Machande used a 10-ft. disc frame and three old 100-lb. propane cylinders to make his cultipacker.

He Built A Propane Cylinder Cultipacker

Why buy a commercial cultipacker when you can make one with old propane cylinders? Emmett Machande asked himself that question before using the cylinders.

"I wanted something to give me better seed/soil contact," says Machande. "I had an old 10-ft. disc frame lying in the weeds and came up with the idea of hanging old 100-lb. propane cylinders on it."

Machande removed the valves from three cylinders and filled them with water to remove residual gas. After draining them, he built a bonfire under them to ensure they were safe for welding. Only then did he take them to a local welder.

"I had him put 3/4-in. by 6-in. stub axles on each end of the cylinders," says Machande. "Then I had him make angle iron brackets to fit the cylinders."

Machande stripped the discs from the frame and hung the brackets under it. He then bolted bearings to the brackets to mount the cylinder stubs.

"I also moved the wheels and hydraulic lift to the rear to provide room for the rollers," says Machande.

He soon put the DIY cultipacker to work prepping food plots for seeding. "Our soils are wind-drift loess, and they usually need multiple discing to break up the lumps, but the rollers did the job," he says. "They left a nice smooth seedbed, and I had the best food plots ever."

Machande has since used the implement to flatten out gopher mounds. It worked just as he had intended.

"No extra weight was needed," says Machande. "This was a lot cheaper than any cultipacker I had seen on equipment auctions."

Contact: FARM SHOW Followup, Emmet Machande (otterejm@gmail.com).

Avila with research tomato plants.

Searching For 'Holy Grail' Tomato

A nutritious tomato with great taste, aroma and color and a long shelf life is the holy grail for tomato researchers, and they're getting closer to it. The key appears to be genes that regulate tomato firmness as the fruit ripens. The goal is a tomato that, when fully ripe and uniformly red, doesn't leak fluids when sliced or diced. A breeding line developed at Texas A&M University appears to have what it takes.

"The fruit firmness in the TAM-SP18-157 breeding line is superior to what was expected," says Carlos Avila, Texas A&M AgriLife Research and Extension Center at Weslaco. "The compression peak for this tomato indicates a fruit 70 percent firmer compared to the average firmness in the Texas A&M AgriLife tomato breeding population."

Equally important is that flavor and color are retained along with the firmness trait. In fact, it's as much what isn't there as what is. The breeding line lacks a liquefaction trait but has novel firmness alleles in the part of the fruit formed from the wall of the ripened ovary.

Avila and his research team believe the higher dry matter in TAM-SP18-157 may result in improved nutrition levels that can be maintained during shelf life. Their research is funded as part of a $16.2 million USDA investment in plant breeding. It focuses on dissecting the genetics and effects on human health attributes, flavor and aroma related to the firmness trait.

"With this, we hope to be one step closer to developing the holy grail of tomatoes to meet the long-standing demand of agricultural producers and consumers," says Avila.

Many steps remain before the super tomato makes it to market, and it won't be TAM-SP18-157 that makes it to the shelves. The genes will be used with other breeding lines.

"We've made pretty good progress developing the line and identifying the genes," says Avila. "However, we're still 3 to 5 years from release."

Contact: FARM SHOW Followup, Carlos Avila, Texas A&M AgriLife Research and Extension Center, 2415 E. Hwy. 83, Weslaco, Texas 78596 (ph 956-969-5636; Carlos.Avila@ag.tamu.edu).

Gas Tiller Converted To Battery Power

Tired of dealing with a hard-to-start gas-powered tiller, mixing oil and gas, and winterizing it, David Arko converted his energy to battery power.

"A friend gave me an old lead-acid, battery-powered lawn mower," says Arko. "The batteries were bad, but I figured I could use the motor to power the tiller."

With a new set of lead-acid batteries, the conversion went well. However, the batteries gave him only about 10 min. run time and required about 3 hrs. to recharge.

"I was pretty happy with my Stihl weed whacker, chainsaw and mower," says Arko. "I thought I might be able to use the Stihl battery instead of the lead-acid batteries."

The first challenge was powering down the 36-volt lithium-ion battery to match the 24-volt motor. He installed a voltage regulator/reducer; however, it had a current-limiting circuit and a big capacitor. When starting, the motor drew a high voltage surge, which threw a big arc that blew the fuse in the regulator.

"I decided to hook the lithium-ion battery in parallel with the lead-acid batteries," says Arko. "This way, the lead-acid batteries would power the surge, and I could use the lithium-ion battery as a big capacitor to power the motor after start-up."

Arko knew that in other applications, lithium-ion batteries and voltage inverters require a resistor to bring the voltage up to charge capacitors. He recognized that he needed a switch with a resistor.

"I installed a 3-position switch, one position with the charge resistor to bring it up to voltage, another to make the connection enabling the charge resistor with a limited amount of current to charge the capacitor and the final one, a solid connection bypassing the resistor to avoid the arcing and blowing the fuse. In addition, I needed a switch at the handlebars that was a starting contact from a starting motor, essentially a 24-volt relay, to start the entire process."

Front view showing lead-acid batteries.

The tiller worked well with the electronics in place, with one exception. Arko had jury-rigged the Stihl battery connection to the lead-acid batteries, and the contact points would fall out due to tiller vibration.

"I got a 3D printer for Christmas and, using measurements of a Stihl battery holder, made a 3D file and printed a holder for the tiller," says Arko. "It works great, and if anyone needs a holder like it, I'll share the file."

While the process got more involved than anticipated, Arko is satisfied with the conversion. "The conversion eliminated my frustrations with the old gas tiller," he says. "The combination of lithium-ion and lead-acid batteries gave the tiller the extra weight needed to reduce bouncing."

Contact: FARM SHOW Followup, David Arko, 6255 County Road 88, Fort Collins, Colo. 80524 (dave.arko1@gmail.com).

Einböck, an Austrian implement company, produced a 50-ft. wide weeder spaced for 20-in. rows to mount on the Nexat carrier system.

Mechanical Weeder Built For Nexat Carrier

Austrian equipment manufacturer Einböck developed a new XXL row crop cultivator called Chopstar-Max to mount on the Nexat carrier (Vol. 46, No. 1, P. 5). The mechanical hoe is 50 ft. wide and carries mechanical tools spaced in rows 20 in. apart.

Einböck says the specially built implement is designed for mechanical weed control in row crops and can also be used to aerate soil before or after planting. The implement is carried, not pulled, and uses the Row-Guard camera system for steering. Einböck says that mounting their weeder on a Nexat carrier reduces the area that a typical weeder or cultivator pulled by a tractor drives in a field by up to 95 percent.

The Chopstar-Max has two carrier brackets that attach to the Nexat main frame. Hydraulic cylinders raise, lower and control the tool's operating depth. The implement was tested in the spring of 2024 in several locations with excellent reports. The company plans to produce units for the 2025 growing season and have them available for shipment to several countries. Contact the company for availability and pricing.

Contact: FARM SHOW Followup, Einböck, Schatzdorf 7, 4751 Dorf an der Pram, Austria (info@einboeck.at; www.einboeck.at).