



## WHAT'S BETTER: GAS OR ELECTRIC-POWERED LAWN AND GARDEN TOOLS?

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This article is set to be posted on Black Friday, or soon thereafter. For many Americans, we will be nursing indigestion from the copious amounts of food we have just eaten or dealing with the madness of Black Friday. As the demolition derby of shopping carts commences, you may be seeing all types of Black Friday deals on outdoor power tools of both gas and electric versions.

There are certainly pros and cons to both sides, but when it's all said and done which is better? Let's look first at the operation of the tools and then dive into the environmental impacts.

### What are we talking about here?

Throughout the article, the name shifts a bit from outdoor power tools, lawn and garden tools, and yard tools. These describe essentially the same family of tools we use outside to help us maintain our landscapes. The main idea for this article is hand-held power tools: hedge trimmers, string trimmers, chainsaws, blowers, etc. but most data comparing gas to electric outdoor tools are mowers. So, I lump those in here too, even though, in my heart, I'm considering handheld outdoor power tools.

### Which is Better for the Operator?

As we enter the debate on gas-powered versus electric outdoor tools, it truly is based upon the user, their needs, and the scale of their landscape. If you're weighing options for future yard tools here are some considerations:

Electric tools are quieter. After spending most of my life listening to the rumble of 2-cycle engines, the abrupt silence between running the equipment of an electric tool is jarring. I can speak to others when working with an electric chainsaw or hedge trimmer instead of yelling or shutting off the gas engine. If you live in a neighborhood with nearby neighbors, the lower decibel levels may be worth the investment. Commercial lawn care companies are switching to this option because it can be quieter and less disturbing to their clients. Despite the lower decibel rating, they aren't silent and it is still recommended to wear ear protection.

The vibration is reduced. With many gas-powered lawn and garden tools, I find my hands and arms shaky even slightly numb after prolonged use. The vibration running through electric tools is greatly reduced. I've still gotten blisters running electric lawn equipment so don't ditch the gloves.

Electric tools can be more convenient in many cases. The ability to pick up an electric tool and quickly get to work without having to fill up a gas tank, check oil, or fiddle with a choke is a great benefit. Conversely, battery management is important as a dead battery requires the operator to wait until it is charged.

Convenience can be subjective to each individual, especially when we consider corded electric yard tools. Corded tools have a good amount of power and eliminate batteries from the equation. My favorite outdoor tool is a corded leaf blower. It's strong enough to blow wet leaves and also has a metal impeller that allows me to vacuum up and shred landscape debris. I can work as long as I want. Pretty convenient! The inconvenience is I am tethered to an outlet and must manage extension cords.

Reliable power. Gas-powered tools have reliable power (no charging batteries, just filling gas tanks) and if someone knows their way around small engines, they can repair them easily.

Electric outdoor tools are not low-cost. For many Americans, the tool itself may be in their price range, but batteries are expensive and that has made it hard for people to spend money on them. Especially if they already have a gas-powered version of the same tool.

How big is your yard? Electric-powered landscape tools are great in a typical home landscape setting, but when working on large projects or tracts of land away from plug-ins, gas-powered tools may still be the way to go.

There are human health impacts to consider. With gas-powered yard tools, you're breathing in the exhaust and other chemicals from the engine. Electric tools eliminate the exhaust issue, but there are other human health impacts on batteries we will get into in the next section.

### **What is Better for the Environment?**

When it comes to the environmental benefits of battery versus gas-powered tools it actually becomes a very complicated problem. Concerning emissions, gas-powered lawn and garden tools like blowers, chainsaws, trimmers, or mowers are decades behind the efficiency levels of modern automobiles. While auto manufacturers made great strides in improving their efficiency and emissions, the landscape tool industry had very little regulation to incentivize them to make their engines more efficient. Most electric tools have little to no emissions at the time of operation. However, we can't ignore what powers those electric tools or charges the batteries. If it is coal-fired power plants, then there certainly are emissions still happening, just not at the moment when the tool is being used.

In addition to the emissions of carbon dioxide that contribute to global warming, the extraction and processing of oil is also a major polluter. Conversely, the mining of lithium for batteries is very destructive to the environment and uses lots of energy, water, and chemical inputs during the battery's manufacture. Historically, the mining of lithium has left behind open pit mines and contaminated natural areas and water.

Lithium battery disposal is a real problem we need to consider, but there are solutions. When we look at older lead-acid batteries, these presented a massive environmental contamination issue, but today the recycling rate for these batteries is 99%. For lithium batteries, we need the same amount of effort to create a recycling system for what is going to be the next generation of batteries.

There are countless different ways to look at the environmental impact of gas and electric outdoor tools. Way more than can be described here as this issue spans multiple disciplines. In essence, the best choice for the environment is likely a corded electric tool, plugged into a grid powered by renewable energy. A viable option for some homeowners, but not everyone.

### **Bottomline**

When comparing gas and electric mowers over their lifespan from raw material extraction to end-of-life, electric mowers are shown to have a lighter environmental impact. Corded electric mowers come in slightly better than battery-powered electric. However, electric mowers are shown to have a higher average cost over the lifespan of the equipment when compared to gas-powered mowers. (Hull & Murphy, 2021) (Saidani & Kim, 2021) Does that translate to hand-held lawn and garden tools? Probably to some degree.

Should I buy gas or electric yard tools? This is a question I have been asking myself lately at the hardware store as I stare at a wall of electric-powered outdoor tools and then turn around and stare at a wall of gas-powered outdoor tools. Hopefully, you dear reader, have escaped the hordes on this Black Friday unscathed and perhaps have a brand new toy, er... I mean, tool to help you out in the yard.

Good Growing Tip of the Week: Sometimes a dead battery can be a good thing. It forces a person to vary their activity which may lessen the prolonged use of certain muscles and joints. There's nothing wrong with having to reach for a good old-fashioned leaf rake.

## References

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