

Course	Agricultural Science II
Unit	Forestry
Lesson	Producing Walnut Timber
Estimated Time	Two 50-minute blocks

Student Outcome

Describe the principles of walnut production.

Learning Objectives

1. Distinguish why walnut trees should be grown in Missouri.
2. Identify what TSI practices are beneficial in walnut production.
3. Identify if walnut trees should be planted and if so, how they are planted.
4. Identify some common defects that lower the value of walnut timber and how they can be prevented.
5. Describe how to sell timber.

Grade Level Expectations

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

SC/EC/1/A/09-11/a

SC/EC/1/A/09-11/b

SC/EC/1/B/09-11/b

Resources, Supplies & Equipment, and Supplemental Information

Resources

1. *Forestry* (Student Reference). University of Missouri-Columbia: Instructional Materials Laboratory, 1986.
2. *Forestry Curriculum Enhancement*. University of Missouri-Columbia: Instructional Materials Laboratory, 2008.

Supplemental Information

1. Internet Sites
 - ☐ Walnut Varieties for Home Production. The Natural Food Hub. Accessed May 28, 2008, from http://www.naturalhub.com/grow_nut_cultivars_walnut.htm.
 - ☐ Walnuts for Timber Production. The Walnut Tree Company. Accessed May 28, 2008, from http://www.walnuttrees.co.uk/timber_home.htm.
2. Print
 - ☐ Holland, I.I., G.L. Rolfe, and D.A. Anderson (ed.). *Forests and Forestry*. 5th ed. Danville, IL: Interstate Publishers, 1997.
 - ☐ Schlesinger, R.C., and D.T. Funk. *Manager's Handbook for Black Walnut*. St. Paul, MN: USDA Forest Service, North Central Forest Experiment Station, 1977.

Interest Approach

Missouri is one of the leading states for walnut production. It has many good sites for walnut production. Using proper principles, walnut production can be a highly profitable enterprise.

Communicate the Learning Objectives

1. Distinguish why walnut trees should be grown in Missouri.
2. Identify what TSI practices are beneficial in walnut production.
3. Identify if walnut trees should be planted and if so, how they are planted.
4. Identify some common defects that lower the value of walnut timber and how they can be prevented.
5. Describe how to sell timber.

Instructor Directions	Content Outline
Objective 1 <i>Discuss with students the reasons why an individual might consider producing walnuts in Missouri. Write their ideas on the board.</i>	Distinguish why walnut trees should be grown in Missouri. Missouri is a leading state in walnut production. <ol style="list-style-type: none">1. Many Missouri soils are ideal for walnut production.2. Many established stands exist throughout the farmlands of Missouri, ready to have their potential tapped.3. Walnuts have a higher return per board foot than any other North American timber.4. Marketable quantities can be grown in a small area. (One truckload and occasionally one tree makes a salable volume.)5. While growing to salable size, walnuts produce a nut crop which is valuable for home and commercial use.6. Even trees grown from seed, or seedling walnuts which are properly maintained, can produce a timber crop within the lifetime of the grower.7. Walnut trees add to a farm's capital value and make it a more attractive place to live.
Objective 2 <i>Discuss with students the TSI (timber stand improvement) principles that they feel would be beneficial to walnut production. List their ideas on the board.</i>	Identify what TSI practices are beneficial in walnut production. <ol style="list-style-type: none">1. Because of the high value of walnuts per board foot, all practices of TSI are beneficial and essential to profitable timber production.2. Particular attention should be paid to pruning.<ol style="list-style-type: none">a. Be careful not to tear long strips of bark down the tree. To prevent this, double-cut the heavier limbs. That is, cut the heavy limbs off a foot or so from the trunk with the first cut then remove the

Instructor Directions	Content Outline
	<p>remaining stubs at the limb collar with the second cut.</p> <ul style="list-style-type: none"> b. Pruning is best done during the dormant season, in winter or early spring, to reduce the incidence of disease and insects. c. Continue to prune until at least a 9-foot clear stem has been developed. <p>3. Also protect trees from the following conditions:</p> <ul style="list-style-type: none"> a. Fire – Plow a firelane around timber where it adjoins highways, railroads, and grasslands. b. Pasturing – Grazing by livestock compacts soil and retards growth, while browsing damages young trees. c. Fencing – Keep these high value trees free of metal. Do not use walnuts as fenceposts.
<p>Objective 3</p> <p><i>Discuss with the students the pros and cons of planting walnuts. List their ideas on the board. Explain the procedure for planting walnuts from seeds and by using tree seedlings.</i></p>	<p>Identify if walnut trees should be planted and if so, how they are planted.</p> <ul style="list-style-type: none"> 1. Planting a stand of walnuts is an excellent long term “time certificate” to be withdrawn many years down the road. 2. Planting in existing stands is important in order to replace trees which are harvested and to fully utilize forested areas. 3. It is important to plant walnuts only on good ground. <ul style="list-style-type: none"> a. Walnuts grow best in deep, well-drained fertile soil. b. Soils and growing conditions on north and east slopes are preferred. c. Sandy loam, loam, or silty loam textured soils are best, although silty clay loams can also be well suited. d. Areas with tight subsoils are poor locations. e. Good drainage is important. 4. Good places around the farm to grow walnuts: <ul style="list-style-type: none"> a. Replacement plantings in existing stands (need at least 1/3 acre opening) b. Unused ground along lanes c. Isolated areas too small to farm d. Stream terraces e. Walnuts can be interplanted with the following species, many of which also provide valuable timber.

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	<ul style="list-style-type: none"> - White ash - Red oak - White oak - Sugar maple <p>f. Many landowners are planting walnut rows with spacings wide enough to grow crops or forages between the trees (multi-cropping).</p> <p>5. Walnuts should be planted in variable spacing schemes.</p> <p>6. Plant walnut seedlings (For recommended procedures for ordering and planting seedlings, refer to Lesson 3.)</p>
<p>Objective 4</p> <p><i>Discuss with students the defects which lower the quality of walnut timber. Ask students what forest practices might prevent these defects. List their ideas on the board.</i></p>	<p>Identify some common defects that lower the value of walnut timber and how they can be prevented.</p> <ol style="list-style-type: none"> 1. Size <ol style="list-style-type: none"> a. Highest value is in trees 20 inches or larger in diameter. b. To be salable in markets, a tree should contain a log which is at least 8.5 feet in length. 2. Insect damage – Prevent anything that might wound the trunk, including fire damage, pasturing, and careless logging. 3. Crooked logs – Prevent by removing competition which causes walnuts to grow out of shape. 4. Dote or rot – Dote works down from the top of the tree and may extend the full length. Dead and dying branches in tree top, butt scars, other large wounds, and large rotten stubs on trunk often indicate dote. Sell trees as soon as practical. Don't sacrifice other good trees just to make a quick sale. 5. Cat faced knots – These concealed knots are generally more damaging to lumber than a knot from a sound live limb. Prevent them by pruning walnut limbs when small. 6. Lightning cracks – Sell tree immediately following lightning damage. 7. Splits – Prevent by properly felling trees.
<p>Objective 5</p> <p><i>Discuss with students the ways in which walnut timber is sold. Ask students if any have sold timber</i></p>	<p>Describe how to sell timber.</p> <ol style="list-style-type: none"> 1. "Lump sum sale" or a price for all the trees to be sold is most common for walnuts. <ol style="list-style-type: none"> a. Least trouble for seller

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<p><i>from their farm or woodlot and what procedures they followed.</i></p>	<ul style="list-style-type: none"> - Seller does not have to check measurements. - Receives money before trees have been harvested - Encourages buyer to make maximum use of trees <ol style="list-style-type: none"> b. Seller must mark trees to be sold. c. Often the buyer will bid more conservatively in this arrangement. <ol style="list-style-type: none"> 2. Walnuts should be sold by bid. The bid notice should include: <ol style="list-style-type: none"> a. Seller's name, address, and telephone number b. Location of trees (legal description and directions from nearest town) c. Number of trees to be sold, average diameter, and how they are marked d. Any special sale instructions (cleanup requirements, special periods of time that logging is to be excluded to prevent crop damage, etc.) e. Latest date bids will be accepted (A minimum of one month should be allowed after mailing the bid notice for buyers to examine the sale area.) f. Definite date, time, and place bids will be opened g. Seller has the right to refuse a bid but should not accept verbal or late bids 3. All sales of timber should be covered by a contract. <ol style="list-style-type: none"> a. Not a sign of distrust but a good business practice b. Can be prepared by a lawyer or with help of a forester (Standard contract forms can be obtained from foresters.) c. No contract covers all circumstances but there are certain basic things it should include. <ul style="list-style-type: none"> - Names and addresses of buyers and sellers - An accurate legal description of the location of the timber - The number of trees marked and how they are marked - The amount of the purchase price and how it is to be paid - Expiration date of the contract - Other responsibilities of the buyer such as preventing fire, preventing excessive damage

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	<p>to young timber, and leaving roads, fields, and fences in good repair</p> <ul style="list-style-type: none"> - Other responsibilities of the seller such as guaranteeing to the buyer the right to sell the timber and granting a right of way and entry into the land for the purpose of harvesting trees <p>d. Two copies signed by both parties should be made (one going to the buyer and one to the seller).</p> <p>4. It is important to check periodically during the harvest to ensure that the terms of the contract are being met.</p> <ul style="list-style-type: none"> a. No unmarked trees were cut. b. Fences, roads, and culverts were repaired to be in as good or better condition than before the sale. c. There is no excessive or abnormal damage to the sale area. d. Full payment has been received.
Application	<p>Other activities:</p> <ol style="list-style-type: none"> 1. Visit a local black walnut farm.
Closure/Summary	<p>Walnuts have the highest return per board foot of any Missouri tree. Using good timber stand improvement practices, careful planting practices, and proper marketing techniques can make walnut production a profitable agricultural enterprise. Free technical assistance is available from foresters from the Missouri Department of Conservation and Extension.</p>
Evaluation: Quiz	<p>Answers:</p> <ol style="list-style-type: none"> 1. Answers should include at least five of the following points: <ul style="list-style-type: none"> - Many Missouri soils are ideal for walnuts. - Many established stands already exist. - Walnuts have a higher return per board foot than any other North American timber. - Marketable quantities can be grown in small areas. - While growing to salable size, walnuts produce nut crops. - Walnuts which are properly grown can produce a salable crop within the lifetime of growers.

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	<ul style="list-style-type: none"> - Walnuts add to the capital value of a farm and add to its beauty. 2. Pruning 3. <ul style="list-style-type: none"> a. Replacement plantings in existing stands b. Unused ground along lanes c. Isolated areas too small to farm d. Stream terraces 4. 20 5. <ul style="list-style-type: none"> a. Names and addresses of buyers and sellers b. Accurate legal description of the location of timber c. Number of trees marked and how they are marked d. The purchase price and how it is to be paid e. Expiration date of contract f. Other responsibilities of the buyer and seller