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Solectrac Creates Place In The Sun For Electric Tractors

Founder Steve Heckeroth believes the time has come for battery-powered models for growing markets in agriculture, golf-course maintenance, fruit production and even horse tracks.

By - Dale Buss - March 10, 2021



Just as battery-powered locomotion is a long way from being able to propel massive semi-trucks on America's highways cost-effectively, mammoth battery-powered tractors for America's vast row-crop farms remain a long way from reality. But Steve Heckeroth believes he's in the vanguard of bringing all-electric tractors to many other use cases across the country, from hobby farms to golf courses to vineyards and even to equestrian grounds keeping.

"We are trying to be the Tesla of tractors," the former solar-home designer, solar-panel executive and founder of Solectrac, the nation's first viable electric-tractor startup, told Chief Executive. "We're the first to market in North America and the rest of the world."

In fact, Santa Rosa, California-based Solectrac has about three dozen orders for its India-built, 25-horsepower compact tractor while it's putting the finishing touches on a larger, 70-horsepower "utility" model, Heckeroth said. The company just cut the required deposit amount to \$1,000 from 50% of the total price of the compact.

Meanwhile, Solectrac has followed up its initial funding by and India-U.S. technology fund and the U.S. National Science Foundation with an equity-crowdfunding campaign last summer and, in November, a second investment and a boost in ownership to 24% by Ideanomics, a fintech company that backs electric vehicles.

“We want to make agriculture and food production carbon-neutral, at least, and electric tractors are really the only thing that has the ability to sequester carbon on the farm” through activities such as planting cover crops “and make it carbon-neutral,” Heckerroth said.

Think of Solectrac’s electric tractors as potential eventual competitors to Mahindra the India-based company whose small diesel-powered tractors, with typical prices of around \$20,000 to \$25,000, now dominate many of the vertical markets that Heckerroth is eyeing. Small Solectracs will come to market with comparable accessory levels, he said, for around \$30,000.

“We have everything Mahindra tractors have except we’re very quiet and don’t produce any emissions,” Heckerroth said.

Heckerroth pioneered the design of passive solar homes and renewable-energy products in the 1970s and 1980s, then founded electric-vehicle startups in the 1990s. For seven years last decade, he was an executive of a photovoltaic company.

But electric tractors were his passion. Heckerroth began building experimental electric tractors on commission for Ford New Holland in the mid-1990s. In 2010, he went back to electric tractors after receiving a utility patent on exchanging battery packs in electric tractors to extend run time. He established Solectrac in 2012.

“We started out trying to provide tractors for farmers but not making a lot of money,” Heckerroth said of his startup. “Then we looked at industries that had more capital, including vineyards, orchards, hobby farmers, golf courses, the equestrian industry – places that have higher-end clientele. For instance, all the vineyards want to be ‘greener’ than the next one – that’s how they differentiate themselves.” Solectrac’s coming 70-horsepower tractor is specifically aimed at vineyards.

The equestrian market – where operators need to level and groom their tracks and courses frequently – is one that Heckerroth said is wide open in part because of the nature of horses. “They’re very sensitive to noise and pollution,” he said. “They’re mostly [comprised of] lungs, which can get very damaged. Our tractors don’t make noise and don’t create pollution like diesels do when they have to idle all day.”

Beginning with his early work, Heckerroth recognized the importance of weight and balance in tractors, which depend on well-balanced mass to get efficient traction in fields, pastures and other settings. He developed a system of exchangeable battery packs so that Solectrac tractors could distribute weight conveniently from the front to the back of the machine and vice versa.

“We get the balance right in that way, and so you can manually steer our tractors, saving a lot of energy,” he said.

Heckeroth believes the opportunities for Solectrac are huge. The company is developing a tractor for the crucial row-crop market. American farmers are set to plant record acreage this year, at the same time that the farm-to-table movement, and the growth of regenerative and organic agriculture, are creating strong demand for small tractors. And around the world, he noted, “there are about 600 million farms in the world. But there are only about 25 million tractors.

“Most people tell me we’re in the right place at the right time,” Heckeroth said. “That’s how I feel now. And being the first player [with electrics] in the ag industry, we have a head start. But it took me 30 years to get here.”