Propagation and Care of Leyland Cypress as Christmas Trees

Orville M. Lindstrom¹, David J. Moorhead², and Glen W. Kent³

¹Associate Professor-Horticulture Research, Georgia Station.
²Associate Professor, Warnell School of Forest Resources, Tifton
³Agricultural Research Coordinator I, Georgia Station.

Introduction

Leyland cypress (X Cupressocyparis leylandii) is an intergeneric (of two separate genera) cross between Monterey cypress (Cupressus macrocarpa) and Alaska Cedar (Chamaecyparis nootkatensis) that originated in England in 1888. Since that time, many cultivars have been selected that differ in coloration and growth habit. Leyland cypress has long been suggested as a selection for shelterbelt, hedge, and landscape plantings. Plants will tolerate a wide range of soil types from clay to sand, acid to alkaline. It grows well in full sun, but tolerates partial shade. Growth is best when moisture is adequate and responds well to irrigation, but it is also drought tolerant and suitable for dry sites. Classified hardy to USDA Hardiness Zone 7 (average minimum winter temperature 0° to 10° F), Leyland cypress is relatively cold hardy and well suited to out planting throughout the state.

Recently Leyland cypress has shown promise for Christmas tree production because of its fast growth, natural form and attractive foliage. Many growers produce saleable trees in four year on quality sites, and there are few major diseases or insect pests that affect its growth. This publication describes the propagation, transplanting, and cultural practices for Leyland cypress Christmas tree production based on research and observation by the authors. These practices should provide a good reference point for growers interested in producing Leyland cypress Christmas trees. Additional research is ongoing at the Georgia Experiment Station regarding Leyland cypress propagation and culture.

Propagation

Leyland cypress do not produce viable seed, thus the rooting of vegetative cuttings is currently the best method for propagation. Selection of appropriate specimen trees from which to take cuttings is a key first step. Select trees with an acceptable natural Christmas tree form. Cultivars with lateral branches arising at the base of the tree and growing up vertically as tall as the terminal shoot are likely to develop double stems and should be avoided. Foliage color will also vary by cultivar. Most growers prefer the cultivar ‘Leighton Green’ which has rich green foliage.

Selection of cutting material is critical. The age of the tree, location within the tree crown, and time of year are all factors to be considered. Generally, the most successful and consistent rooting is achieved with cuttings taken from trees less than 10 years old, or from new shoot growth on older trees. Cuttings should be 6 to 8 inches long and show some brown coloration in the lower part of the stem. January, February or March are the best months to take cuttings. Rooting may be successful at other times of the year.

¹1997. MP 350. Georgia Cooperative Extension Service, College of Agricultural and Environmental Sciences, The University of Georgia, Athens, GA 30602 U.S.A.
²1997. The Entomology and Forest Resources Digital Information Work Group, College of Agricultural and Environmental Sciences and Warnell School of Forest Resources, The University of Georgia, Tifton, Georgia 31793 U.S.A. BUGWOOD 97-013
³http://www.bugwood.caes.uga.edu
year, but rooting percentage will be low. After cuttings are taken, keep them cool and moist and process as soon as possible. Do not let cuttings heat up by leaving them in the sun or bunched together.

Dip the base of each cutting, or groups of cuttings, into water and then into a rooting hormone powder containing 0.8% Indole 3-butyric acid (IBA).

This is a formulation commercially available for hard-to-root woody plants. Tap off excess powder, place the cuttings into containers and firm in place. Quick dips for two to three seconds in an alcohol solution containing 0.3 to 0.8% IBA have also been successfully used.

Maintain the cuttings in a warm, humid environment. A good target temperature to maintain the cuttings is 68°F. A mist system on a timer, set to deliver 5 to 10 seconds of mist at 4 to 5 minute intervals, will maintain high humidity surrounding the cuttings. A greenhouse is ideal for propagation, but containers can be draped with plastic to maintain temperature and humidity. An alternative method is to fill a one or five gallon plastic bucket with rooting media, and stick the cuttings into the media. Be sure to put drain holes in the bottom of the bucket. Then, put several boards vertically on the inside edges of the bucket and lay plastic over them, creating a miniature greenhouse.

Have the containers prepared so cuttings can be rapidly processed. Initial rooting can be done in small volume containers like 2¼ in. square rose pots, or containers of comparable size provided they have sufficient drainage. Fill the containers with a porous rooting media such as a 1:1 peat-perlite mixture. Make a two inch deep hole in the media to accept the cutting.

Prepare the cuttings by pruning them to approximately six inches long, and strip the leaves off the bottom two inches of the stem.
Root development can be monitored by carefully slipping the cutting and media from the container. As soon as roots are visible, begin weekly applications of a dilute liquid 20-20-20 fertilizer solution. It will take about three months to sufficiently root cuttings.

Once cuttings have been rooted, they need to be transplanted into larger containers such as six-inch or one-gallon pots. Cuttings transplanted to one-gallon pots generally show better growth. Ground pine bark with coarse sand or a commercial greenhouse soil mix can be used as a soil mix. Two teaspoons of a slow release 18-6-12 fertilizer should be added to the containers after repotting. Maintain the repotted cuttings in a greenhouse or shadehouse until they are ready for out planting into the field, in approximately 6 to 9 months.

Time of year of out planting to the field can be critical. Generally outplanting is done in the spring after the danger of frost. Some growers have successfully outplanted in the fall, winter, and early spring, while other have lost transplants due to killing frost. Plants are most susceptible to freeze damage when taken directly from the greenhouse or shadehouse without allowing them to harden off. Before outplanting, cut back on both water and fertilizer and set plants outdoors for lengthening periods of time each day for a total of one to two months. If danger of frost exists during this hardening off period, cover or return plants to greenhouse or shadehouse to protect them from freezing. Roots are especially susceptible to freeze damage while in containers since they freeze more quickly than when they are in the field. Avoid pruning plants during this period.

Once Leyland cypress transplants become established in the field, they exhibit a good degree of cold hardiness. An outplanting at the Georgia Experiment Station in Griffin survived, without injury, when a low temperature of \(-8^\circ F\) was recorded on January 21, 1985.

**Site Preparation**

To achieve rapid and consistent growth, locate plantations on sites with adequate drainage and preferably loamy soils. Avoid dry sandy soils unless irrigation can be provided, and poorly drained soils. While Leyland cypress will tolerate partial shade, keep transplants at least 70 feet from large trees along field borders.

It is important to start with a weed free planting site. On sites with a heavy grass sod, broadcast spray a contact herbicide over the field in late summer of the year prior to outplanting. If soil erosion is a concern, lay out planting rows on the
contour and apply the herbicide in a 4 to 5 foot band over the intended planting rows. The grass left in the row middles will reduce soil erosion and can be controlled by mowing. A spacing of 7 X 7 feet (888 trees per acre) will allow ample room for uniform tree growth and permit use of a small tractor for mowing.

Check the field for a traffic pan or hardpan, a compacted layer within the soil profile. This is a common problem on sites that have been in cultivation, grazed, or eroded. The compacted layer restricts root growth, and with the limited available rooting volume, seedlings are more susceptible to drought stress. The compacted layer can be broken up by subsoiling along the intended planting row. Subsoiling should be done in late summer or early fall when soils are dry to achieve maximum benefit. Avoid subsoiling if soils are wet. Complete all disking and harrowing operations before subsoiling.

Soil test in the fall to allow incorporation of preplant fertilizers and lime as required (check with your County Extension Agent) during site preparation. DO NOT fertilize without recommendations based on a soil test. Soil phosphorus levels of 50 pounds per acre and potassium levels of 100 pounds per acre are adequate. A soil pH of 5.5 to 6.0 is ideal.

To outplant the trees, dig a hole twice as large as the seedling container. Place the transplant carefully in the hole and pack soil firmly around the root system, eliminating all air pockets. Poorly packed soil around the root system is a common cause of transplant death. After transplanting, keep the planting row weed free with application of appropriate herbicides and mow the row middles.

Leyland respond well to periodic fertilization, especially on sandy soils. A 18-6-10 + minors fertilizer formulation has been used by many growers in the state. Slow-release formulations providing nutrient release over a 3 to 4 month period are preferred. For most applications, apply approximately 1 tablespoon of fertilizer per foot of tree height in March and again in late June to July. Place the fertilizer beneath the drip line of the tree crown, and be sure that herbaceous weeds and grasses are controlled around the trees.

**Pruning and Shearing**

Leyland cypress may develop into acceptable Christmas trees with very little pruning. However, some pruning is necessary to produce consistently uniform trees. Leyland cypress has a natural upright branching habit. Lower branches can grow as tall or taller as the central stem, developing trees with two or more “trunks.” Initial pruning, to remove double stems and excess leaders, should be done while transplants are still in the greenhouse. This initial pruning greatly reduces subsequent field pruning.

At the end of the first field session, basal prune the seedlings to develop a 6 to 8 inch handle at the base of the seedling. The upswept branching habit may preclude basal pruning in later years, as removal of upswept branches from the base of the tree may leave large gaps in the crown. Each spring, remove or prune back any double leaders to favor a single main stem. Use these cuttings to root next year’s transplants. During the year of marketing, more precise shearing of the body of the tree may be required to achieve a uniform shape. Most growers find that it takes only minor shearing to produce a marketable tree.
Diseases and Pests

Leyland cypress has few diseases and pest problems. However, there are several organisms that have been reported to injure or kill Leyland cypress. Several cases of Bot canker (Botryosphaeria dothidea) have been recently reported in Georgia. The fungus causing this disease is present at low levels on many native trees in Georgia forests. Although this organism does not significantly affect native trees, it can injure Leyland cypress. The symptom of this disease is an oozing of yellowish sap-like substance on the trunk or branches. Branches and stem are generally girdled and killed above the canker, with foliage characteristically fading to a gray color and then turning reddish brown.

The disease is apparently stress related, invading the tree following wounding, cold, heat, or drought stress. Higher than usual incidence of Bot canker in the past year may be due to drought stresses experienced over the last few years. If this proves to be true, Leyland cypress culture may benefit from irrigation.

Bot canker can be controlled, but not eradicated, using the fungicide benomyl. This treatment requires application at two week intervals throughout the growing season and is quite expensive. If the disease is not widespread in the plantation, removal and disposal of infected trees by burning should be considered. Other foliage diseases can also be controlled with benomyl applications.

Bag worms have been observed on Leyland cypress. Control involves removal of cases and application of an appropriate insecticide. Spider mites may also infest trees causing mottled off-colored foliage. Infestations can be controlled with insecticides. Consult your County Extension Agent for pest identification and treatment recommendations.

ATTENTION!

Pesticide Precautions

1. Observe all directions, restrictions and precautions on pesticide labels. It is dangerous, wasteful and illegal to do otherwise.

2. Store all pesticides in original containers with labels intact and behind locked doors. "KEEP PESTICIDES OUT OF THE REACH OF CHILDREN."

3. Use pesticides at correct label dosage and intervals to avoid illegal residues or injury to plants and animals.

4. Apply pesticides carefully to avoid drift or contamination of non-target areas.

5. Surplus pesticides and containers should be disposed on in accordance with label instructions so that contamination of water and other hazards will not result.

6. Follow directions on the pesticide label regarding restrictions as required by State or Federal Laws and Regulations.

Trade and brand names are used only for information. The Cooperative Extension Service, The University of Georgia College of Agriculture does not guarantee or warrant published standards on any product mentioned; neither does the use of a trade or brand name imply approval of any product to the exclusion of others which may also be suitable.

The Cooperative Extension Service, The University of Georgia College of Agricultural and Environmental Sciences offers educational programs, assistance and materials to all people without regard to race, color, national origin, age, sex or handicap status.

AN EQUAL OPPORTUNITY EMPLOYER/AFFIRMATIVE ACTION ORGANIZATION

MP 350 Revised Dec 1997

Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, The University of Georgia College of Agriculture and U.S. Department of Agriculture cooperating.

Wayne C. Jordan, Director