Willamette Valley Vineyards

David Markel, research and development manager at Willamette Valley Vineyards, prepares to operate Thorvald at the winery south of Salem.

Northwest wine industry eyes UV light to treat powdery mildew

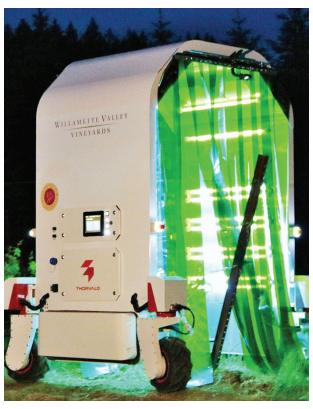
By GEORGE PLAVEN
Capital Press

TURNER, Ore. — The robot shines an eerie green in the dark of night as it maneuvers over rows of grapevines at Willamette Valley Vineyards.

Developed by Norwegian-based Saga Robotics, Thorvald — as the system is named — is an autonomous, self-driving vehicle that looks a bit like a small shed on wheels. Inside, it is equipped with a special band of ultraviolet lights designed to suppress powdery mildew and other plant diseases.

As research continues to demonstrate the efficacy of UV light as a management tool for farmers, Willamette Valley Vineyards has become the first commercial operation to adopt Thorvald in place of traditional chemical fungicides to control powdery mildew in winegrapes.

"We see this as a remarkable opportunity for our industry to grow high quality winegrapes and do it in a very natural, sustainable way," said Jim Bernau, the winery's founder and CEO.



Willamette Valley Vineyards

Willamette Valley Vineyards in Turner, Ore., is the first commercial operation to adopt the Thorvald, an autonomous, self-driving robot equipped with a special band of UV lights to suppress powdery mildew.

While Bernau and Willamette Valley Vineyards began experimenting with UV light last year, scientists from around the world have been conducting field trials on and off for decades, spanning a variety of crops including strawberries, apples, cucumbers and hops.

Today, a research team led by David Gadoury, plant pathologist at Cornell University, is gathering data and refining treatments using UV light, with results showing promise.

Gadoury was the featured speaker at a webinar May 27 hosted by Washington State University and the Washington State Wine Commission, providing vintners with the latest information about UV light and its potential as an alternative for curbing plant diseases.

Powdery mildew, in particular, is one of the most widespread problems in the wine industry. If not suppressed, the disease can reduce crop yield by as much as 95% and degrade wine quality.

The first field trials using UV light took place in 1991, though they were less than successful, Gadoury said. Though it effectively reduced powdery mildew in grapes, it also defoliated vines and caused the fruit to shrivel, resembling miniature russet potatoes.

Then came a key discovery 10 years ago. A doctoral student in Norway found that UV light was much more effective killing powdery mildew at night, when the pathogens' natural systems for repairing their DNA have shut down to conserve energy.

Not only are the pathogens more susceptible at night, but Gadoury said they were able to use 10% less UV-C to achieve the same levels of disease reduction, at levels that won't cause damage to the plants or fruit.

"Pathogens such as powdery mildew, and many other organisms, just really don't like UV light at night," Gadoury said. "That means we can kill them with a fraction of the dose that's required during daylight."

New trials started in 2017 at a commercial strawberry farm in Florida. This time, they proved a rousing success, performing significantly better than applications of chemical fungicides.

Additional trials are now underway in places like California and Nova Scotia, Canada, as well as overseas in Europe.

"I think we're beyond the point where we have to worry about whether or not this technology is going to provide sustainable control of strawberry powdery mildew," Gadoury said. "It actually works quite well."

OSU researchers find Southern Oregon winegrape growers can reduce water usage

By SIERRA DAWN McCLAIN
Capital Press

ROGUE VALLEY, Ore. — Winegrape growers in Southern Oregon may be able to slash water usage nearly in half while still producing high-quality, high-yield fruit, according to an Oregon State University study.

Many Southern Oregon growers consult water management data OSU researchers believe is either inaccurate or designed for a different region, leading some growers to irrigate too much.

"Watering twice as long as you need to is a big deal," said Alexander Levin, the study's leader and assistant professor and viticulturist at the Southern Oregon Research and Extension Center.

Overwatering, Levin said, costs more, hurts the environment, can leach nutrients from soil and wash fertilizer beyond roots. It can also create leafy canopies that attract pests and create dark, humid habitat for fungi. And in a drought, every drop of water is precious.

In Oregon, many growers use AgriMet, a free weather station sponsored by the U.S. Bureau of Reclamation, to determine how much water they need for specific crops.

The problem is AgriMet appears to overestimate how much to irrigate winegrapes by 44%.

AgriMet estimates winegrapes in the region need 20.2 inches of water per year. Levin's study found winegrapes need only 11.4 inches annually to thrive.

That number — 11.4 inches — represents the ideal amount of water vines need to produce good-quality fruit and good yields. Winegrapes could survive with less water, such as 6 to 8 inches, but will perform better with around 11 inches.

Along with using AgriMet, some growers also use crop coefficients — properties of plants used to predict evapotranspiration for irrigation scheduling — that were developed in California, where crop growth, water requirements, latitude and weather patterns differ.

By using OSU's numbers, Levin estimates Southern Oregon growers can conserve 11% of their water compared to using California numbers.

Levin said his findings may even impact growers who already practice "deficit irrigating" — applying less water than is required for a crop. That's because, Levin said, even some deficit irrigators may be irrigating too much.

Oregon State University

Alexander Levin, professor and viticulturist, studies the irrigation needs of Southern Oregon winegrapes.

A "deficit irrigator" watering 25% less than AgriMet's suggested 20.2 inches, for example, is still applying 15.5 inches per year, above OSU's suggested 11.4 inches.

Levin arrived at his 11.4-inch "ideal" by conducting research at vineyards in Jackson County starting in 2017. He used solar panels to estimate vines' evapotranspiration and to find the "crop coefficient," which can be plugged into a mathematical equation for irrigation adjustments.

AgriMet staff have not yet confirmed, either to Levin or the Capital Press, whether they plan to use Levin's findings at the weather station. In the meantime, Levin encourages growers to email him at alexander.levin@oregonstate.edu for the new crop coefficient.

Michael Moore, general manager at Quail Run Vineyards and one of the growers who participated in Levin's trials, said he thinks Levin's numbers are accurate.

Moore irrigates his winegrapes about 12 inches annually, which he said "feels really appropriate for our area."

Although Levin's study will likely prove useful in the future, it may have little impact this year, because growers would be lucky to have 11.4 inches of water. Some water districts are telling growers just to fight for vine survival.

"The scope of the drought going on right now is monumental," said Moore.

LEGAL
PURSUANT TO ORS CHAPTER 87
Notice is hereby given that the following vehicle will be sold, for cash to the highest bidder, on 06/21/2021. The sale will be held at 10:00am by
COPART OF WASHINGTON INC
2885 NATIONAL WAY WOODBURN, OR
2015 NISSAN 370Z 2DR
VIN = JN1AZ4EH2FM444355
Amount due on lien $1515.00
Reputed owner(s)
KIRK & JEANNE SEVERSON
S247119-1

LEGAL
PURSUANT TO ORS CHAPTER 87
Notice is hereby given that the following vehicle will be sold, for cash to the highest bidder, on 06/14/2021. The sale will be held at 10:00am by
COPART OF WASHINGTON INC
2885 NATIONAL WAY WOODBURN, OR
2017 KIA OPTI 4DR
VIN = KNAGT4LC2H5005408
Amount due on lien $1,535.00
Reputed owner(s)
CALEB A TRIPLETT & JOSEPH D HURSEY
HUYNDAI LEASE TITLING TRUST
S247142-1

LEGAL
PURSUANT TO ORS CHAPTER 87
Notice is hereby given that the following vehicle will be sold, for cash to the highest bidder, on 06/21/2021. The sale will be held at 10:00am by
COPART OF WASHINGTON INC
2885 NATIONAL WAY WOODBURN, OR
2008 GMC SIERRA PK
VIN = 1GTHK33658F119170
Amount due on lien $1515.00
Reputed owner(s)
ASHLEY KRISTENE STREETER
IQ CREDIT UNION
S247118-1

LEGAL
PURSUANT TO ORS CHAPTER 87
Notice is hereby given that the following vehicle will be sold, for cash to the highest bidder, on 06/21/2021. The sale will be held at 10:00am by
COPART OF WASHINGTON INC
2885 NATIONAL WAY WOODBURN, OR
2017 TOYOTA COROLLA 4DR
VIN = 2T1BURHE7HC792313
Amount due on lien $1415.00
Reputed owner(s) KYRA W KWOK & MATTHEW R KEITH
CAPITAL ONE AUTO FINANCE
S247125-1

LEGAL
PURSUANT TO ORS CHAPTER 87
Notice is hereby given that the following vehicle will be sold, for cash to the highest bidder, on 06/21/2021. The sale will be held at 10:00am by
COPART OF WASHINGTON INC
2885 NATIONAL WAY WOODBURN, OR
2017 VW PASSAT 4DR
VIN = 1VWDT7A33HC035990
Amount due on lien $1,455.00
Reputed owner(s)
ALLEN CLAYTON & TRACY HOODENPYL
AMERICAN CREDIT ACCEPTANCE
S247128-1

LEGAL
PURSUANT TO ORS CHAPTER 87
Notice is hereby given that the following vehicle will be sold, for cash to the highest bidder, on 06/14/2021. The sale will be held at 10:00am by
COPART OF WASHINGTON INC
2885 NATIONAL WAY WOODBURN, OR
2017 CHRYSLER PCF VAN
VIN = 2C4RC1DG5HR770028
Amount due on lien $1,535.00
Reputed owner(s)
LEAH MARIE STEINHEBEL
CAPITAL ONE AUTO FINANCE
S247139-1

LEGAL
PURSUANT TO ORS CHAPTER 87
Notice is hereby given that the following vehicle will be sold, for cash to the highest bidder, on 06/23/2021. The sale will be held at 10:00am by
PRESTIGE AUTO REPAIR
2700 19TH ST SE STE#1 SALEM, OR
2012 MNNI COO 4D
VIN = WMWZC3C54CWL85780
Amount due on lien $3145.00
Reputed owner(s) POWER MAZDA
KIA BUICK GMC PRE-OWNED
S247116-1

LEGAL
PURSUANT TO ORS CHAPTER 87
Notice is hereby given that the following vehicle will be sold, for cash to the highest bidder, on 06/21/2021. The sale will be held at 10:00am by
COPART OF WASHINGTON INC
2885 NATIONAL WAY WOODBURN, OR
2015 CHEV SILVERADO PU
VIN = 1GC4K1E80FF548022
Amount due on lien $1395.00
Reputed owner(s) CODY ALEN MILTON
FIRST INTERSTATE BANK
S247126-1

LEGAL
PURSUANT TO ORS CHAPTER 87
Notice is hereby given that the following vehicle will be sold, for cash to the highest bidder, on 06/21/2021. The sale will be held at 10:00am by
COPART OF WASHINGTON INC
2885 NATIONAL WAY WOODBURN, OR
2017 GMC SIERRA PU
VIN = 1GT12SEG8HF165724
Amount due on lien $1875.00
Reputed owner(s) MARK F BAVARO
OREGON STATE C.U
S247120-1

LEGAL
PURSUANT TO ORS CHAPTER 87
Notice is hereby given that the following vehicle will be sold, for cash to the highest bidder, on 06/14/2021. The sale will be held at 10:00am by
COPART OF WASHINGTON INC
2885 NATIONAL WAY WOODBURN, OR
2017 KIA OPTIMA 4DR
VIN = KNAGU4LC1H5006630
Amount due on lien $1,455.00
Reputed owner(s)
KEVIN L & DAISY M RILEY
S247133-1

LEGAL
PURSUANT TO ORS CHAPTER 87
Notice is hereby given that the following vehicle will be sold, for cash to the highest bidder, on 06/21/2021. The sale will be held at 10:00am by
COPART OF WASHINGTON INC
2885 NATIONAL WAY WOODBURN, OR
2017 JEEP RENEGADE UT
VIN = ZACCJBBB3HPG39984
Amount due on lien $1415.00
Reputed owner(s)
ZAHRA & SAKINA JANGBAR
ALLY FINANCIAL
S247124-1

LEGAL
PURSUANT TO ORS CHAPTER 87
Notice is hereby given that the following vehicle will be sold, for cash to the highest bidder, on 06/14/2021. The sale will be held at 10:00am by
COPART OF WASHINGTON INC
2885 NATIONAL WAY WOODBURN, OR
2019 TOYOTA PRIUS 4DR
VIN = JTDKARFU2K3093058
Amount due on lien $1,455.00
Reputed owner(s)
RU YI CHEN
S247131-1