

# Developer wants robotic apple picker by 2018

By DAN WHEAT  
Capital Press

WENATCHEE, Wash. — The developer of a robotic apple picker says his goal is to have it ready for commercial use in orchards in the fall of 2018.

"It will work at a productivity rate that will be lower cost than human picking," Dan Steere, CEO of Abundant Robotics of Hayward, Calif., told attendees at the Washington State Tree Fruit Association annual meeting on Dec. 6.

That was his response when asked how many bins of apples per day the picker can pick. Steere said he didn't want to reveal that yet, nor an estimated price per unit. However, he said it will be practical and affordable within the next 10 years.

A robot able to pick apples fast enough and gently enough to be economically viable could be a huge boost to the apple industry in labor savings and in overcoming labor shortages.

Steere and his Abundant Robotics co-founders, Curt Salisbury and Michael Erikson, are robotic software and hardware engineers, developing a robotic harvester with a \$550,000 grant from the Washington Tree Fruit Research Commission in Wenatchee and funding from SRI International in Menlo Park, Calif.

Abundant Robotics is working with its third prototype in 18 months with improvements to be made after fall harvest testing in Washington and spring harvest testing in the Southern Hemisphere, Steere said.



Courtesy of Abundant Robotics

Prototype robotic apple picker and fruiting wall. Cameras and sensors guide it to vacuum fruit into bins.

Here's how it works: A robotic arm and vacuum tube, guided by a computer aided by cameras and sensors, detects apples and sucks them off trees at one apple per second and delivers them into bins. Steere showed a video that he said was real-time.

He said the picker detects 95 percent of apples and isn't

bothered by leaves or new growth but is obstructed by wood such as limbs.

Leaves were stripped from part of a tree in one test, leaving 21 apples. Six of the 21 were not detected because of limbs, he said.

The system isn't built to work on large old trees, but new high-density spindle or

V-trellis plantings where the plane of the fruiting wall is 2 to 3 feet in depth.

"We think we're good at hardware and software. That's what we know. We're not experts on (tree) canopies, so we've been trying to talk to growers," Steere said.

He said he's eager to hear from a cross section of grow-

ers and that there are probably several "best" canopies.

The robot was tested this fall on several varieties and orchards with the fruit graded on packing lines.

Gala ran at 5.3 percent cuts, punctures and bruises, just slightly above 4 percent of conventional hand picking, Steere said.

Granny Smith was high at over 20 percent and Fuji also at 16, but Steere said he thinks he knows how the damage occurred and how to bring it down.

"We're definitely on a path to production rather than figuring out from a blank page of R&D (research and development) if it's possible or not," he said.

The key, he said, is unobstructed access to the apple. He said he's staying focused on apples and not yet thinking of pears or cherries.

# Analyst: Export market key to growth of Oregon microbreweries

By ERIC MORTENSON  
Capital Press

PORTLAND — Van Havig, co-owner of Gigantic Brewing Co. on the city's hipster-heavy east side, has an app on his phone that provides instantly updated currency exchange rates. The company, formed by Havig and Ben Love five years ago, sells 5 to 7 percent of its beer outside the country, primarily to Canada but a bit to Japan, New Zealand and the United Kingdom. The strong U.S. dollar makes Gigantic something of an expensive choice overseas.

Nonetheless, Gigantic is exactly the size of craft brewery — producing 4,000 to 5,000 barrels a year — that a state economic analyst says ought to be pushing hard on the export market to assure continued growth.

In remarks at the Oregon Brewers Guild's annual meeting in Portland Nov. 30, analyst Josh Lehner said Oregon's craft beer industry is slowing down after a decade in which the number of Oregon breweries grew from 76 in 2006 to 218 in 2016.

The beer market outlook has implications up and down the economic chain, from hops and barley farmers and malt producers to stainless steel fermentation tank manufacturers, tourism and dining.

Prospects remain good for neighborhood microbreweries, said Lehner, who works for the Oregon Office of Economic Analysis.

"For these smaller breweries, I think the outlook is bright," Lehner told brewery guild members. "The brewpub model works."

He said demand is strong and there are still many parts of the state and country that are "under supplied" when it comes to neighborhood brewpubs. Maybe not on Portland's east side, he added, but certainly in the suburbs.



Eric Mortenson/Capital Press

Sam Guss rakes spent hops from a tank at Gigantic Brewing Co. in southeast Portland. A state analyst says the international export market holds great potential for Oregon's mid-size and large breweries.

Slightly bigger producers, however, are in fierce competition for a limited number of in-state tap handles and shelf space.

"Flagship" Oregon beers such as Deschutes' Black Butte Porter, Widmer's Hefeweizen and Ninkasi's Total Domination can be found in bars and restaurants all over the state, Lehner said. The state's five largest breweries now sell only 20 percent of their beer in Oregon, he said.

For medium-size to large Oregon breweries, sales outside the state are a must, Lehner said. That's complicated by the fact that the Pacific Northwest no longer has the market cornered on tasty, locally sourced and locally made microbrews. Good local beer can now be found all over the country, and consumers often prefer to support local businesses rather than out-of-state breweries.

International exports are a relatively untapped market, Lehner said.

"The path forward is really about reversing the Or-

egon Trail," he said. "There is just too much competition and market saturation to be able to reach large production numbers by relying solely on Oregon consumers."

Lehner said Pacific Rim nations are a good target market for Oregon beer, as they are for many other crops and food products.

About half of Oregon beer exports now go to Canada, 17 percent to Japan and about 5 percent each to China and South Korea, Lehner said. He acknowledged the strong U.S. dollar hurts sales: A \$10 six-pack here costs \$13 overseas. But Lehner said currency exchange rates often fluctuate, and a devalued dollar may serve as a market "tailwind" of Oregon beer.

Love, the Gigantic Brewing co-owner, agreed that targeting exports is a potentially good business model. Canada used to buy more when the exchange rate made Gigantic's beer less expensive, he said.

In other remarks to the brewers' guild, Lehner said job gains in the state's alcohol

cluster — beer, wine, hard cider and spirits — have outperformed the software sector, although the latter gets more media attention.

He said the Oregon brewing industry is important because it is value-added processing with good growth potential, money invested in it returns to the state, and it is geographically more spread out than other industries.

Lehner said the Oregon Legislature increased the state lodging tax, and there will be \$10 million more available annually for tourism and related activities. He said brewers should tap some of that to market their business.

He said "chatter" about the decline of national chain casual-dining restaurants doesn't apply to brewpubs.

"I think it just means people don't want to overpay for mediocre chain food," he said. "I can get much better food at a lower price point from my neighborhood brewery."

"And of course you can't even compare the tap lists," he added.

# Spud officials optimistic about prospects for crop

By JOHN O'CONNELL  
Capital Press

Potato industry leaders are optimistic about demand for a fall 2016 spud crop that recent USDA estimates show was slightly larger than the previous year nationally and significantly larger in the Northwest.

U.S. production, at 405.172 million hundredweight, was up by 471,000 hundredweight from the 2015 harvest. U.S. growers planted about 20,000 fewer acres this season, but their average yields, at 451 hundredweight per acre, were up 18 hundredweight.

Ideal growing conditions enabled farmers in Idaho, Washington and Oregon to make especially impressive yield gains, and increase combined production by more than 16 million hundredweight.

Idaho growers planted 325,000 potato acres, up by 2,000 acres. Their average yields rose 27 hundredweight per acre to 430 hundredweight, boosting total production by nearly 9 million hundredweight to more than 139 million hundredweight.

Washington growers kept acreage flat at 170,000 acres, but yields averaging 630 hundredweight per acre were up 40 hundredweight from the previous year. The state's total production was up more than 6 million hundredweight.

Oregon growers also maintained the same spud acreage, planting 39,000 acres. Their yields were up 35 hundredweight per acre, boosting production by nearly 1.4 million hundredweight to 23.146 million hundredweight.

"As far as size of the crop, we knew yields would be up from last year because last year's weather conditions brought yields off of trend-line," said Idaho Potato Commission President

and CEO Frank Muir.

Muir believes factors have aligned for a down potato market to improve — holiday spud shipments have been about 10 percent ahead of last year's pace, crop quality and the size profile are ideal, IPC started advertising programs a month early in anticipation of a larger crop and more than 5,000 entries are expected in the organization's Potato Lovers Month retail display contest. Muir also noted a recent IPC study reaffirmed the Idaho potato brand has inelastic demand — meaning shippers shouldn't discount their spuds as consumers buy roughly the same volume even when prices rise. IPC is preparing an info-graphic on the elasticity study to show retailers and shippers.

Potatoes USA Chief Marketing Officer John Toasperm sees positive signs for spud demand both domestically and abroad. His organization was recently awarded more than \$4.8 million in USDA Market Access Program grants to improve foreign potato access during Fiscal Year 2017 — down 4.5 percent as the agency had less funding to disburse.

However, frozen fry foreign exports have been strengthening, and crop challenges in Europe have him bullish on exports. Other trade partners, such as Taiwan and Korea, will have to import more chipping potatoes due to poor crops, though the recent weakening of the peso has him concerned about prospects in Mexico.

Domestically, Toasperm said, demand for specialty potatoes is on the rise, and the food service sector continues to be a bright spot.

"We see a lot of opportunities, particularly in family dining and the fast casual area," Toasperm said.

Demand for chips and potato convenience products is also up, he said.

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