily because an unknown seed source has performed very well at the Bowman-Haley Reservoir southeast of Bowman, North Dakota. A few other sources have been planted in North Dakota, but suffered from lack of hardiness and winter burn. An extensive research study should be conducted to select hardy seed sources for the northern plains. The largest known trees in North Dakota are about 25 feet tall and 13 feet wide. Only northern seed sources are recommended for trial in North Dakota.

Leaves and Buds

Bud Arrangement - Arranged in whorls.

Bud Color - Light brown, covered with resin which conceals scales.

Bud Size - Large, broadly conical, and blunt.

Leaf Type and Shape - Needles arranged individually, curved upward.

Leaf Margins - Flattened, apex short pointed or rounded, upper surface slightly convex, not grooved, with faint lines of stomata.

Leaf Surface - Glaucous on both surfaces, flattened.

Leaf Length - Needles 1½ to 2 inches.

Leaf Width - Needles 1/10 to 1/12 inch.

Leaf Color - Blue-gray to grayish-green with pale bluish bands beneath.

Flowers and Fruits

Flower Type - Monoecious.

Flower Color - Male, rose-red; female, greenish.

Fruit Type - Cones are stalked, cylindrical, and 3 to 6 inches long, borne upright, scales non-persistent, seeds are yellow-brown with shiny rose tinged wings.

Fruit Color - Cones are olive-green, becoming purplish at maturity.

Form

Growth Habit - Conical and branches to the base. The branches on the upper half of the tree tend to point upwards, the lower horizontal or deflected downwards.

Texture - Medium, summer and winter.

Crown Height - 25 to 40 feet.

Crown Width - 15 to 25 feet.

Bark Color - Smooth on young stems except for resin blisters. On older stems the bark is 4 to 7 inches thick and ash-gray in color and divided by deep irregular furrows.

Root System - Shallow and wide spreading, may have a taproot.

Environmental Requirements

Soils

Soil Texture - Grows best in deep, rich, moist, well-drained sandy loam soils. May perform poorly in heavy clay soils.

Soil pH - 4.5 to 7.0.

Windbreak Suitability Group - 1, 3.

Cold Hardiness

USDA Zone 4.

Water

Withstands drought, heat and cold at Bowman, North Dakota trial site, but additional seed source studies are needed. Cannot withstand flooding.

Light

Prefers full sun, but can withstand light shade.

Uses

Conservation/Windbreaks

Small to medium conifer for farmstead windbreaks, need hardy seed sources and protected sites.

Wildlife

Summer range for elk where it occurs naturally.

Agroforestry Products

Wood - Dimension and construction lumber. Used as cut Christmas tree. Holds its needles better than most true firs and spruce.

Medicinal - Used in volatile oils and perfume and for colds, coughs, asthma, and consumption.

Urban/Recreational

May be better adapted to hot, dry summers than other fir species if winter hardy seed sources are identified.

Cultivated Varieties

The cultivars 'Candicans', 'Compacta', 'Pyramidalis' and 'Violacea' have been introduced, but have not been tested under North Dakota conditions.

Related Species

Alpine Fir (*Abies lasiocarpa*) - Questionable in adaptation in North Dakota.

Balsam Fir (*Abies balsamea*)

Black Hills Spruce (*Picea glauca* var. *densata*)

Colorado Spruce (*Picea pungens*)

Rocky Mountain Douglas-fir (*Pseudotsuga menziesii* var. *glauca*)

Pests

May be attacked by red spider mite, aphids, leaf rusts and canker diseases.