

Christmas Trees in Iowa

by Iowa State University Extension and Outreach

Iowa has approximately 200 Christmas tree growers. Popular species include Scotch pine, white pine, red pine, balsam fir, and Fraser fir. For the grower, the sale season is not the only busy time of the season. Growing Christmas trees is a year-round plan of action.

Trees must be **planted** every year. Starting in the fall, growers do their site preparation, contact nurseries and order their planting stock. In the spring, trees are either hand-planted or planted with machines. Hand planting involves using tree planting bars, shovels, or spades to plant the trees, making sure they are planted at the right depth and straight to produce a high-quality tree. After planting, growers must apply a layer of organic mulch for **weed control** or use one of the registered herbicides to prevent weed and grass competition during the growing season. Weed control is required every year on every tree until they are sold.

During much of the spring and summer the trees must be monitored for **insect and disease** problems. In addition, the growers face other obstacles including deer, gopher, ground squirrels, mice, and voles. Birds cause deformed leaders (top tree branches) by perching on them as they grow in the spring. **Weather** and climate also have impacts including damage from too little or too much rain, winds, ice, and snow.

Newly planted trees may require staking to correct leaning trees and correction of multiple leaders during their first three years. In June and July, starting 2 to 4 years after planting, each tree is **sheared** or pruned to control their growth, shape, density, and form. Growers may thin the number of shoots in each tree and control the expansion of the leader to produce trees which have desirable density of leaves and branches.



Terminal growth (or height) is limited to develop trees with greater density and symmetry. Trees are shaped with either shearing knives or mechanical shears or trimmers to produce that ideal shape for a Christmas tree which is twice as high as wide. Quality shearing produces quality trees and is one of the most important cultural practices in the production of Christmas trees. It is also the most labor-intensive cultural treatment.

Establishment and Care

High-quality Christmas trees are not produced by just planting seedlings and waiting a few years for a harvestable crop. There are several possible combinations of species selection, weed control, shearing patterns, and other decisions that make up the production process. Each farmer makes unique decisions for their own farm.

Site: For good growth, Christmas trees require well-drained, slightly acid soils. The best sites for growing Christmas trees in Iowa are slopes that face north or east and have loam soils. These slopes are protected from hot, dry summer winds, and their soils provide excellent growing media for trees. Christmas trees will grow on other slopes and soils, but not as well. They will not flourish in calcareous (high lime) soils. Avoid soils that are continually wet and those with clay hardpan subsoils. You have a wider choice of species if you are planting on a good site rather than on a poor site.

Species Selection: When choosing a species for Christmas tree production, you should know if it is adapted to Iowa’s climate and whether it will be accepted by the consumer. Species that grow well in Iowa are Scotch (Scots) pine, white pine, red pine, Norway spruce, Colorado blue spruce, white spruce, balsam fir, fraser fir, Douglas fir, and concolor fir. Before deciding which to produce, investigate local consumer preferences. One species may be more desirable than another in a given locality. Because of public acceptance and species adaptability, you might narrow your choice to three species: Scotch pine, white pine, and red pine. These three account for approximately 90% of the Christmas trees grown in Iowa.



Planning before planting: Plan lanes every six to 10 rows for firebreaks, access during development, and tree removal at harvest time. Lanes should be 12 to 16 feet wide, located around and throughout the entire plantation. To minimize spread of fire, they should be mowed short or kept free of vegetation by disking or spraying with an appropriate herbicide.

Provide easy access to the plantation for trucks and equipment by avoiding sharp turns and steep slopes. The road to the plantation should be passable by trucks in all kinds of weather.

Plan ahead for harvest time, when you will need an area at the front of the plantation for concentrating cut trees, turning trucks around, and loading.

The distance between trees and rows depends largely upon the kind of maintenance machinery you plan to use. For a garden-type tractor, space trees five feet apart with five feet between rows. In this five-by-five spacing, trees will be smaller than in wider spacing. On the other hand, if you plan to use a two- or three-plow tractor and equipment, eight to 10 feet between rows is more desirable. The most popular spacing has been five by eight feet. On steep slopes, space rows farther apart to provide clearance for equipment.

Trees per acre at various spacings

Tree Spacing	5 x 5	5 x 6	5 x 8	6 x 6	6 x 7	6 x 8	8 x 8	6 x 10
Trees per acre	1,740	1,450	1,090	1,210	1,037	910	680	725

Scotch Pine

The scotch pine (*Pinus sylvestris*) is not native to Iowa. It is a European species that was brought to this country by the English. It has been planted widely in Iowa, both for farmstead windbreaks and ornamental use. It is a fast-growing tree in early life, but most strains of it soon slow down in height growth and develop a flat, wide spreading top of gnarled and crooked branches.

- Hardiness: Zones 3a through 7 - not heat tolerant
- Growth Rate: Moderate
- Mature Shape: Irregular pyramidal. Scotch pines look like other pines when young, but as they age they can take on many different shapes.
- Site Requirements: Sandy and well-drained soils. Poor, dry sites will support this tree. Full sun.

The 1-1/2 to 3 inch long, bluish needles occur in bundles of two and are twisted or spiral as they leave the twig.

The branching of the tree is quite open and the branches appear sparse.

At the base of older trunks the bark is grayish brown to brown in color, but on the upper trunk and larger branches the bark is bright orange and flaky, with the outer bark peeling off in large scales.

Source: Iowa State University Extension and Outreach, https://naturalresources.extension.iastate.edu/forestry/iowa_trees/trees/scotch_pine.html



White Pine

Only five evergreens are native to Iowa. They are eastern white pine (*Pinus strobus*), red cedar, balsam fir, common juniper and yew.

- Habitat: Found growing on sandy or rocky steep wooded slopes. Can be found in the eastern half of Iowa but mainly in the extreme northeast.
- Hardiness: Zones 5 through 7
- Growth Rate: Moderate to Rapid
- Mature Shape: Pyramidal
- Site Requirements: White pines grow best in well-drained upland soils, but are adaptable. They have intermediate shade tolerance.

White pine is easy to identify. Its leaves or needles occur in bundles of five, 3-5 inches long, bluish green, with fine white lines. The bark on young trees is smooth and light gray, becoming dark gray to black with flat plates separated by shallow fissures on older trees.

Naturally, it grows on bluffs, ridges and wooded slopes on soils with good internal drainage. Plantings do best on well drained soils, with moderately good moisture holding capacity, and soils that are slightly acidic. Plantings on dry soils will often fail. On good sites, white pine will grow 50-90 feet in height; as a young tree growth rate is moderately fast (2-3 feet per year), decreasing with age.

Source: Iowa State University Extension and Outreach, https://naturalresources.extension.iastate.edu/forestry/iowa_trees/trees/white_pine.html



Red Pine

The red pine (*Pinus resinosa*, also known as Norway pine) is a native of the Lake states and eastward throughout New England and southeastern Canada. It had not been planted widely in Iowa until the 1930's. Since then it has been planted quite widely for both erosion control and water conservation, and some for farmstead windbreaks. The tree gets its name from the bright orange-colored or reddish bark, which divides into large plates as the tree matures.

- Hardiness: Zones 3 through 7
- Growth Rate: Slow
- Mature Shape: Symmetrically oval crown
- Site Requirements: Full sun adaptable to soil and moisture conditions

Red pine needles are 4 to 6 inches long and in bundles of two. The dark green needles are soft and flexible. When bent sharply they snap or break cleanly rather than just folding over as do the needles of other pines. The cone is egg-shaped; 2 to 2-1/4 inches long. The cone scales are smooth and without spines.

Source: Iowa State University Extension and Outreach, https://naturalresources.extension.iastate.edu/forestry/iowa_trees/trees/red_pine.html



Source: Pinestead Christmas Trees, <http://pinesteadchristmastrees.com/norway-pine>