



Chapter 1—Course Information (Suggested time: 2 hours)

A Note to the Instructor...The *Chain Saw and Crosscut Saw Training Course* is a 16- to 32-hour course for basic to intermediate chain saw and crosscut saw users. The course is designed to provide the technical knowledge and skills that employees or volunteers will need to use these tools safely.

For specific needs, such as small limbing and bucking projects by volunteers, portions of the course can be adapted and modified. The reduced course can then be taught in less time. Certification is still required. Remember, the primary objective is to provide classroom and field training for anyone using chain saws and crosscut saws.

The materials, such as the *Chain Saw and Crosscut Saw Training Course Instructor's Guidebook* (0667-2804-MTDC) and the *Chain Saw and Crosscut Saw Training Course Student's Guidebook* (0667-2805-MTDC), are designed to be presented in a variety of ways: through lectures, discussions, audiovisual aids, classroom exercises, and field training.

Instructors shall comply with the procedures outlined for the field training and evaluation (chapter 6) of this training course.

Because of the different types of vegetation that chain saw and crosscut sawyers experience when working throughout the United States, instructors should supply additional materials, such as slides showing vegetation typical in the area and regional statistics regarding accidents and safety trends.

Course Instructions

The course instructions contain information essential to the instructor. The *Health and Safety Code Handbook* refers to the 1999 version. The instructor must read the

course instructions and be thoroughly familiar with all procedures and material before teaching the course. Each regional safety manager or chain saw/crosscut saw program manager should develop a list of local experts, technical specialists, and professional consultants to assist during training, as needed.

Instructor Prerequisites

The instructors for this course shall follow established regional policies for saw training. Instructors shall conduct the course safely, ensuring that all agency and U.S. Department of Labor Occupational Safety and Health Administration (OSHA) regulations are obeyed. Instructors shall be certified by their forests as skilled and knowledgeable in the area they are instructing, as outlined in this course. Instructors must have successfully completed an instructor-training course that emphasizes adult education teaching skills. Instructors shall have a demonstrated ability to instruct sawyers and to work with chain saws or crosscut saws. They should display a positive attitude and have the ability to communicate with large or small diverse groups.

Student Target Group

Employees who will be using chain saws or crosscut saws for project or field work.

Student Prerequisites

All students should be certified in basic first aid and CPR. They should have bloodborne pathogen training as well as hazardous materials communication training. Individuals who will be using chain saws shall be in a hearing conservation program for employees exposed to noise that equals or exceeds an 8-hour time-weighted average of 85 decibels (*Health and Safety Code Handbook* section 21.13).



Personal Protective Equipment

Each student shall have the following personal protective equipment and clothing (PPE) for any field training sessions:

- Forest Service-approved hardhat (full brim or cap style).
- Wrap-around eye protection (safety glasses or shield).
- Hearing protection (plugs or muffs, rated for 85 decibels and higher, for chain saw use only).
- Long-sleeved shirt (optional for crosscut saw use).
- Gloves (slip-resistant, appropriate for the weather conditions). Gloves shall be cut-resistant for chain filing.
- Trousers (loose fitting, without a solid hem, or that can be tucked into boots). Do not cut fire pants and allow them to ravel (stag).
- Chain saw chaps (recommended to overlap boots by at least 2 inches, for chain saw use only). Only saw chaps provided by the General Services Administration meeting the most current Forest Service specifications (6170-4) are approved for purchase and use.
- Heavy-duty, cut-resistant or leather, waterproof or water-repellent 8-inch-high, laced boots with non-skid soles and adequate ankle support; hard toes are optional (*Health and Safety Code Handbook*).
- Calked boots (recommended for wet, slippery conditions).
- Type IV first-aid kit. Employees should carry their own disposable gloves.

Course Objectives

Course objectives are stated in broad terms that define what students will be able to do after completing this course. Instructors shall emphasize the objectives.

Special unit objectives at the beginning of each unit define what students will be able to do after the unit has been completed.

Chapter 1—Course Information: Instructors will find instructions and information for conducting saw training.

Students will receive an overview of the chain saw/crosscut saw training program. Students will be provided information on the requirements for successful completion of the chain saw/crosscut saw training course.

Chapter 2—Safety Requirements: Students will be able to identify the elements in a job hazard analysis (JHA):

- The task or procedure to be accomplished.
- The hazards associated with the task or procedure.
- Abatement actions to eliminate or reduce the hazards.
- First-aid and emergency evacuation procedures.

Students will learn why personal protective equipment and clothing (PPE) is used, how it is used, and how it is maintained.

Students will be able to identify common safety mistakes made by chain saw and crosscut sawyers.

Chapter 3—Chain Saw Use and Maintenance:

Students will be able to perform all field maintenance required to maintain a chain saw properly and operate it safely.

Chapter 4—Chain Saw Tasks and Techniques:

Students will learn the importance of a thorough sizeup before limbing, brushing, slashing, bucking, and felling operations.

Students will understand the skills needed to operate a chain saw safely and efficiently.

Chapter 5—Crosscut Saw Tasks and Techniques:

Students will understand different features of crosscut saws.



Students will understand how a saw cuts and how the saw's components function.

Students will test a crosscut saw, assess its performance, and recommend corrective measures.

Students will demonstrate knowledge of saw handles and their relationship to saw performance in various applications.

Students will understand the value of a good saw maintenance program.

Students will demonstrate how to sheathe and transport a saw.

Students will understand the importance of carefully selecting crosscut saw-related tools.

Students will obtain a working knowledge of the use of wedges in crosscut saw operations and how the use of wedges in crosscut saw applications differs from their use in chain saw applications.

Students will understand the proper preparation for bucking and felling. Students will be able to describe the hazards and binds associated with these operations and have working knowledge of the different types of cuts needed to perform these operations with a crosscut saw.

Chapter 6—Field Proficiency: Instructors will work with the students using the techniques from the course in a field environment. Students will perform limbing, bucking, and felling operations under the guidance of a qualified instructor/certifier and will be evaluated on their skill level.

Presentation Time: The *Chain Saw and Crosscut Saw Training Course* will require 16 to 32 hours for presentation. If material is added, more time will be required. Instructors must devote adequate time to prepare for their presentations. They should draw from

their experience to add realism and credibility to the class material. If the course is being conducted solely for the use of crosscut saws or chain saws, the instructor will need to use the appropriate material from each chapter and cover the material that applies.

A streamlined course for specific needs, such as for volunteers on projects, can be taught in less time.

Classroom Requirements

The course is designed to be taught in the classroom and in the field. A classroom with audiovisual equipment will be needed to display training materials.

The classroom should:

- Have sufficient space, desks, tables, and equipment for the students.
- Have controlled lighting. Turn lights off and shade windows when showing audiovisual aids.
- Have good acoustics.
- Have good ventilation.
- Be in a quiet place that is not subject to interruptions.
- Have facilities such as break areas and rest rooms nearby.

Guidelines for Conducting Field Training and Evaluating Chain Saw and Crosscut Saw Operators

Chain saw and crosscut saw operation is an individual, skill-oriented task. During the field training and certification sessions, the number one concern is the safety of the participants and the public. Before field training, instructors are required to do a thorough job hazard analysis specific to the location and the types of training and evaluations that are scheduled. Chapter 6 has instructions for conducting the field portion of the course.



Other Training Materials

Glossary: A glossary of terms is included in the instructor's guidebook and the student's workbook.

Student Guidebook: The *Chain Saw and Crosscut Saw Training Course Student's Guidebook* (0667-2805-MTDC) is designed to be used with the lecture material and as a reference guide that the student will keep. Instructors will need to make enough copies of the workbook for the students in the class.

Additional Information for Sawyers: This section includes publications, videos, slide presentations, and Web sites that can supplement the course.

Forest Service Chain Saw and Crosscut Saw Program

Chapter objectives:

- Students will receive an overview of the chain saw and crosscut saw training course.
- Students will be provided with information on the requirements for successfully completing the chain saw and crosscut saw training course.



Instructor:

- Identify the locations of emergency exits, rest rooms, and telephones.
- Establish the course schedule.
- Discuss travel arrangements for the field portion of the course.

As Forest Service employees, you must be aware of all laws and standards that must be met before you operate a chain saw or crosscut saw.



Instructor:

Provide a brief review of the Federal and agency safety laws and standards. Students must be aware of all laws and standards before operating a chain saw or crosscut saw.

Why do we have a national chain saw and crosscut saw program?

The national chain saw and crosscut saw program was developed to provide all sawyers a solid foundation for safe and efficient saw operation while felling, bucking, brushing, or limbing. This course will provide the skills to safely use chain saws and crosscut saws, and serve as a refresher class for persons who have completed the training.

Safety is the most critical concern. Your safety, the safety of your coworkers, the safety of the public, and property protection should be a part of every plan you prepare and every action you take. Careful study and practice of saw operations will improve your abilities and help you identify your limitations.

**Instructor:**

Many of our employees will never achieve the skills and experience of a professional, year-round sawyer. In addition, many of our sawyers saw only during the short summer season, with long layoffs over the winter. Their skills and habits can become rusty. An objective self-appraisal and refresher are appropriate.

Obtain regional and forest accident statistics from the regional/forest safety manager. This information will show the areas that need to be emphasized during safety training for your local saw program.

Review the **BOLD**, italicized sentences in the *Health and Safety Code Handbook* chapter 20, section 22.48, *Chain Saw Operations*. These sentences indicate fatalities that resulted because of failures to comply with a standard saw operating procedure or practice.

Explain how the sawyer evaluation form in chapter 6 will be used for certification. Inform students that after completing the course they will be evaluated in the classroom and in the field to demonstrate their knowledge, skills, and abilities for possible certification and to determine any additional training needs.

Describe the certification levels for sawyers and the details of restrictions or endorsements for special uses. Refer to the *Health and Safety Code Handbook* chapter 20, section 22.48b, *Qualifications*. If some students are from other agencies, you, as the instructor, will need the appropriate health and safety policies from their agencies.

EXERCISE: In small groups, have the students discuss any limitations (restrictions or endorsements for specific sawing activities) of apprentice (A) and intermediate (B) sawyer certification levels they feel would be appropriate.

This discussion will give the instructor an opportunity to discuss the difficulty of this issue. Some situations with trees smaller than 24 inches d.b.h. (diameter breast height) are far more complex than situations with healthy, straight trees larger than 24 inches d.b.h. Input and discussion from students may lead to improved definitions of apprentice (A) and intermediate (B) sawyer certification levels. After evaluation, the instructor establishes the certification level, any restrictions, and any special-use endorsements on a sawyer's card.



This course is designed to train apprentice and intermediate sawyers to perform project work safely and efficiently. The chapters for both courses are summarized here:

The Chain Saw Course:

- Chapter 1 (classroom), *Course Information*
- Chapter 2 (classroom), *Safety Requirements*
- Chapter 3 (classroom), *Chain Saw Use and Maintenance*
- Chapter 4 (classroom), *Chain Saw Tasks and Techniques*
- Chapter 6 (field), *Field Proficiency*

The Crosscut Saw Course:

- Chapter 1 (classroom), *Course Information*
- Chapter 2 (classroom), *Safety Requirements*
- Chapter 5 (classroom), *Crosscut Saw Tasks and Techniques*
- Chapter 6 (field), *Field Proficiency*



Instructor:

Stress the importance of safe work behavior and describe the importance of understanding how human factors directly affect safety. A JHA is included as an example. A local JHA also may be used. Review the JHA process and elements with the class. Students should review and critique the sample JHA and add to it as necessary (or prepare a JHA specific to your lesson plan).

?link=pubs/btmlpubs/btm99232823/. Missoula Technology and Development Center; 5785 Hwy. 10 West; Missoula, MT 59808-9361; 1999.

Falling and Bucking Training Standard and Fallers and Buckers' Handbook. Workers Compensation Board of British Columbia, Films and Posters Section; P.O. Box 5350; Vancouver, BC V6B5L5.

Oregon Maintenance and Safety Manual. Blount, Inc., Oregon Cutting Systems Division; 4909 SE. International Way; Portland, OR 97222-4679; (or) P.O. Box 22127; Portland, OR 97269-2127; 2006.

The Effect of Color on Temperatures Inside Hardhats (0651-2312-MTDC), available at: <http://www.fs.fed.us/eng/t-d.php?link=pubs/btmlpubs/btm06512312/>. Missoula Technology and Development Center; 5785 Hwy. 10 West; Missoula, MT 59808-9361; 2006.

Use the Right Citrus-Based Cleaning Products to Avoid Corrosion or Rust (0673-2319-MTDC), available at: <http://www.fs.fed.us/eng/t-d.php?link=pubs/btmlpubs/btm06732319/>. Missoula Technology and Development Center; 5785 Hwy. 10 West; Missoula, MT 59808-9361; 2006.

Your Hardbat: Inspection and Maintenance (0267-2331-MTDC), available at: <http://www.fs.fed.us/eng/t-d.php?link=pubs/btmlpubs/btm02672331/>. Missoula Technology and Development Center; 5785 Hwy. 10 West; Missoula, MT 59808-9361; 2002.

Additional Information for Sawyers

Chain Saw and Crosscut Saw Documents

An Ax to Grind: A Practical Ax Manual (9923-2823P-MTDC), available at: <http://www.fs.fed.us/eng/t-d.php>

Chain Saw and Crosscut Saw Videos

An Ax to Grind (9923-2V01-MTDC). Missoula Technology and Development Center; 5785 Hwy. 10 West; Missoula, MT 59808-9361; 1999.



Be Smart—Be Sharp—Be Safe. Blount, Inc., Oregon Cutting Systems Division; 4909 SE. International Way; Portland, OR 97222-4679; (or) P.O. Box 22127; Portland, OR 97269-2127.

Chain Saw Documents

Inspecting and Repairing Your Chain Saw Chaps (0567-2816-MTDC), available at: <http://www.fs.fed.us/eng/t-d.php?link=pubs/htmlpubs/btm05672816/>. Missoula Technology and Development Center; 5785 Hwy. 10 West; Missoula, MT 59808-9361; 2005.

Inspecting, Cleaning, Repairing, and Retiring USDA Forest Service Chain Saw Chaps (0451-2324-MTDC), available at: <http://www.fs.fed.us/eng/t-d.php?link=pubs/htmlpubs/btm04512324/>. Missoula Technology and Development Center; 5785 Hwy. 10 West; Missoula, MT 59808-9361; 2004.

Chain Saw and Crosscut Saw PowerPoint Presentations

Situational Awareness Exercise for Chain Saw Sawyers (0667-2P01-MTDC) and *Situational Awareness Exercise for Crosscut Sawyers* (0667-2P02-MTDC). Missoula Technology and Development Center; 5785 Hwy. 10 West; Missoula, MT 59808-9361; 2006.

Chain Saw and Crosscut Saw Web Information

Up the Ante: A Hazard Tree Safety Initiative Web page at http://www.fs.fed.us/r1/projects/haztree_index.shtml.

Chain Saw Videos

Chain Maintenance Clinic: Oregon Cutting. Workers Compensation Board of British Columbia, Films and Posters Section; P.O. Box 5350; Vancouver, BC V6B5L5.

Principles of Safe, Correct, and Efficient Chain Saw Use in All Tree Felling Operations. D. Douglas Dent, Inc.; P.O. Box 1099; Prineville, OR 97754.

Chain Saw Courses

S-212 Wildland Fire Chain Saws. Training program. National Interagency Fire Center; 3833 South. Development Ave.; Boise, ID 83705.

Crosscut Saw Documents

Country Woodcraft. Langsner, Drew. ISBN No. 0-87857-200-7. Rodale Press; Emmaus, PA, 1978.

Crosscut Saw Guards (9723-2341-MTDC), available at: <http://www.fs.fed.us/eng/t-d.php?link=pubs/htmlpubs/btm97232341/>. Missoula Technology and Development Center; 5785 Hwy. 10 West; Missoula, MT 59808-9361; 1997.

Crosscut Saw Manual (7771-2508-MTDC), available at: <http://www.fs.fed.us/eng/t-d.php?link=pubs/htmlpubs/btm77712508/>. Revised December 2003. Missoula Technology and Development Center; 5785 Hwy. 10 West; Missoula, MT 59808-9361; 1977.

Crosscut Saw Reflections in the Pacific Northwest. Deaton, Jim. ISBN No. 0-87770-675-1. Ye Galleon Press; Fairfield, WA, 1998.



Crosscut Saw Tooth-Setting Tool (0223-2324-MTDC), available at: <http://www.fs.fed.us/eng/t-d.php?link=pubs/btmlpubs/btm02232324/>. Missoula Technology and Development Center; 5785 Hwy. 10 West; Missoula, MT 59808-9361; 2002.

Crosscut Saw Underbucking Tool (0223-2330-MTDC), available at: <http://www.fs.fed.us/eng/t-d.php?link=pubs/btmlpubs/btm02232330/>. Missoula Technology and Development Center; 5785 Hwy. 10 West; Missoula, MT 59808-9361; 2002.

Field Tests Comparing Modern to Vintage Crosscut Saws (0523-2320-MTDC), available at: <http://www.fs.fed.us/eng/t-d.php?link=pubs/btmlpubs/btm05232320/>. Missoula Technology and Development Center; 5785 Hwy. 10 West; Missoula, MT 59808-9361; 2005.

Food and Agriculture Organization of the United Nations, Basic Technology in Forest Operations. FAO Forestry Paper 36. ISBN No. 92-5-101260-1, Rome, 1982.

Handtools for Trail Work: 2005 Edition (0523-2810-MTDC), available at: <http://www.fs.fed.us/eng/t-d.php?link=pubs/btmlpubs/btm05232810/>. Missoula Technology and Development Center; 5785 Hwy. 10 West; Missoula, MT 59808-9361; 2005.

Lightly on the Land: The SCA Trail-Building and Maintenance Manual. 2d ed. Birkby, Robert C., ISBN No. 0-89886-848-3. The Mountaineers, Seattle, WA, 2005.

Logging Principles & Practices in the U.S. and Canada. Brown, Nelson Courtland, John Wiley & Sons, Inc., 1934.

New Tools for Old Saws (0523-2815-MTDC), available at: <http://www.fs.fed.us/eng/t-d.php?link=pubs/btmlpubs/btm05232815/>. Missoula Technology and Development Center; 5785 Hwy. 10 West; Missoula, MT 59808-9361; 2005.

Northeastern Loggers' Handbook. Simmons, Fred C., USDA Agricultural Handbook No. 6, Northeast Forest Experiment Station, 1951.

Now You're Logging. Griffiths, Bus, ISBN No. 1-55017-072-4, Harbour Publishing, Madeira Park, BC, Canada, 1992.

Saws and Sawmills for Planters and Growers. Morris, John, ISBN No. 1-871315-11-5, Cranfield Press, Bedford, UK, 1991.

Saws That Sing: A Guide To Using Crosscut Saws (0423-2822-MTDC), available at: <http://www.fs.fed.us/eng/t-d.php?link=pubs/btmlpubs/btm04232822/>. Revised June 2007. Missoula Technology and Development Center; 5785 Hwy. 10 West; Missoula, MT 59808-9361; 2004.

Crosscut Saw Videos

Handtools for Trail Work. (9823-2V04-MTDC). Missoula Technology and Development Center; 5785 Hwy. 10 West; Missoula, MT 59808-9361; 1998.