



How to Operate Chain Saws Safely: A PowerPoint Presentation¹

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Introduction

Forrestser Carl Smith described the chain saw as "the most dangerous hand tool that can be purchased on the open market." Every year over 40,000 people are injured while using chain saws in the U.S. Chain saws are relatively common and may seem simple to use, but using a chain saw, clearing brush, and felling trees are operations that require training and proper safety precautions. Logging is among the most dangerous professions, and if it is dangerous for professionals, amateurs should consider carefully their need for training before buying and using a chain saw.

In fact, "purchasing a chain saw" should imply purchasing a saw with modern safety features and appropriate personal protective equipment. At a minimum, this equipment should include: eye protection, head protection, hearing protection, correct gloves, and chaps. According to the U.S. Consumer Product Safety Commission, 80% of injuries due directly to chain saws affect the hands and legs. One-handed use, overly aggressive cutting,

lack of knowledge and experience, and fatigue cause many injuries.

Take a Second to Survive

Putting the brake on and putting the saw down adds a few seconds to one's work, but it could make all the difference in saving a trip to the emergency room. A set of chain saw chaps might cost around \$75, while, according to the Davis Garvin Agency (1989 data), the average medical cost for a single chain saw injury is over \$7,500. (The average chainsaw injury requires 110 stitches). Keep in mind, that's the average cost. Consider a trip to the emergency room, reconstructive surgery, and physical therapy--the cost of protective equipment is cheap insurance against these expenses and their impact on your quality of life.

Total medical costs for chain saw injuries are around 300 million dollars per year, and worker's compensation costs can be estimated at over 100 million dollars per year (based on a one-month recovery period). Employers, workers, and homeowners must take chain saw safety seriously.

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PowerPoint Presentation

The slide show described in this publication is a basic introduction to the correct use of a chain saw, the types of injuries people might suffer, and safety information. The presentation makes the point that this kind of information is just the first step in safe chain saw use. Listeners should be aware that supervised practice, thoughtful planning of chain saw work, and safe working practices are also necessary if what they learn from this slide show is to lead to safer chain saw operation.

Also, homeowners should consider if the chain saw they own or are planning to buy is the right piece of equipment. They should purchase chain saws that fit the work they need to do. If the tree is thicker than the guide bar is long, call a professional; using the wrong tool for the job can easily lead to injuries.

A special point to keep in mind is that many chain saws are purchased or used for the first time right after severe weather, such as a hurricane, has brought down trees or limbs. Hurricane preparedness has drastically reduced loss of life due to the actual hurricane, but deaths and injuries from chain saws are a regular feature of the post-impact clean-up period.

Most chain saw use is incident free, and chain saws are useful, labor-saving tools. They can never be 100% safe to use, but following the Four Steps to Prevention can make their use much safer.

For More Information

For more information on this and many other safety topics, visit the Florida AgSafe Network Web site:

<http://flagsafe.ufl.edu>

Outline of the Slide Show

The slide show can be downloaded from the Florida Agsafe Network Web site at:

<http://www.flagsafe.ufl.edu>

- Slide 1: Over 40,000 people are injured by chain saws every year... How not to be one of them!
- Slide 2: How to Operate Chain Saws Safely
- Slide 3: Chain Saw Statistics

More than 40,000 people are injured by chain saws each year.

The two most common places for injuries are the front left thigh and the back of the left hand.

- Slide 4: Just the Facts...

A chain saw chain can move up to 68 miles per hour.

When a chain saw is at full speed, more than 600 teeth pass a given point per second.

A muffler on a chain saw can reach as much as 900 degrees F.

One in 5 chain saw injuries are from kickback.

- Slide 5: Four Steps to Prevention

Education

Supervised Practice

The Planning Phase

Safe Operation at the Site

- Slide 6: Take all four steps to make operation of a chain saw a safer experience.
- Slide 7: Parts of a Chain Saw
- Slide 8: Look for these safety features

Low kickback saw chain

Hand guard

Safety tip

Chain brake

Vibration reduction system

Spark arrestor on gasoline models

Trigger or throttle lockout

Chain catcher

Bumper spikes

- Slide 9: How to Carry a Chain Saw

The engine should be shut off.

The chain brake should be engaged.

The scabbard is covering the guide bar to prevent cuts.

The chain saw is carried backward.

The muffler is carried away from the body to prevent burns.

- Slide 10: Chain Saw Operations

Starting

Limbing and Bucking

Felling

- Slide 11: Correct Starting

1. Hold the chain saw firmly in place.

2. Remove all loose debris and make sure the guide bar is not touching anything.

3. Make sure the chain brake is engaged.

4. Grip the front handle with left hand.

5. Depress the throttle for one second with the right hand.

6. The chain should not creep forward because the brake is engaged.

- Slide 12: How to Hold a Chain Saw

- Slide 13: Limbing and Bucking

Limbing is removing branches from fallen tree.

Bucking is cutting a log into sections.

- Slide 14: Felling 101: Types of Cuts

- Slide 15: Make a Correct Cut

A Felling Notch does not exceed 20 percent of the tree's diameter at breast height. This cut is made first.

The Hinge is the 10 percent that is left uncut for the operator's safety.

The Felling Cut is made last. It occurs on the opposite side of the tree from the felling notch, but it does not go all the way through the tree. The notch and the cut are staggered, so they don't meet.

- Slide 16: Types of Injuries

Kickback

Vibration Syndrome

Widowmaker

Entanglement

Stump Jump

Setback

Crown Shatter

Barber Chair

Moving Tree

Springpole

- Slide 17: What is Kickback?

Kickback is caused by a spinning chain coming in contact with resistance.

It causes the chain saw to "kick back" toward your face.

It is very common and can cause serious injury.

- Slide 18: How can Kickback be Prevented?

NEVER cut with the tip of the chain saw!

Lock your front elbow.

Be careful not to cut through nails or knots in the wood.

Stand to the side.

Use a low kickback chain.

Use a chain brake.

- Slide 19: Vibration Syndrome

Vibration syndrome causes frequent users of chain saws to get white knuckles and a loss of feeling in their fingers from the vibrations of the chain saw.

It is not very common presently, due to better working conditions and safer chain saws.

- Slide 20: Widowmaker

Widowmaker is caused by loose branches falling from the tree due to vibrations from the chain saw.

- Slide 21: You can prevent a widowmaker injury

ALWAYS WEAR A HARDHAT!!!!

Remember that a branch falling on you from less than 2 inches away can have enough force to kill you.

- Slide 22: Entanglement

Trees that are being cut down may sometimes drag or snap other trees.

Free the branches of the tree you are cutting before starting to cut to prevent this from occurring.

- Slide 23: Stump Jump

This is caused by the hinge being cut or breaking when the tree is falling.

The tree can jump or roll, or hit other trees in any direction.

- Slide 24: Have an Escape Plan and Use it!

1. Plan an escape route to prevent injuries due to stump jump.

2. When the tree begins to move, turn off the chain saw and escape.

- Slide 25: What Is Setback?

Sometimes a tree may tilt backward and clamp onto the bar of the saw.

If the hinge breaks, then the tree can fall backward.

You can use wedges to make sure the tree will fall over in the right direction.

You can tie a cable or rope in the top of the tree and apply steady pressure.

- Slide 26: Crown Shatter

This occurs when the crown of the tree that has been felled or a nearby tree snaps or shatters.

This causes hurling branches and can cause serious injury or death.

Notice three ways to be struck.

- Slide 27: Barber Chair

When the backcut has been made, if the tree leans too far, the butt of the tree can kick backward.

This happens much faster than a normal reaction time.

Never stand in the back of the tree as you are cutting.

Seek professional help.

- Slide 28: Moving Tree

A rolling or moving tree can catch your leg or crush you.

This can occur when limbs or restraints are removed.

Prevent this by staying uphill from a tree on a slope.

- Slide 29: Springpole

A tree can become arched as it is felled or if another tree falls on it. When cut, it can violently strike out at anything in its path.

Always stay inside the "bow" of a springpole.

- Slide 30: Escaping From Danger

Always plan an escape route that is a path at a 45-degree angle away from the line of the tree's fall.

- Slide 31: Preventing Injuries

Personal protective equipment (PPE) MUST be worn at all times.

This can greatly reduce injuries and prevent death from chain saw injuries.

Keep both hands on the chain saw handles.

- Slide 32: Safety Tips

Keep the chain saw handle clean and dry.

Make sure that the handle is free from oil or fuel.

Keep your chain saw properly maintained.

Follow the manufacturer's suggestions for sharpening and maintaining the equipment.

Never use a chain saw to cut anything other than wood!!!

- Slide 33: How Can You Eliminate Some Hazards in the Area?

Clear loose debris from the area.

Remove combustible materials.

Look for broken or dead limbs in the tree to be felled.

Assure that there are no power lines nearby.

Make sure you have an escape route.

Be aware of where others are in relation to what you are cutting. This includes people, houses, automobiles, etc.

- Slide 34: When Do You Call a Professional?

Any time that a situation requires more skills than you have.

If a tree has a larger diameter than the length of the guide bar.

If the tree is dead, hollow, split, or rotten.

If there isn't enough room to safely fell the tree or if there is no clear escape route.

If there are any other obstacles to the tree.

- Slide 35: Parts of a Chain Saw: Review

- Slide 36: Always Remember to Be Careful!

Pay attention to your surroundings, wear the correct clothing, and call a professional when you are unsure of your ability to perform the task safely.

- Slide 37: Follow the four steps to prevention and operating a chain saw can be safer!

Be Aware!

Be Alert!

Be Alive!

- Slide 38: For more information on this and many other safety topics, visit the Florida AgSafe Network Web site:

<http://flagsafe.ufl.edu>