

# DNA analysis opens doors in hop renaissance

Research aims to identify, harness wild varieties

by PETER MITHAM

LILLOOET – The revival of BC hop production may have started in the field but its future is being charted by team of scientists at Langara College in Vancouver and \$200,000 from the Natural Sciences and Engineering Research Council of Canada (NSERC).

Using gene-sequencing technology, Langara is helping hop growers like HOOH Organic Hop Company Ltd. in Lillooet recover hops from the wilds of BC after a century of untamed living.

“As hops develop in Canada, there’s this competitive edge that needs to be established, and it looks like having new and unique varieties is something that allows for that competitive edge,” says HOOH owner Sam Quinlan. “You need some sort of variety that sets you apart.”

One of the first examples was Lumberjack, a variety developed by the US Department of Agriculture and released as Triple Perle in 2013. Abbotsford hop broker BC Hop Co. acquired rights to grow the hop and introduced it to the market last year under the trademarked name Lumberjack.

But it was the result of conventional breeding, a process that can take 10 years or more.

“How do you expedite that process in order to have something marketable more quickly?” asks Quinlan.

“Another way of doing that is identifying unique genetics that exist within wild populations. That’s the area of most interest to myself, and I see that as an opportunity to expedite the process, to discover something unique.”

While the USDA was preparing to launch Triple Perle, Quinlan and Pemberton resident Richard Hartl had found hops in their own backyards that showed potential.

Hartl made his discovery in 2012, and Hops Connect Hop Trading Co. Ltd. released the hop earlier this year as Sasquatch. Registered with the Canadian Food Inspection Agency, which awarded Hartl plant breeder’s rights, it was touted as Canada’s first patented hop variety. There’s now 30 acres grown.

“We went through the whole process to have it fully vetted by the government,” says Stefan Lillos, sales manager for Hops Connect.

“It’s a new type of hop we’ve found that we’ve developed.”

Then, in 2013, the large cones of a hop growing in the Lillooet area grabbed Quinlan’s eye.

“It piqued our interest,” Quinlan says of the large cones. “The fact that it was so prolific and growing in such a marginal location was another indicator of potential.”

Quinlan, a biologist by training, wasn’t content to settle for appearances. The plant is native to North America, but many consider wild hops simply the escaped cousins of domesticated varieties. Quinlan says hops were grown all over southern BC a century ago, particularly in hot areas such as Kamloops, Lillooet, Pemberton and Squamish.

Domesticated varieties can acquire new characteristics when they’re left fend for themselves in the wilderness.

“Given time, and given the potential for mating, these wild hops, although having domesticated origins, could over time provide you with something that is sufficiently unique. That’s the opportunity,” he says.

HOOH looked at the oil profile of the hop it found, and the aromatics were interesting. This is where Langara biologist Ji Yang and his lab at Langara entered the picture.

“Now we’re at the stage of doing genetic analysis to

confirm whether or not it has any mutations, whether it has been hybridized with existing hop varieties,” explains Quinlan. “We don’t want to present anything into the marketplace if we can’t confirm that it’s unique.”

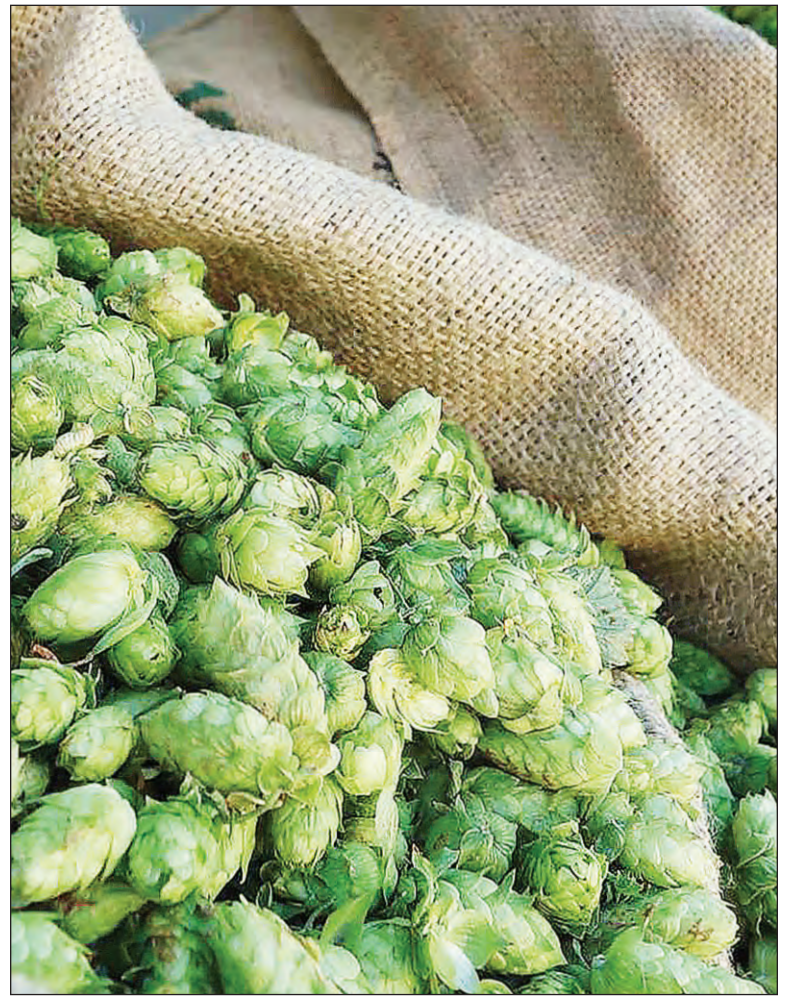
Yang’s team includes microbiologist David Anderson and chemist Kelly Sveinson, who are using the recent NSERC funding to develop tools that detect beer spoilage and yeast degradation in partnership with Parallel 49 and other local breweries.

“We plan to come up with a DNA barcoding method to try to identify the feral strains and whether some should deserve its own varietal status,” Yang explains. “Kelly Sveinson ... will be looking at the alpha and beta acids as well as the oil concentrations from these feral hops.”

HOOH uses its wild hop as part of a proprietary five-variety blend of pelletized hops HOOH markets as Lillooet Shake. Whether or not the variety is unique will go a long way to determining whether or not it becomes a named variety destined for commercial release.

“The most important thing for me is genetic uniqueness, otherwise you’re not contributing anything of value to the brewer,” Quinlan says.

“It’s 2018, we have the technical capability to answer the question pretty easily.”



Finding a genetic uniqueness among hop varieties is important to BC growers looking to find their niche. HOOH ORGANIC HOP CO. PHOTO

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