

Charging Their Services



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Early adopters tout the possibilities of battery-powered tools. *By Mike Ingles*

Specialized eco-friendly landscaping enterprises are taking advantage of technological improvements in battery-powered tools, such as string trimmers, hedge trimmers, blowers and, most recently, even mowers. Longer run times, increased power delivery, cheaper operating costs, fewer emissions and less noise all contribute to the growing popularity of these cordless, electric units. This is especially true in urban areas and on properties where noise and emissions are perceived negatively.

Several prominent manufacturers of commercial-grade landscape equipment now produce robust cordless, electric units. They include STIHL and Oregon in the handheld category, and Mean Green, Cub Cadet and Hustler for mowers. Many consumer product manufacturers now offer battery-powered units, as well. These units are generally sold through big box stores.

Lithium-Ion Batteries and Beyond

Battery technology is racing ahead thanks to many power-consuming portable products that we now rely upon in our day-to-day lives, including our careers. Developers are continually developing batteries that are ever more compact, lighter in weight and possess more energy density.

Lithium-ion (Li-Ion) batteries, today's latest and most popular battery technology, can be found in just about any product that relies upon a portable rechargeable source of energy, including a growing variety of landscape equipment.

Over the past decade, Li-Ion has replaced nickel cadmium (NiCad) in many portable electronic applications, and has made inroads into the commercial

market, as well. However, tools relying NiCad battery technologies can also still be found in retail outlets.

Li-Ion batteries offer several advantages over Ni-Cad. They include higher energy density (approximately twice as much), weigh about 25 percent less, do not suffer from memory effect, can be charged many more cycles and hold their charge over a much longer period of time.

Battery technology will certainly not stop with Li-Ion. Within the next five years, you will almost certainly see batteries that are even lighter, more powerful and that offer longer run times between charges than today's Li-Ion batteries. They will broaden the power choices that even professionals can count on to perform tough landscape chores.

He and his wife, Jamie, founded the company in 2012. Flowers has a Bachelor of Science degree in landscape and turf science, and Jamie has a Bachelor of Science in environmental, soil and water science. In starting the company, the couple wanted to make careers that would make a positive effect on the environment. As of this writing they have more than 300 lawn care customers in their Gulf Coast market.

"We don't use gasoline. We use renewable energy, like solar panels to power our electrical equipment," says Flowers.

Installation of solar-powered charging systems can be expensive, costing as much as \$7,500, but Flowers installed the solar unit himself, which kept his cost around \$3,000. Basic components required are the solar panels, an on/off switch, inverter (switch from DC/AC), a charge control, IPN Remote (voltage regulator to battery) and two 6-volt batteries (storage).

Flowers appreciates the performance of the STIHL HLA 65 extended-reach trimmer. "It's a versatile tool, and we have used many of their other lithium ion products as well," he says.

The company also uses the CORE Outdoor Power's CGT 400 Trimmer and CB 420 Blower. He says CORE's CQP 480 Quad Battery Pak, weighing 20 pounds with its four batteries, allows extended run time in the field. Flowers says his crew, using only electric equipment, can mow and trim up to 20 properties a day.

Megan Smithberger, advertising manager, CORE Outdoor Power, says the CQP Quad backpack makes working in the field all day a reality.

"It [CORE battery pack] allows technicians to swap out their depleted power cells with charged power cells. Simply insert the depleted power cell into the Quad Power Pack and its auto-balancing feature will balance the charge levels of the power cells," she explains. "The Quad Power Pak can also be used as a mobile charger. It allows users to charge power cells while they are driving from job site to job site by plugging into a 12-volt outlet."

Smithberger claims that CORE's lithium-based power cell, combined with its Conductor Optimized Rotary Energy (CORE) technology, develops two-stroke levels of speeds up to 7,000 rpm on its trimmer and lasts more than an hour

per charge.

STIHL, Inc., based in Virginia Beach, Virginia, continues to make strides in efficiencies, says Dan Pherson, product manager.

"Research into improvements in battery life and running time allows lithium electric tools to compete with their gasoline counterparts," he says. "Our FSA 85 line trimmer, for instance, with a STIHL AR 900 lithium ion backpack, can run up to five and a half hours with no depreciable loss in power and can be recharged hundreds of times. And our STIHL HLA 65 and HSA 66 hedge-trimmers can run up to 11 hours between charging."

Pherson says the lighter weight of the trimmer and new innovations in cell strength and adding additional cells within the lithium ion batteries gives the AR 900 more than five times the power of their popular AP 180 36-volt battery used in their commercial tool applications.

The United States Department of Energy, through the Joint Center of Energy Storage Research (JCESR) is working on improving the types of ions, such as magnesium and yttrium, which carry twice or triple the charge of lithium. The goal is to obtain five times the energy storage at one-fifth the cost within five years.

Pherson adds that as the technology improves, with lighter weights and additional power, STIHL's batteries are designed to be "backward compatible" to retrofit their present lines enabling consumers to utilize the improved technology in existing STIHL battery-powered tools. He says that STIHL is expanding its lines of lithium-ion tools and is introducing a telescopic pole pruner for ornamentals that reaches up to 16 feet, along with a lithium ion-powered chainsaw and a lithium-ion cut-off machine with a 14-inch diamond cutting wheel.

Flowers says that business continues to expand for his "eco-friendly" landscape company.

"I see a growing demand for battery-powered products because the public is aware of the concerns about the environment and because electric is efficient and quiet," he says.

Eco-Lectric uses battery-powered commercial mowers from Ohio manufacturer Mean Green. He uses the WBX-33, 48-inch Stalker and the CXR-52 Zero-Turn, and he says he is really impressed with the Stalker.