

Course	Agricultural Science II
Unit	Forestry
Lesson	Growing and Marketing Christmas Trees
Estimated Time	Two 50-minute blocks

Student Outcome

Identify the factors to consider in growing and marketing Christmas trees.

Learning Objectives

1. Identify considerations before growing Christmas trees.
2. Identify the busy times of the year for growing Christmas trees.
3. Identify some common methods of marketing Christmas trees.
4. Identify some species used for Christmas trees.
5. Identify the cultural requirements for Christmas trees.
6. Describe how to shape Christmas trees.

Grade Level Expectations

SC/LO/2/B/09-11/c

Resources, Supplies & Equipment, and Supplemental Information

Resources

1. PowerPoint Slides
 - ☐ PPt 1 – Christmas Tree Shaping
 - ☐ PPt 2 – Shearing Christmas Trees
2. *Forestry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1986.
3. *Forestry Curriculum Enhancement*. University of Missouri-Columbia: Instructional Materials Laboratory, 2008.

Supplemental Information

1. Internet Sites
 - ☐ Christmas Tree Marketing. University of Maine Cooperative Extension. Accessed May 28, 2008, from <http://www.umext.maine.edu/onlinepubs/htmpubs/7009.htm>
 - ☐ Growing Christmas Trees in Michigan. Michigan State University Extension. Accessed May 28, 2008, from <http://www.for.msu.edu/extension/ExtDocs/xmastree.htm>.
2. Print
 - ☐ Dwyer, J.P., W.B. Kurtz, and R.L. Plain. *Maintaining Woodland Tax Records* (Guide G740). Columbia: University of Missouri Extension, revised 1993. Accessed June 4, 2008, from <http://extension.missouri.edu/xplor/agguides/agecon/g00740.htm>.
 - ☐ Godsey, L.D. *Agroforestry in Action: Tax Considerations for the Establishment of Agroforestry Practices*. Columbia: Center for Agroforestry, 2007. Accessed June 4, 2008, from <http://www.centerforagroforestry.org/pubs/agrotaxcons.pdf>.

Interest Approach

Christmas trees can be grown on suitable sites in all parts of Missouri, and Christmas tree production can be a profitable enterprise. A 6-foot Christmas tree wholesales for \$6 to \$8. If 600 trees are produced per acre, the total gross income from 1 acre would be \$3,600–\$4,800.

Communicate the Learning Objectives

1. Identify considerations before growing Christmas trees.
2. Identify the busy times of the year for growing Christmas trees.
3. Identify some common methods of marketing Christmas trees.
4. Identify some species used for Christmas trees.
5. Identify the cultural requirements for Christmas trees.
6. Describe how to shape Christmas trees.

Instructor Directions	Content Outline
Objective 1 <i>Discuss with students some considerations to make before growing Christmas trees. List all of the considerations students think of on the board.</i>	Identify considerations before growing Christmas trees. <ol style="list-style-type: none">1. Plantation production of Christmas trees is a young and dynamic business in Missouri. (New equipment, methods, and problems continue to evolve.)2. The long term investment in Christmas trees will not be realized for 5 to 7 years.3. The seasonal nature of the work and whether or not the grower can spare the time required.4. If labor is available for planting, weed control, pruning, shearing, and harvest.5. Where and how large the potential markets are.6. Which species and varieties are best.7. If the planting site is suitable for Christmas tree species.8. It is essential to keep accurate records for tax management.
Objective 2 <i>Discuss with students the busy times of the year for growing Christmas trees. Write their answers on the board.</i>	Identify the busy times of the year for growing Christmas trees. <ol style="list-style-type: none">1. Planting season – March until mid-April for most of Missouri2. Pruning and shearing – June to mid-July3. Harvest – late fall through December4. Sales<ol style="list-style-type: none">a. Develop a sales program at least 1 year prior to first harvest (for a new grower).b. Harvesting and marketing procedures must be firmly set by August, regardless of how trees are sold.

Instructor Directions	Content Outline
<p>Objective 3</p> <p><i>Discuss with students the various marketing options available in the Christmas tree industry. Discuss the advantages and disadvantages of both.</i></p>	<p>Identify some common methods of marketing Christmas trees.</p> <p>Factors influencing where and how Christmas trees are marketed</p> <ol style="list-style-type: none"> 1. Grower's sales personality 2. Personnel available 3. Quality of the crop 4. Size of harvest 5. Location relative to population <p>Methods of marketing</p> <ol style="list-style-type: none"> 1. Growers retail trees directly to consumer. <ol style="list-style-type: none"> a. Highest per tree profits b. Very demanding on time c. Success hinges on <ul style="list-style-type: none"> - Improved services - Adequate parking - Location (near population center) - Quality trees - Good display - Prompt and courteous sales d. Common method - "choose and cut" <ul style="list-style-type: none"> - Customer selection, cutting, and carrying tree from plantation - Often pays same or nearly same price as at retailer's 2. Growers wholesale their trees. <ol style="list-style-type: none"> a. Trees harvested by grower b. Sold to organizations operating retail lots c. Lower returns per tree for grower and less risk than "choose and cut" 3. Grower sells stands of trees. <ol style="list-style-type: none"> a. Selling wholesale lots of trees standing in the plantation b. "Stumping sale" c. Cutting and transportation usually done by the buyer d. Lowest gross return to grower of the three methods, but less risk and reduced cost due to no harvest or transport

Instructor Directions	Content Outline
	<p>Factors affecting success (regarding of method)</p> <ol style="list-style-type: none"> 1. Quality – Annually there is an abundance of trees, but quality trees are always in shortage. 2. Maintaining consistent production <ol style="list-style-type: none"> a. Must supply an established market yearly b. Must balance size classes of trees – Plantings must provide both the number of trees needed by customers each year as well as the size classes they desire. (Since the trees will not all grow at the same rate or respond equally to shearing, each acre planted will not be totally removed during the first year of harvest.)
<p>Objective 4</p> <p><i>Discuss with students the two common Christmas tree species. Refer them to the Student Reference for species descriptions. Get students' ideas on the pros and cons of each species. List them on the board.</i></p>	<p>Identify some species used for Christmas trees.</p> <p>Scotch pine</p> <ol style="list-style-type: none"> 1. Leading Christmas tree nationally 2. Excellent for a Missouri Christmas tree species 3. Marketable size in 5 to 10 years <p>Eastern white pine</p> <ol style="list-style-type: none"> 1. Straight, symmetrical, high quality tree 2. Poor survival rate first year after planting 3. Salable size 6 to 10 years after planting 4. More difficult to shear properly 5. More susceptible to deer damage <p>Other species sometimes used for Christmas trees in Missouri</p> <ol style="list-style-type: none"> 1. Jack pine 2. Douglas fir 3. Blue spruce 4. White spruce 5. Red cedar 6. Red pine <p>Seedlings may be obtained from the State Forestry Nursery at Licking, Missouri, and other private sources. (See Lesson 3 for information on ordering.)</p>
<p>Objective 5</p> <p><i>Discuss the cultural requirements of Christmas trees with students. List students' answers on board</i></p>	<p>Identify the cultural requirements for Christmas trees.</p> <p>Soil requirements</p> <ol style="list-style-type: none"> 1. Use lands with soil types from sand to silty clays. 2. Avoid constantly wet or flooded areas.

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<p><i>and guide them to elaborate on the specific needs of Christmas trees.</i></p>	<ol style="list-style-type: none"> 3. Avoid high fertility. <ol style="list-style-type: none"> a. High fertility increases weed problems. b. Christmas tree species perform adequately at relatively low nutrient levels. <p>Site preparation</p> <ol style="list-style-type: none"> 1. Create open ground 30 to 40 feet from tree borders. 2. Convert open ground from brushy land. <ol style="list-style-type: none"> a. Clear area of vines, brush, stumps. b. Possibly rip cleared ground with subsoil plow (removing hardwood root systems). c. Chemically treat sprouts. d. Converting such areas is costly. 3. Convert open ground from land covered with sparse, shallow rooted grasses. <ol style="list-style-type: none"> a. Contour plow bands about 3 feet wide. b. Disk 3 foot bands. c. An alternative to plowing is to use a post-emergent herbicide. 4. Site preparation should be done about 1 year ahead of planting. <p>Spacing</p> <ol style="list-style-type: none"> 1. Christmas tree spacing ranges from 5 feet x 9 feet to 6 feet x 10 feet. 2. Leave ample space at ends of rows for turning mowers and other equipment. <p>Control of competing vegetation</p> <ol style="list-style-type: none"> 1. Mow rows routinely. <ol style="list-style-type: none"> a. More light and nutrients b. Less fire hazard c. Less rodent damage d. Easier control of sprouts e. Better working conditions 2. Control vegetation near trees. <ol style="list-style-type: none"> a. Removal by hand b. Chemical control 3. Do not plow after planting. (Shallow disking in rows can be useful.)

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	<p>Other protection problems</p> <ol style="list-style-type: none"> 1. Livestock must be kept out. 2. Deer populations must be controlled. 3. Rodents often girdle trees. <ol style="list-style-type: none"> a. Use recommended rodenticides according to the labels. (Often you must have special licensing for use.) b. Tree wrap guards may be used. 4. Insects and disease can injure trees. <ol style="list-style-type: none"> a. Tip moths b. Sawflies c. Mites d. Needlecast disease 5. Fire is the number one hazard. <ol style="list-style-type: none"> a. Design access roads and borders as fire breaks. b. Mow routinely 6. Hail 7. Winter injury 8. Drought
<p>Objective 6</p> <p><i>Examine Christmas trees in the school lab or at a local Christmas tree farm and discuss with students the method of shaping Christmas trees. Refer to PPt 1 and PPt 2.</i></p> <p><input type="checkbox"/> PPt 1 – Christmas Tree Shaping</p> <p><input type="checkbox"/> PPt 2 – Shearing Christmas Trees</p>	<p>Describe how to shape Christmas trees.</p> <p>Ideal tree shape – a cone 2/3 as wide as it is high Example: A 6-foot tree should have a 4-foot circular base.</p> <p>Tools</p> <ol style="list-style-type: none"> 1. Shearing knife used most commonly 2. Hedge shears with 8- to 10- inch blades (used for overall shaping) 3. Anvil type hand pruners (used for making internal cuts or thinning whorls of limbs) <p>When to shape</p> <ol style="list-style-type: none"> 1. Begin when trees are 2 to 3 feet tall. 2. Trees should be shaped every year thereafter. 3. Pine shaping should be done early in the growing season. (June 1 to July 15) <p>Objectives of shaping</p> <ol style="list-style-type: none"> 1. Control height growth <ol style="list-style-type: none"> a. Cut terminal leader back to 12 to 14 inches. b. Make terminal leader cut at a 45° angle.

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	<ol style="list-style-type: none"> 2. Eliminate extra leaders. <ol style="list-style-type: none"> a. Leave the best leader that is straight, and remove the others. b. This is especially important during the first shearing. 3. Remove or conceal branch deformities. <ol style="list-style-type: none"> a. Remove crooked, crossed, or otherwise deformed branches while young. b. "Tree trainers" (manufactured commercially) or tape which will disintegrate within 1 or 2 years can hold unruly branches in position until they assume better growth habits. 4. Develop uniform taper and density. <ol style="list-style-type: none"> a. After leader and terminal whorl are shaped, work around each tree and shear lateral limbs as necessary to bring the tree to the desired form and taper. b. Confine shearing to current year's growth.
Application	<p>Other activities:</p> <ol style="list-style-type: none"> 1. Visit a Christmas tree farm in your area. 2. Demonstrate shearing or have students practice shearing on trees brought into the school lab.
Closure/Summary	<p>Growing Christmas trees can be a profitable enterprise, but many considerations go into the decision to grow trees. Understanding considerations such as delayed returns, marketing potential, site suitability, labor needs, species, and cultural requirements are important before becoming a Christmas tree grower.</p>
Evaluation: Quiz	<p>Answers:</p> <ol style="list-style-type: none"> 1. <ol style="list-style-type: none"> a. Long term investment b. Seasonal nature of work c. Labor needs d. Size and location of potential markets e. Best species and varieties f. Planting site should be suitable for Christmas trees g. Producing Christmas trees is a new industry in Missouri. 2. Answers should include any two of the following: Planting season from March until mid-April; pruning and shearing from June to mid-July; harvest in late fall; sales in December

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	<ol style="list-style-type: none"> 3. <ol style="list-style-type: none"> a. Grower retails trees directly to consumers. (This gives the highest returns to grower but is the most time consuming.) b. Growers wholesale their trees. (Trees are harvested by growers but sold to organizations operating retail sales.) c. Grower sells stand of trees – “stumping sale.” (Wholesale lots of trees are sold while standing in plantation.) 4. <ol style="list-style-type: none"> a. Scotch pine – reaches marketable size in 5 to 10 years; grows well in Missouri b. Eastern white pine – straight, symmetrical, high-quality tree 5. Fire – mow routinely; design access roads and borders as fire breaks 6. <ol style="list-style-type: none"> a. Mowing b. Removal by hand c. Chemical control 7. 6 feet 8. <ol style="list-style-type: none"> a. Control height b. Eliminate extra leaders c. Remove or conceal branch deformities d. Develop uniform taper and density