

# Corkbark Fir for Christmas Trees

JERRY F. FRANKLIN\*

In 1952, a small planting of corkbark fir (*Abies lasiocarpa* var. *arizonica*) was made in western Oregon to determine how this variety compares to native Northwest conifers in desirable Christmas tree characteristics. Interest centered on survival, growth rate, form, and foliage color as well as on resistance to insects and diseases. Examination of this plantation 8 years later reveals trees of exceptional color, taper, balance, and density, indicating corkbark fir may be well adapted to Christmas tree production in at least some portions of western Oregon and Washington.

## Native of Southwest

Corkbark fir is a variety of subalpine fir (*Abies lasiocarpa*) characterized by soft, corky bark. It is indigenous to Arizona, New Mexico, and southern Colorado, and is found growing in association with Engelmann spruce (*Picea engelmannii*) and subalpine fir. It is found on gravelly soils or on thinly covered rock at 8,000 to 10,000 feet elevation. Mature trees average 50 to 75 feet tall and 12 to 20 inches in diameter.

## Trial Made in Western Oregon Cascades

The plantation was established on a clear-cut area on the H. J. Andrews Experimental Forest in the McKenzie River drainage of western Oregon's Cascade Range. It occupies a gentle, northeast-facing slope at an elevation of 2,900 feet with a moderately deep, clay loam soil. Virgin old-growth Douglas-fir timber had been removed from the planting site the previous year. Logging debris on part of the area was disposed of by controlled broadcast burning. A dense growth of shrub and herbaceous vegetation developed on the burned area in later years, while the unburned area remained relatively free of vegetative competition.

A total of 360 2-year-old corkbark fir seedlings were hand planted with a planting hoe in March 1952. Half of the trees were planted on an unburned site and half on a burned area. Survival was

recorded in August 1953, and survival and height were recorded in April 1960.

## Survival and Growth Encouraging

Sixty percent of the planted seedlings survived eight growing seasons. Three-fourths of the mortality occurred the first 2 years following planting. In 1960, survival was better on the unburned than on the burned site, with 124 and 91 trees surviving, respectively. The plantation averaged 2.22 feet in height, including trees which had been suppressed by competing vegetation.

Individual trees made good growth, however, with 48 seedlings 3 feet or more in height and the largest 5.6 feet tall. Striking differences in growth rate existed between the burned and unburned portions of the plantation. Trees averaged more than a foot taller on the unburned area—2.7 feet versus 1.6 feet. The difference was probably partially due to vegetative competition on the burned area. Growth of seedlings planted on compacted soil or on exposed subsoil was exceptionally poor.

More than half of the seedlings had good form and color and would make U. S. Premium grade Christmas trees.



Figure 1.—A vigorous specimen of corkbark fir 8 years after planting.

Several were harvested from the plantation during past years, and all had basal branches turning up to produce new trees.

## Damage Limited to Frost

The only extensive damage suffered by the plantation was in May 1960 when a late frost killed many of the new shoots, then 1 to 2 inches long. The plantation remained relatively free from damage by insect or disease. No infestation of balsam woolly aphid (*Chermes piceae* Ratz.) was present, although corkbark fir has been attacked elsewhere in the Northwest. A light infestation of woolly aphid has been reported on trees planted in an arboretum in southwestern Washington. A needle rust (*Uredinopsis macrosperma*) was found on trees in the plantation in past years, but had no serious effect.

## Resembles Blue Spruce

The most outstanding attribute of this fir is its attractive silvery appearance, similar to that of the blue form of blue spruce (*Picea pungens*). Good-quality specimens should command premium market prices, equalling or exceeding those paid for noble, Shasta red, and silver firs.

The species is not entirely free from problems. Average growth rates were poor, but trees free of competition, as would be the case in a Christmas tree plantation, grew at a very acceptable rate. In this test several trees developed multiple leaders. If this is a common characteristic, culturing work by Christmas tree growers may be necessary. Danger of attack by balsam woolly aphid is also present, but damage from this pest may be minimized by harvesting trees at an early age.

## Further Tests Needed

Corkbark fir warrants further study as a Christmas tree species in the Pacific Northwest. It should be tested at different elevations and on different soil types. Areas of mineral soil, bare and relatively free from vegetative competition, appear necessary for satisfactory growth and survival. Planting should probably be avoided on compacted soil, exposed subsoil or on areas commonly subject to late spring frosts.

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