

Christmas Trees

Pseudotsuga menziesii (Douglas-fir), *Abies grandis* (Grand fir), *Abies procera*
(Noble fir) (Pinaceae)

Fast Facts: Acres in Washington: 25,000 acres
Number of growers: 300
Value of Production in Washington: \$51 million
Per acre value: varies year-to-year based on species and consumer demand with the average price per tree being \$15.49

Description

Of crop:

In the U.S. there are more than 21,000 Christmas tree growers and they are grown in all 50 U.S states including Alaska and Hawaii. Washington ranks 5th in the nation for Christmas tree harvest with 2.3 million trees annually. The production of trees occurs on Christmas tree farms and from native stands of fir and pine trees. More than 15 different conifer species are grown for Christmas trees. In Washington the major trees produced are: Douglas fir 52%, noble-fir 36%, grand-fir 5% and various pines 1%. The Pacific Northwest is the world's largest producer of Douglas fir Christmas trees making up about one half of all Christmas trees produced annually. It is the easiest and least expensive tree for growers to produce. It grows quickly, has a higher percent of marketable trees, relatively few pests and is easily sheared. However, this species usually has a lower market price than other trees. The noble fir usually receives a higher price than any other species often up to twice the value of Douglas fir. It is a slower growing tree (6 to 10 years) and shaping it requires more top work. It also requires the best soil drainage conditions. The grand fir is a true fir like the noble fir but it is cultured or shaped like the Douglas fir. It has emerald green, glossy foliage and is very fragrant. It is a tender species for shipping, especially to cold climate markets. Also grand fir is highly favored by insects especially aphids.

Christmas trees are a multi-million dollar industry that requires year round management. Individuals or companies operate and manage large plantations of trees that can range from ten thousands acres to 5 acres or less. They are produced through two principle types of operations: wholesale or choose-and-cut plantations. Growers may sell trees either directly to retail outlets or through brokers who in turn sell to retailers. Some may sell 100,000 trees or more each year. Choose-and-cut operations are usually smaller plantations that produce trees for direct sales to customers through purchase or "you cut" trees.

Christmas tree production is a long-term process. An average 7-8 foot tree requires 7-8 years of growth depending on the species, size of tree and management. Larger-sized trees require more years to produce with pines generally produce faster than spruces or fir. One of the challenges

facing growers is to speculate which tree species will be popular with consumers several years in the future.

Current Christmas tree operations are spending more effort in their site preparations, which may include tillage, use of cover crops and soil fertility. It is especially important to select a tree species that is suited to a site. Trees that are grown under stressful conditions are more susceptible to pest damage and recover more slowly from the damage.

Most Christmas tree plantations are established using planting machines. In Washington they are either planted row-on-row up to 1500 per acre or in rough terrain, in random fashion. Christmas trees are planted in late winter and early spring. This allows nurseries time to lift the seedlings at the trees maximum dormancy. Seedling growers in inland areas usually lift in the late fall and refrigerate seedlings for spring planting. Most growers' plant 2-4-year-old seedlings purchased from seedling-transplant nurseries. Growers will start shaping or shearing trees at 2 to 3 years and continue through harvest. The timing of shearing depends on the species of conifer. Pines are usually sheared during June and July while other species begin in August through late fall. Shearing develops the standard Christmas tree shape and also controls the amount of annual growth. In some species, it also increases bud set.

In late summer, trees that will be harvested are identified and marked. Actual harvesting occurs in late October and continues through late December. Some growers will spray trees with a green latex paint in August –September to hide any yellow foliage. After they are cut, the trees are shaken to remove dead foliage and are then baled with string or nets. Larger growers use helicopters to pick slings of freshly cut trees to be loaded. Many growers transport trees in refrigerated trucks. During the last forty years, the market for real Christmas trees has faced competition from artificial trees.

Key pests:

Different species of Christmas trees have different pests but overall pest issues must be addressed when trees are young. Aesthetic injury is the most common damage caused by pests as a Christmas trees value is based largely on its appearance. Aphids are the overall major insect pests that are damaging to Christmas trees especially noble and grand firs. Aphid pests include the Douglas-fir conifer aphid and the balsam twig aphid. The major insect pest of Douglas fir is the needle midge and the Cooley spruce gall adelgid. The larvae of the needle midge feed inside the needles, which become distorted and yellow. The Cooley spruce gall adelgid feed at the base of new needles. Once galls begin their formation is irreversible. Swiss needlecast is a major disease in Douglas fir. It is a fungus that causes browning and early needle loss. The major disease in Noble fir is interior needle blight which causes the interior needles to turn brown in late summer and early fall and drop by the next spring. Grasses are the major weed problem in tree production. Since Christmas trees are

produced mainly on non- irrigated land weeds will compete with small saplings for water and nutrients. Other weed pests include Canada thistle, quackgrass, tansy ragwort, blackberries, and dandelions.

Key pesticides:

Aphids are controlled with Sevin. The needle midge is controlled by pruning out infested twigs, using emergence traps on the ground to catch adult midges and the use of endosulfan and Lorsban. The Cooley spruce gall adelgid should have Lorsban and endosulfan applied at crawler stage. Blue spruce and Douglas fir should not be planted together since these adelgid needs both to complete its life cycle. This insect alternates between the two species by undergoing a complex, two-year cycle. On Douglas-fir, the adelgid over winters as an immature female that lays eggs which produce two types of offspring: winged and wingless female. The winged adelgids will leave the Douglas fir and fly in search of the blue spruce. Swiss needle cast can be controlled with Bravo. Trees should be sprayed with a protectant 3 years prior to harvest. Interior needle blight can be controlled with Bravo when new shoots are expanding. Grasses, Canada thistle and dandelions are controlled with Westar or Roundup. Tansy ragwort, and blackberries and are controlled with 2,4-D.

Critical pest

Control issues:

Christmas tree growers in the Pacific Northwest are meeting in February 2009 to address unmet pesticide issues and to develop a consensus on pest management. Few insecticides are registered for use on Christmas trees. There is little information on the effectiveness of biocontrol agents and the correct timing and density for agents that will be released in a field. Growers should use reputable dealers or buy inspected and certified stock to reduce pest problems. Achieving adequate coverage is a concern when spraying conifer trees. Their dense foliage can make good coverage difficult. Growers should monitor aphid populations and treat only when needed to maintain natural predators such as ladybird beetles, and green lacewings. Growers can decrease the amount of nitrogen available to discourage aphid populations by using slow release nitrogen fertilizer. Washing aphids from the trees with a strong stream of water is also encouraged. Even after a pest population is controlled, trees may require 1-3 years to outgrow or recover.

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Location

Of Production:

Christmas trees are produced in every county with the greatest number of Christmas trees produced in: Kitsap, Grays Harbor, Mason, Lewis and Thurston counties.



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Christmas Tree Production in Washington State

Christmas Tree

