

Self-Watering Milk Crate Planters

Eugene Hauzie's veggies get all the water they need without ever getting too much, thanks to his self-watering milk crate planters. The unique design makes it easy to refill, and there's no splashing dirt on the lower leaves.

"My plants get water 24/7 as they need it," says Hauzie. "It's the fluctuation of too little and too much water that causes problems like cracking in tomatoes."

His crates are lined with Kangaroo Pouches, fabric liners that hold dirt while letting excess water drain away. Before adding the dirt, he places a cut-down bucket in the bottom of the lined crate.

"I cut 5-gal. buckets in half and cut a 3-in. hole in the center of the lid for a net pot," says Hauzie. "I also drill a hole in the lid for a 1-in. pvc fill pipe and install it."

With the bucket, lid and pipe in place, Hauzie fills the crate with potting soil. Once seedlings have been added, he fills the bucket with water, using the fill pipe. Initially, he has to water the seedlings, but they soon take over the job.

"They send their roots through the net pot and into the water," says Hauzie. "Normally, I would have to water these plants every day in the summer. Instead, I simply fill the buckets as they empty."

While he bought all the components initially, most are long-lasting.

"The liners, buckets, net pots and pipes will last forever," says Hauzie. "If I bring the containers inside and don't let it rain or snow on the crates, the potting soil will last at least 2 years, and the Kangaroo pouches will last 5 to 6 years."

Bringing the containers inside is easy for Hauzie. He has 10 of them mounted on a 3-ft. wide, 10-ft. long cart. At the end of the growing season, or in the case of threatening weather, he simply pushes it inside his garage.

The containers are a good supplement to his hoop house and garden beds, where



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he grows vegetables for his local farmers market.

"The containers work great for mini peppers, tomatoes, peas and more," says Hauzie. "I plant basil in two of them. That is always a best seller at the market."

Hauzie sells produce weekly from July through October. He likes to hire neighborhood boys to help. He notes that it's good for him and them.

"I get some help, and they learn how to talk to people and count out money," says Hauzie. Contact: FARM SHOW Followup, Eugene Hauzie, 316 County Park Rd., Ebensburg, Penn. 15931 (ph 814-254-2469).

Purple Rice Good For Heart Health

The recently introduced USDA-Tiara purple rice will be better for the people who grow it and the people who eat it. The new, long-grain variety is resistant to major rice diseases, yields well and matures in 110 days. It also contains higher levels of antioxidants shown to benefit heart health.

"In addition to being higher in antioxidants than blueberries, Tiara is also an aromatic with a popcorn/buttery flavor when cooked," says Anna McClung, USDA ARS. "It has a premium price in the market because of its novel characteristics and currently limited supply."

McClung developed USDA-Tiara by crossing a medium-grain purple rice developed in Brazil with a long-grain rice from the U.S. The purple grain genetics had previously traveled to Brazil from China, where a famous black rice was called The Emperor's rice.

"I named this new variety Tiara for a crown a princess might wear," says McClung.

McClung previously developed and released Scarlett, a 120-day red rice in 2019. It also has good disease resistance.

Scarlett was the result of crossing a wild red rice, considered a weed by commercial rice growers, with a conventional, long-grain brown rice. If red rice shows up in commercial brown rice, the producer gets a lower price. The goal was to recover genes from the weedy rice to improve yield and productivity without the red bran.

"However, one of the selections from the cross had good yield potential and excellent long grain shape, but with the red bran,"



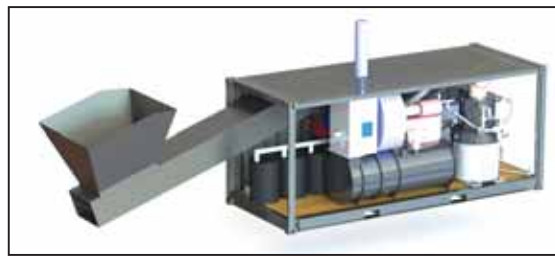
USDA-Tiara purple rice (left) and Scarlet red rice (right).

says McClung. "We decided to release it as a specialty rice."

It has proven popular with specialty rice producers in the South and as far north as the Pennsylvania border with New Jersey. "We are thrilled we have growers who have picked it up and are marketing it," says McClung. "They're often trying to get out of the commodity business. They have to do the hulling, packaging and marketing, but they're jumping on and making it work."

McClung has been looking for a foundation seed company to produce USDA-Tiara seed for sale to growers. "I'm now working with the Shoffner Foundation Seed program," she says. "They already work with the purple rice from Brazil, as well as Scarlett, and are a good source for specialty colored rice."

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Lab tests of char produced by the Chartainer process show PAH content impressively low with many PAHs under the threshold of detection.

New Burner Produces Biochar

After years of producing char ash as a gasifier byproduct, ALL Power Labs (APL) is making char ash for use as biochar a priority product. The Chartainer, a modified gasifier-based biochar machine, will be introduced later this year. It will produce only biochar and usable heat via heat exchangers.

"You can produce a lot of gas and a little char or a lot of char and a little gas," explains Austin Liu, ALL Power Labs. "Our Power Pallet gasifiers with their gensets produce mostly gas. The Chartainer is designed to produce mostly biochar."

Both systems use the five processes of gasification, which include drying, pyrolysis (heating without air to 200 to 500 degrees C), combustion/cracking (adding air to burn and crack tar gases--800 to 1200 degrees C) and reduction (converting charcoal to flammable gas--650 to 900 degrees C). The difference between the PP30 and the Chartainer takes place in the final stage, reduction.

"The last stage, reduction, is kept brief for the Chartainer, but is extended for the Power Pallet," explains Liu. "The compelling benefit to this method of producing char is that the char is very clean."

He explains that conventional methods of producing charcoal use the released tar gases in the drying and pyrolysis steps. However, tar gases can transform into hard-to-crack (and burn) and highly toxic PAHs (polycyclic aromatic hydrocarbons) that are carcinogenic and difficult to decompose.

"Contamination of biochar by these organic pollutants is a significant concern because they can make it into food and pose a risk to human health," says Liu. "The Chartainer draws the gases up and away from the char while it is hot, minimizing contamination

by the PAHs. Lab tests of char produced by the Chartainer process show PAH content impressively low with many PAHs under the threshold of detection."

A second benefit of the process is that Chartainer biochar is electrically conductive. The quality has only recently been recognized as beneficial to soil microbiology. Researchers have discovered that soil microbiology extensively depends on the transfer of electrons between microbes.

During ordinary combustion, woody biomass normally breaks down to 80 percent volatiles and 20 percent carbon or biochar. APL's Power Pallets retain only 5 percent biochar while the Chartainer retains 15 to 16 percent as biochar.

"The Chartainer can process about 550 lbs. of woody biomass per hour, yielding about 88 lbs. of biochar per hour," says Liu. "In addition, the capture of waste heat can heat about 100 gals. per min. to about 180 to 190 degrees F."

It's a market projected to grow rapidly as research into its benefits and agricultural applications is exploding. Biochar has been shown to sequester carbon, increase soil fertility and produce usable power, all in one solution.

In the case of the Chartainer, that solution will be enclosed in a 40-ft. shipping container. Initial release of the Chartainer will be to strategic partners in California in 2023 with general release in 2024. The company has a waiting list set up for potential buyers.

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John Bartow uses Crookneck pumpkins in decorating and then makes pumpkin custard with them.

Crookneck Pumpkin Display

Crookneck pumpkins make for a fun and creative décor piece, according to John Bartow of Lancaster County, Penn. "Neck pumpkins are easy to work with," says Bartow. "Choose ones with an exaggerated curve, and they will nestle around a mug or vase to display fresh flowers."

One fall, the Bartow family was gifted so many neck pumpkins that they became a tripping hazard. "I wanted to display them until we could process them into a custard. I cut a couple of tree branches that had changed to a red fall color and laid them on the counter. I laid a Crookneck pumpkin in

the center and filled a regular mug with fresh water and some fresh flowers. It fit nicely in the center of the neck!"

Bartow changed the flowers and water every few days to keep things fresh. "The display lasted for at least three weeks, gracing our kitchen with the beautiful fall colors." And at the end, the family processed their all-natural display into a delicious pumpkin custard.

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