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BREAKING

Machine will help automate hop trellis twining

By MATTHEW WEAVER Capital Press

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A Multi-functional Agricultural Vehicle operated by one person can twine hop trellises. The machine, built by 2nd Sight BioScience of Spokane, is being tested.

2nd Sight BioScience

Hop farmers in the Pacific Northwest use roughly 425,000 miles of twine each season to string their trellises by hand, but a new machine can do much of the hard work for them.

Hop plants are perennials grown on a trellis, each year putting up a “bine,” similar to a vine. The bine must have twine to climb as it grows, said Ann George, executive director of the Washington Hop Commission and Hop Growers of America.

She estimated 57,000 acres of hops are grown in the region, with roughly 890 hills per acre. Growers typically use two 22-foot-long strings per hill.

Each year, twine is connected from the hill to the trellis wire, 18 feet above. During the season, the bine grows the full height of the trellis.

The commission and growers talked to Spokane-based 2nd Sight BioScience about automating the twining.

“(They said) ‘Hey, you guys are a pretty smart group of engineers, we have a really hard problem that no one’s been able to solve,’” said Kevin Oldenburg, president and CEO of 2nd Sight. “We looked at it and said, ‘Yeah, I think we can do this.’”

Growers can also add other attachments to the Multi-functional Agricultural Vehicle, which has electrical, hydraulic and compressed air fittings, Oldenburg said.

In addition to knotting and tying twine, the machine can be used for harvest and acts as a mobile elevated platform for working on trellis cables. Next year the company will add a staking mechanism, Oldenburg said.

The company received a \$250,000 specialty crop block grant from the state Department of Agriculture, \$75,000 from the hop commission and a \$250,000 grant from the Health Sciences and Services Authority of Spokane County.

It's the third time in 35 years the industry has worked to develop an automated system for twining, George said. Other efforts were in the 1980s and the mid-2000s, she said.

Cost and availability of labor are factors for hop growers, she said. Many rely on the H-2A guestworker program, which requires them to provide housing and transportation.

An automated system could be cost-effective, she said.

Twining can be dangerous, Oldenburg said.

"You're standing on an elevated platform, moving across roads, it's bumpy, you're working with your arms over your head all day long," he said. "It's getting harder and harder to find labor that will do this and it's getting much, much more expensive."

The machine could also be used in other crops, including peppers and eggplants, Oldenburg said.

One person operates the machine, Oldenburg said. The MAV is designed to twine 250 acres in six weeks, and will operate 20 hours a day. It can hold enough twine for that entire time, Oldenburg said.

The company will put two machines in the field next year for a full year's operation, Oldenburg said.

The machine is being tested now to see how it performs on uneven terrain, George said.

"(We're) hopeful that it could work — there's a lot of moving parts, literally and figuratively," George said.

Matthew Weaver

Field Reporter, Spokane