Growing Christmas Trees: Florida A&M University Demonstration Project.
INTRODUCTION

Christmas tree production is big business in the United States and Florida can take its place in the market. An average of 40 million trees are sold each year in the United States and about two (2) million of these are sold in Florida and are imported from other states with a retail value of $20,000,000. These trees are usually cut in October and kept under cold storage while being shipped southward to large distributors who distribute them to wholesalers and retail outlets in the area. The most popular species are Douglas-fir and Scots Pine.

Christmas trees produced in Florida can capture a substantial portion of the market, but to compete, it is essential that Florida-grown trees be of high quality. Low transportation costs and freshness are advantages of locally grown trees. At present, 150,000 trees are planted in Florida for Christmas trees. This number is rising but there is room for expansion. Most Florida growers raise Christmas trees on a part-time basis and keep the acreage small because of the intensive work required to produce quality trees. However, financial rewards can be good for the person who is willing to spend time in managing an operation.

To show that Christmas trees can be grown in Florida, six demonstration plots were planted on the Florida A&M University Campus in a joint venture with the University of Florida to show production management practices, recommended varieties, pruning, shearing, harvesting, and marketing of Christmas trees. The plots were established and planted December 28, 1981. The public along with Extension workers in Leon and surrounding counties, participated in tours of the demonstration plots May 27, 1983 and May 25, 1984.

*Specialist observing trees in FAMU Demonstration Plot.*

A well-planned operation should include at least four different varieties to meet the market demands each year.
HOW MUCH DOES IT COST TO GROW CHRISTMAS TREES?

To grow Christmas trees, one must rent or own his land. Since it takes a minimum of three (3) years and a maximum of five (5) years to produce a Christmas tree for marketing, cash is required to pay taxes, mortgage payments or rental fees. Therefore, a steady cash flow is needed to produce trees successfully.

A potential grower needs to be knowledgeable of agricultural operations and procedures. He should live near the area where the trees are planted and be able to spend some time supervising the operation.

Christmas trees can average prices of $5-25 per tree depending on the quality and grade of the tree. Therefore, if one plants 800 trees to the acre, he could realize an income of $4,000 to $20,000 per acre. Expenses for growing trees vary according to the amount of work done by the farmer and the equipment purchased. Total expenses for growing one acre of Christmas trees on land privately owned with limited investments in machinery and equipment would be approximately $300 per year.

Suitable machinery is needed for the operation including mowers and sprayers. These should be available when needed. Money is needed to buy tree seedlings, chemicals, fuel, parts and repairs.

Basic tools and machinery needed for growing Christmas trees.

Finally, the grower needs to be business-oriented with some knowledge of record keeping, and be willing to work hard and long hours during peak periods.
EASTERN RED CEDAR

Florida has several native species suitable for Christmas trees, including Eastern Red Cedar and Sand Pine. The most commonly used species for Christmas trees in the state is Red Cedar. However, this tree is hard to handle and takes at least five (5) years to make a marketable tree. Presently, on the campus of FAMU and in seven North Florida counties, four varieties of pines are being tested to determine which would produce the most marketable Christmas tree. The ones being tested are Red Cedar, Sand Pine, Spruce Pine and Virginia Pine.

**Technician observing growth of Eastern Red Cedar.**

Eastern Red Cedar is the most common tree grown in Florida as the traditional Christmas tree. They are compact and grow in conical form which is the familiar Christmas tree shape. They are relatively free of diseases and are not affected by insects. Three of the disadvantages of Red Cedar are (1) weak, flimsy branches, making it awkward to hang ornaments or lights, (2) prickly nature of the foliage and (3) the rapidity at which the tree becomes dry and brittle after cutting.

**VIRGINIA PINE**

The Virginia pine is native to the southeastern United States and extends northward to Central Pennsylvania, New Jersey and New York, Westward to Northeast Mississippi, and Southward to upper Alabama, Georgia and Florida. Its growth habit requires direct sunlight and freedom from overtopping by competing trees or other plants.

On the campus of FAMU this tree has grown at a rapid rate. In two years several of the trees are ready for market. Normally they will produce a marketable tree in three (3)-to-five (5) years when cultural practices are applied regularly. Without proper cultural practices, the Virginia Pine will produce poorly formed trees of low quality and poor merchantability. The variety has proven to be a tree to grow for Christmas trees in Florida.

**Specialist observing growth of Virginia pine.**
SAND PINE

The Choctawhatcher variety of sand pine has dense foliage, short needles and has shown great promise on the FAMU site and in the counties. If grown on the proper site with adequate pruning, it makes an excellent tree. The major objective to sand pine is its growth habit which is very irregular. On the FAMU site, sand pine has produced the most uniform shape and appearance.

Specialist observing growth of sand pine.

SPRUCE PINE

The spruce pine has shown promise as a potential species for Christmas trees. It has produced a tree with long needles and a straight stem. The tree has grown at a rapid rate but is hard to shape. The major disadvantage observed is the excessive distance between the branches of the tree.

Of the four (4) varieties planted on the FAMU campus for Christmas trees, Virginia pine is the number one selection; Sand Pine as second selection and Red Cedar the third, and Spruce pine fourth.

Technician observing growth of spruce pine.
HOW TO SELECT AND PREPARE THE SITE?

Selecting the right site is very important. Experience has shown that good land produces top quality Christmas trees. As a general rule, land that produces quality row crops will produce quality Christmas trees.

Selection of a good site and preparation of the soil is necessary to produce quality trees.

The preferred site should possess the following characteristics:
1. Be well drained
2. Sandy or clay loam topsoil with clay subsoil
3. A pH of 6
4. Have the capacity to produce row crops

The soil should be prepared as if you were planning to plant a row crop. It should be turned, harrowed smooth, and left to be settled by two or more rains.

Technician preparing site for planting trees.

WHEN SHOULD TREES BE PLANTED?

In Florida, seedlings can be planted from December 1 until February 15. Seedlings should be planted as soon as they are received, unless the soil is very dry. If the soil is dry, wait until a good rain.
WHERE CAN SEEDLINGS BE BOUGHT AND HOW TO CARE FOR THEM?

Pine seedlings can be obtained from state and commercial nurseries. Seedlings are shipped in bundles with wet moss in packages of 500-2,000. These packages have a water-resistant outside wrapping. If trees are not planted in a few days after delivery, the grower should not remove them from the bundle. If your package is torn, the seedlings should be removed and bedded in moist soil.

Christmas trees do not develop well in shaded areas and should be planted in open fields.

Specialists and Administrator observing seedlings ready for planting in prepared FAMU Demonstration site.

If you plant on new ground, vegetation should be removed and the soil well prepared. Newly planted trees should be fertilized in the spring after growth has started, only if the soil test indicated very low fertility. Soil testing information can be obtained from your local county extension agent.

Specialists and technicians preparing seedbed for left over seedlings.
Seedlings that are left over should be placed in a seedbed for future use. To prepare the seedbed, dig a trench deep enough to cover the seedlings. Cover the roots of the seedlings with soil and keep the bed free of weeds. Trees should be planted at least 6' x 6'. Proper spacing is important, due to width trees obtain as they grow. If planted too close, trees will not grow well.

Specialist and technician measuring distance between one-year-old trees on FAMU Demonstration site.

HOW TO PLANT THE TREE?

Trees may be planted using a mattock, dibble, shovel or a mechanical planter.

Specialist holding dibble and shovel.
Technician planting trees in County Demonstration site with mechanical planter.

The following procedure should be used when planting trees by hand:

**PROCEDURE FOR DIBBLE:**

1. Insert dibble at angle shown and push forward to upright position (don't compact the soil by rocking the dibble back and forth).

2. Remove the dibble and insert a seedling in the hole, withdrawing seedling until root collar is at or slightly below ground level and roots are straight.
3. Insert dibble part way, push and twist forward closing top of planting slit.

4. Push dibble straight down to depth of blade.

5. Rock dibble back and forth to pack soil firmly against root.

6. Fill in last hole by stamping with heel.
HOW CAN WEEDS BE CONTROLLED?

A. Weeds may be controlled using a lawn mower or a herbicide.

B. Applying roundup herbicide with backpack sprayer that has a cone attachment to protect the Christmas tree from the chemical.

Technician mowing weeds with lawn mower on the FAMU Demonstration site.

Student applying roundup to control weeds on FAMU Demonstration site.

SHOULD FERTILIZER BE APPLIED?

Fertilizer should only be applied if needed. Too much fertilizer will cause excessive weed growth and distorted tree growth. Fertilizer should be broadcast over the entire area because the seedlings have the capacity to pick up fertilizer from all points in the stand due to their spreading root system.
**HOW CAN INSECTS BE CONTROLLED?**

Most insects that affect pines such as bagworms and tip moths can be controlled by spraying with Cygon or applying furidan at least twice during the growing season.

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*Technician applying insecticide to control pine tip moth on Virginia pine in the FAMU Demonstration site.*

**HOW CAN DISEASES BE CONTROLLED?**

Red cedars are affected by cedar blight. It usually begins at the bottom portion of the tree and progresses to the top. If not controlled by removing branches or applying copper, the entire stand could be killed.

Virginia pine and spruce pine are not affected by blight diseases. On the campus of FAMU, no indication of diseases have been noted on these varieties.

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*Specialist removing dead twigs from red cedar to prevent spread of blight disease.*
WHEN SHOULD PRUNING BE DONE?

Pruning is necessary to get a maximum number of well-formed trees. Many Eastern Red Cedars may reach maturity without being pruned. However, pruning of Virginia pine, spruce pine, and sand pine trees is necessary to develop a main stem and increase density.

Pruning is divided into three phases: (1) developing one main stem, (2) reducing height in comparison to diameter and (3) increasing density. Once the tree has grown to a height of 2', a main stem should be selected and remaining stems should be removed. When pruning a pine tree for a Christmas tree, the tree should be pruned at a 45° angle. This is done when the tree has produced new shoot tips in late April or early May and again in August. By pruning at this angle, the tree will develop a conical shape.

During the first year, pruning is done to develop a main stem and from developing a tall, slender-shape, to remove lateral buds. By removing the lateral buds the branches of the tree will grow closer together.

During second or third growing season, pruning is done to increase density, reduce height and provide a good shape.

Specialist removing top branch to facilitate lower branch development and develop a main stem on one-year-old tree.

Specialist pruning lateral buds of one-year-old tree to develop conical shape.
After tops are pruned, side branches should be shaped with a shearing knife to form a tapered crown. Hedge shears or shearing knives are used to develop the taper.

Fourth year pruning is similar to the third year.

Specialist pruning tree with shearing knife to form conical shape.

WHEN SHOULD TREES BE HARVESTED?

Trees grow at varying rates and therefore, do not reach maturity at the same time. There may be one or more years variation in maturity dates of trees.

On the FAMU Campus Farm Site, the Virginia pine and sand pine were ready for harvesting at the end of the third year in one plot. The spruce pine and Red Cedar will be harvested at the end of the fourth year in the second plot.

When harvesting trees, always saw at right angles to the stem to provide a good base. This helps the appearance at the market and makes the trees easier and safer to handle than those with pointed or roughly cut bases.

Technician and student harvesting tree on the FAMU Demonstration site.
## EXPENSES

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<thead>
<tr>
<th>Items Purchased</th>
<th>Quantity Purchased</th>
<th>Cost</th>
<th>Amount Used</th>
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<tbody>
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<td>Herbicides</td>
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## OTHER EXPENSES

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## INCOME

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<th>Type of Tree</th>
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<th>No. Sold</th>
<th>Unit Cost</th>
<th>Total Sales</th>
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Grand Total: ___________________
# ESTIMATED COSTS FOR PRODUCING ONE ACRE OF CHRISTMAS TREES

**Seedling Costs for Three Varieties**

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<thead>
<tr>
<th>Variety</th>
<th>Quantity</th>
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<tbody>
<tr>
<td>Red cedar</td>
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<tr>
<td>Virginia pine</td>
<td>1,000</td>
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<tr>
<td>Sand pine</td>
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**Equipment Costs**

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<tr>
<td>Shearing knives</td>
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<td>Leg guards</td>
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**Chemical Costs**

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<td>Herbicide</td>
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<td>Insecticide</td>
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**Labor Costs If You Do Not Provide Your Own**

- Shearing trees (Two shearings per year): $400.00
- Spraying trees (Three times per year): $100.00

*Trees are sold only in lots of 1,000. Only 880 are needed to plant one acre. The remainder can be planted in seedbeds for replanting the following year.