

Farmer tests self-driving electric tractor

By **SIERRA DAWN McCLAIN**
Capital Press

CLATSKANIE — California-based Monarch Tractor will begin field trials in Oregon this year of its new electric, driver-optional “smart” tractor.

Electric tractors are a new frontier in U.S. agriculture, so researchers, farmers and Monarch Tractor staff will be teaming up to test the new vehicle across California, Washington state and Oregon with U.S. Department of Agriculture Conservation Innovation Grant funding.

The Oregon portion of the pilot project will take place at Hopville Farms, with sites in Clatskanie and Independence. Jim Hoffmann, farm owner, plans to test the tractor on hundreds of acres of blueberries.

Hoffmann estimated he will decrease air pollution on-site, reduce noise, save about 1,500 gallons of diesel per year and, because the tractor has a self-driving option, potentially save thousands of hours of employee labor.

“Like all farms, I’m constantly looking at how to do things better,” Hoffmann said.

He plans to use the tractor for many tasks, including mowing between blueberry rows.

Hoffmann said he’s also excited the tractor carries multiple sensors and has ports for more sensors so Hoffmann can track data on pest pressure, plant health and productivity.

While moving through fields, the electric tractor can simultaneously collect data from “root to fruit” — from ground floor to fruit level — said Scott Fairbanks, an independent researcher and computer science expert at Oregon State University.

In September, Fairbanks plans to assign sev-



A Monarch electric self-driving tractor drives between rows of trees and sprays them.

Monarch Tractor



Jim Hoffmann



Praveen Penmetsa

ticular field and will then know that route. The tractor also uses an artificial intelligence visual system to see each field and relies on a backup GPS system.

The tractor can be recharged at any standard 220-volt outlet.

One of the downsides of the e-tractor is that, compared to a diesel tractor that can quickly be refueled, the e-tractor’s battery life is expected to be only 6 to 10 hours.

Another obstacle to adoption is the up-front investment; the base price for a Monarch self-driving e-tractor is \$58,000.

Long-term maintenance, too, may present challenges. If an e-tractor breaks down, a farmer may need to call in specialty repair experts who understand software and

electrical engineering.

However, Penmetsa said Monarch anticipated this challenge. Rather than commingling traditional mechanical, electrical and software systems, Monarch kept each system as separate as possible so a farmer could repair a basic mechanical problem without needing a software expert if a problem was purely mechanical.

Despite these drawbacks, Hoffmann said he thinks the tractor will be well worth the investment.

“There’s no question that an electric tractor costs more up-front and possibly in repairs than a comparable horsepower vehicle,” he said. “But all the benefits make it totally appealing from an economic standpoint.”



Conrad Gowell

Heat-stressed sockeye salmon were filmed in the Little White Salmon River. These sick salmon are taking shelter in the cooler waters of the Columbia River tributary.

Underwater video shows impact on salmon after heat wave

By **COURTNEY FLATT**
Northwest News Network

This summer’s heat wave led to some unhealthy hot water for salmon. But, fish managers said it hasn’t been as devastating for salmon runs as the warm water temperatures were in 2015.

Underwater video from a Columbia River tributary in south central Washington state shows sockeye salmon infected with fungus caused by heat stress. They’re hiding out in the cooler waters of the Little White Salmon River, far from their spawning grounds.

After the heat wave, water temperatures in many parts of the Columbia River rose beyond the 68-degree high that salmon can stand. Above that, the fish can potentially die.

In 2015, the heat and low river flows caused nearly 99% of the sockeye salmon to die before they reached spawning grounds. The heat wave timing was fortunate for sockeye runs, said Ritchie Graves, Columbia Hydro-power Branch chief with NOAA Fisheries.

“A big chunk of sockeye had already migrated past Bonneville Dam

(when the heat wave hit),” Graves said.

So far, more than 580 salmon have made it past the Snake River dams. As of last week, Idaho Fish and Game has collected about 179 fish to transport around the Lower Granite Dam.

Those numbers surpassed fish managers’ fears, Graves said, when they learned of the impending heat wave.

“It could have been a lot worse. We’re fairly pleased with how this has turned out. Is it as good as a kind of normal temperature year? No, clearly not,” Graves said.

Rivers throughout the Northwest experienced exceptionally high temperatures during the heat wave, he said, which can harm salmon runs across the region from the Salmon to the Okanogan rivers.

Environmental groups say the sick fish in this recent underwater video could be a glimpse into the future as the climate warms.

“We’re seeing sockeye salmon dying because the Columbia River is too hot,” said Brett VandenHeuvel, executive director with Columbia Riverkeeper. “The sockeye dying this way is heartbreaking.”

Cascadia CHAMBER CO PERA

presents **Gian Carlo Menotti’s**

The Old Maid and the Thief

A comic opera in English featuring regional artists **Ann Bronson, Bereniece Jones-Centeno, ChrisLynn Taylor, and Elias Hesse, and Vincent D. Centeno, Conductor and Paul Brady, Pianist.**

Friday, July 30th at 7 pm

Sunday, August 1st at 4pm

Charlene Larsen Center for the Performing Arts
16th & Franklin Sts., Astoria



* Capacity is limited to 50 seats per performance. Tickets by advance online purchase only at **PPAC website: www.partnersforthepac.org** or call **503-338-9132** \$16 - 10 years and older; free - 9 years and younger

For the safety of our artists, technicians, volunteers, and audiences, **masks will be required.** Doors and windows may be left open during the performances to allow ventilation. Artists in the production will not be wearing masks.