

He Built His Own Hops Harvester

"I sort of got the cart before the horse," says John Bonzo, president of HopsHarvester in Honeoye Falls, New York. "We started growing hops about four years ago and quickly discovered we weren't prepared to handle the harvest. We needed a harvester."

After Bonzo searched for an affordable mobile harvesting machine and couldn't find anything to his liking, he went to his machine shop and made one himself. "My goal was to build a machine that was rugged, low-maintenance and had easy access to all the parts," he says. His machine was successful and now he's making them for other hops producers.

Bonzo's HopsHarvester resembles a cross between a round baler and a combine. It's powered by a tractor pto and built on an implement platform. The operator can easily move it around the hops field to be close to the bines being harvested. The machine is 72 in. wide and can fit down most hop yard isles.

For optimum results, hops need to be harvested during a 3 to 5-day window, so

capacity and throughput are critical, Bonzo says. The HopsHarvester can handle about 120 to 180 bines/hour, which equates to about one acre of plants. An ideal harvest crew would be 5 operators - one on the tractor, one feeding bines into the machine, one handling spent bines, and two handling the harvested hops.

Bonzo's machine is made with high quality heavy gauge metals, sealed bearings and low maintenance components used wherever possible. The machine sells for \$25,000. The company also offers a machine powered by an auxiliary engine, which adds about \$5,000 to the price. HopsHarvester sold several dozen machines in 2015 to hops growers in 16 states and Canada. Based on present orders, Bonzo is hoping to triple that volume in 2016.

A video on the company's website shows the HopsHarvester in action. Bonzo says the website has been a great asset for showcasing the machine and generating leads. The company also has a Facebook page. "Our best marketing results are coming from regional conferences," he says. "Nearly half



John Bonzo's home-built hops harvester looks like a cross between a round baler and a combine.

the people are there for the first time. They're all interested in getting started in the hops-growing business. And this is all being driven by the tremendous growth of the craft-beer brewing industry in the U.S. and Canada."

The craft-brewing industry now makes up almost 11 percent of total beer sales, or more than \$19.6 billion annually, according to the Brewers Association. In 2014, that represented 21.8 million barrels. California

leads the nation with 431 craft breweries, followed by Washington (256), Colorado (235), Oregon (216), New York (181) and Michigan (159).

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Hops Exchange Links Producers With Brewers

The booming craft-brewing industry in the U.S. has fueled high interest in raising hops, particularly by small-scale farmers and home-brewing aficionados.

While New York, Oregon and Washington lead the nation in hops production, Wisconsin has a long tradition of growing hops. Nearly 150 years ago, the decade starting in 1860 became known as the "Wisconsin Hop Craze." By 1867, Wisconsin farmers - many of them German immigrants and former Civil War soldiers - produced 11 million pounds of hops, including 4 million pounds from Sauk County alone. Kilbourn City, which is now Wisconsin Dells, was the processing hub. By 1880 Wisconsin's hop production had dropped by 80 percent and continued downward as livestock farming

increased. Production moved to New York.

More than a century later, Wisconsin is making a hops comeback, thanks in part to the Wisconsin Hop Exchange (WHEX). The Exchange is a cooperative that supplies breweries with the hops needed to brew some of Wisconsin's best craft beers. Dave Buss of Waterloo, who's served on the Exchange Board, says Wisconsin hops are in demand because of their unique taste and character. About 100 producers currently grow hops in Wisconsin. Some sell through the Exchange and others have direct contracts with brewers. Buss says the state's fertile soil, excellent growing conditions and ample moisture are ideal for hop production.

The Exchange helps growers by selling hops for planting, pelletizing baled hops, marketing hops to breweries, bulk purchasing

supplies, hosting agronomic workshops and providing information to new growers. Buss hosted a grower workshop on his hop farm in 2015 and explained growing, harvesting, drying and handling to a large group in attendance. He says another way the Exchange adds value is by identifying the variety and the grower on each package they sell so buyers can request that grower in the future.

The WHEX website includes detailed descriptions of 18 popular hops varieties, describing the acid and oil content, flavor, storage stability, maturity and types of beers the varieties are best suited for. Brewers can purchase hops via the website in 10-lb. increments. WHEX hops are pelletized and vacuum sealed in oxygen-barrier 10-lb. bags.

Contact: FARM SHOW Followup,



Wisconsin Hop Exchange sells locally-grown hops in 10-lb. packages to craft breweries in Wisconsin and other states.

Wisconsin Hop Exchange website: coop.wisconsinhopexchange.com.

How To Get Started In Aquaculture

Northern Indiana ice and snow didn't stop Lucy and Kenneth Hochstedler from picking fresh produce this winter. Their aquaculture greenhouse gave them fresh strawberries, greens and even tomatoes all winter long. While they haven't harvested any fish yet, that day will come soon, says Lucy.

"Our children still think they are pets, but eventually I hope to raise them for food," says Lucy. "We're on a learning curve. First we want to learn to produce plants, and then we'll add the fish production."

The Hochstedlers had previously put up a greenhouse to extend the growing season. To get into aquaculture they had to build a second greenhouse inside the first one.

"When it's 10 degrees outside it's 80 degrees inside the inner greenhouse during the day," says Lucy. "We installed 50-gal. black plastic barrels partially filled with water to store heat for nighttime hours."

Knowing this wouldn't be sufficient for the dead of winter, the Hochstedlers designed a hot water base for their future grow bed.

"We laid down a cattle panel and attached PEX water lines to it with zip ties, using brass elbows for tight curves," says Lucy. "This was covered with packing gravel after making sure any sharp points were pointed downward."

The Hochstedlers purchased a 4 by 16-ft. grow bed kit from Gills and Greens Aquaponics (www.gillsandgreens.net; ph 574 202-7579). It came with molded panel sides, a polypropylene liner, a small pump, a bubbler and polystyrene rafts for plants. The rafts hold coir pucks where the Hochstedlers plant their seeds. Over time, the plant roots descend through the coir to pull nutrients out, cleaning the water.

"I like the ease of the system versus planting in a rock-based system," says Lucy. "When I harvest greens, I just pull them out of the water. With rocks, I would have to dig through to get every root."

Before planting could commence, a fish tank was installed. It was set up so nutrient-rich water would gravity flow into the grow bed. Water cleaned by the plant roots would be pumped back into the fish tank.

"For the price we paid for the system, we could have bought all the vegetables we needed, but Lord willing, this will provide



To get started in aquaculture, Kenneth and Lucy Hochstedler purchased a 4 by 16-ft. grow bed kit from Gills & Greens Aquaponics.

our family with food and perhaps an income for many years to come," says Lucy.

Costs include \$2,969 for the grow bed kit and heaters. An LP hot water heater and RV pump circulate hot water through the PEX. A 12-volt thermostat with a probe set in the grow bed water controls the pump. Grow bed water is kept at 70 degrees. If the air temperature falls below 40 degrees, a wall-mounted LP heater kicks in.

"It is amazing that the air temperature can drop to 39 degrees over night, but the tomatoes keep producing because their feet are warm," says Lucy.

While Lucy is the lead person on the aquaculture greenhouse, Kenneth is a big supporter. He says the produce tastes as good

or better than summer garden vegetables. "My favorites are the cherry tomatoes," he says. "They taste even sweeter than those in the summer."

Lucy admits that strawberries are her favorites. "Who else gets to eat their own ripe strawberries all winter," says Lucy.

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