

Chainsaw Safety Tips – What you Need to Know

By: Jason Fisher, Virginia Cooperative Extension

During the COVID-19 pandemic, people are spending more time at home. That means many forest landowners and farmers are looking more closely at their woods than ever before. Some are noticing their woods could use a bit of cleaning up and others are interested in activities such as cutting firewood for heating and wood for small-scale sawmilling projects. And these do-it-yourselfers are heading out to the woods with a chainsaw.

Chainsaws are valuable labor-saving devices used by many to clear trails, cut firewood, and remove hazard trees. An idling chainsaw runs 2,500 rotations per minute (rpm); at cutting speed, over 8,000 rpm. At this speed, the chain (that is designed to be removed) is moving 88 feet per second and over 60 miles per hour! As you can imagine, in the hands of an untrained and ill-informed operator, a chainsaw can be very dangerous. Remember the part about chains being designed to be removed? This is exactly why chainsaws can be deadly if not used properly.

Just this past winter, I entered into a partnership owning a parcel of land alongside the river near where I spent my childhood days. The land was cut over 30+ years ago and has regenerated naturally. Young oaks, now 40 feet tall, grew among crowded pine, sweetgum, and red maple. The oaks needed to be released from these competitors, and my partner and I set out to do just that. The decision to take our chainsaws and release 25 acres of oaks was not only ambitious, it was also tiring.

Initially, I donned all my personal protective equipment (PPE) each time we went out. But as the spring progressed, the temperatures rose and my chainsaw chaps made me uncomfortably hot and slowed me down. I confess I did not wear them the day we cut small saplings for a road entrance. I was lucky. I know better. I help teach chainsaw safety for the Virginia SHARP Logger Program. When I teach and when I cut large trees, I always wear chaps. I suppose I figured I was not on the



Wearing PPE while using a chainsaw is the first rule for safety. Jason Fisher demonstrates chainsaw safety and proper cutting techniques during the 2019 Farm Safety Day at Virginia Tech's Southern Piedmont Agricultural Research Station.

job that day. But there is no logical reason to think that my chances of getting hurt are lower when I'm cutting on personal time.

The following weekend, I wore the chaps and headed into the forest. After going through two tanks of gas (it's wise to take a break after one), I continued on. My back was sore and my legs were heavy. As I stepped towards the next tree, the chain had not stopped turning from the recent cut I made and I hadn't hit the chain brake before stepping. The chain tore into my left inner thigh as I stepped up over a branch and into the bar and chain. It happened so fast! I remember the saw choking and seeing the Kevlar protectant zipping by my face up into the air. The chaps did their job. Thankfully. We were at least 500 yards into the stand and a long way from our vehicles.

The lesson? Even if you are a frequent chainsaw user, always wear all your PPE. Lesson two? Engage the chain brake prior to moving. Lesson three? Work at a slow, steady pace and rest as needed.

Recommended Safety Precautions to Reduce Risk of Injury or Death

- Front hand guard is in place.
- The chain brake feature is operating. This will aid in preventing kickback injury. The chain brake should be engaged when you are moving and not cutting.
- Throttle interlock is functioning to prevent unintended throttling.
- Chain catch peg (below sprocket) is present and functioning, should a chain break or fly loose.
- Spark arrestor is in place to prevent sparks from exiting the exhaust.
- Read the safety manual. Follow all recommended guidelines for using the chainsaw. If you don't have a manual, most are available online.
- Move away from any gas containers before starting the chainsaw.
- With the chainsaw on the ground, engage the chain brake, place one foot inside the rear hand guard, and pull straight upward.
- Disengage the chain break to maintain good throttle control.
- Wear all recommended PPE.

The following are recommended PPE for using a chainsaw:

- Feet: Steel-toed high-top boots with aggressive treads to protect you from slipping and to protect your feet from heavy loads.
- Legs: Clip-on chaps will do IF securely tightened to prevent slipping. Pants-style chaps are more expensive, but offer the best protection. Chaps should be made from ballistic nylon or Kevlar.
- Hands: Cut-resistant or leather gloves.

- Ears: Earplugs and/or earmuffs.
- Face and eyes: A full-face shield or safety goggles/safety glasses with side shields (wrap-around style) to cover your peripheral vision. This will protect your face and eyes from twigs and debris. Prescription glasses are NOT a substitute for goggles or eye wear.
- Head: A comfortable, properly-fitted hard hat to protect your head from small limbs and debris. Do not store your hardhat in the sun as it will become brittle over time. Also, do not place items between the inside netting and the roof of the hardhat. Hardhats are designed to deflect, not store, objects.

Now that you have taken care of yourself, take care of your chainsaw before heading out to the woods.

- Sharpen your chain with the proper file or sharpening system, or take your saw to a nearby service dealer. Sharpening a chain takes skill and doing it incorrectly can be worse than having a dull chain.
- If you see fine dust, notice the saw abnormally heating up, or the bar becoming extremely hot, you should stop. In time, this occurrence will shorten the life of your bar, chain, and eventually the saw.
- Be sure plenty of bar oil is getting onto the chain. Remove the bar and inspect the oil ports for debris that will prevent good oil flow – this WILL happen with nearly every lengthy use of the saw. Inspect the gear wheel inside where the chain feeds around for excessive wear as it may need replacing after excessive use.

Once in the woods, there are a few additional safety tips while operating the saw:

- Tell someone where you will be working with your chainsaw, especially if you go alone (which is not advisable).
- Look for overhead hazards such as dead limbs and trees hung up on others.
- Determine a safe felling direction for the tree and make corrections as needed based on the direction the tree is leaning. Have a safe escape route 45 degrees from the base of the tree you are cutting.
- Be sure children, pets, or bystanders are at least two tree lengths (or 150 feet) away when you are ready to begin cutting.
- Hold the saw with two hands with your bar grip hand in a fist fashion with your thumb under the bar, not alongside. This will help in the event of kickback.
- Kickback occurs when the upper quadrant tip of your saw strikes another object while cutting, is reinserted into a previous cut improperly, or the nose of the saw is pushed rather than pulled.
- Felled trees may fall on smaller trees that were not properly cut. These saplings may be under tremendous pressure. Cut them cautiously prior to cutting up the larger tree into smaller sections.

- While cutting, keep your body on the uphill side at all times to prevent the tree from rolling onto you.
- Finally, know the chainsaw's limitations, know your own limitations, and continuously be on the lookout for potential dangers.

If you follow the guidelines in this article, you should be capable of safely operating a chainsaw and completing any jobs you have planned. Not to mention, returning in one piece to tell your family and friends what you have accomplished. Doing this type of work is rewarding, especially as you sip a hot cup of coffee by a warm wood stove in the winter.

But, if this all seems like a lot to remember and you don't feel confident that you can safely operate a chainsaw, please be safe and hire a professional to do the work for you.

Resources:

- Centers for Disease Control and Prevention: Natural Disasters and Severe Weather <https://www.cdc.gov/disasters/chainsaws.html>
- Chainsaw safety. (2014). Farm and Ranch eXtension in Safety and Health (FReSH) Community of Practice. <http://www.extension.org/pages/66897/chainsaw-safety>
- eXtension and Progressive Farmer. <https://ag-safety.extension.org/chainsaw-safety/>
- Stelzer, H. (2011) Selecting and maintaining a chain saw. University of Missouri Extension. <http://extension.missouri.edu/explorepdf/agguides/agengin/g01954.pdf>

Jason Fisher is the Central District Forestry & Natural Resource Extension Agent.
jasonf@vt.edu; 434-476-2147.