

# Digger

MAY 2024

## Sustainability

Growing demand for  
green roofs

PAGE 21

Plants, carbon and  
sequestration

PAGE 27

Money-saving  
LED lighting

PAGE 33

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# May 2024 Vol. 68 No. 5 Digger



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**On the cover:** Portland has one of the most aggressive green roof policies in the country. The city now hosts over 700 green roof projects, totaling about 57 acres. PHOTO COURTESY CITY OF PORTLAND

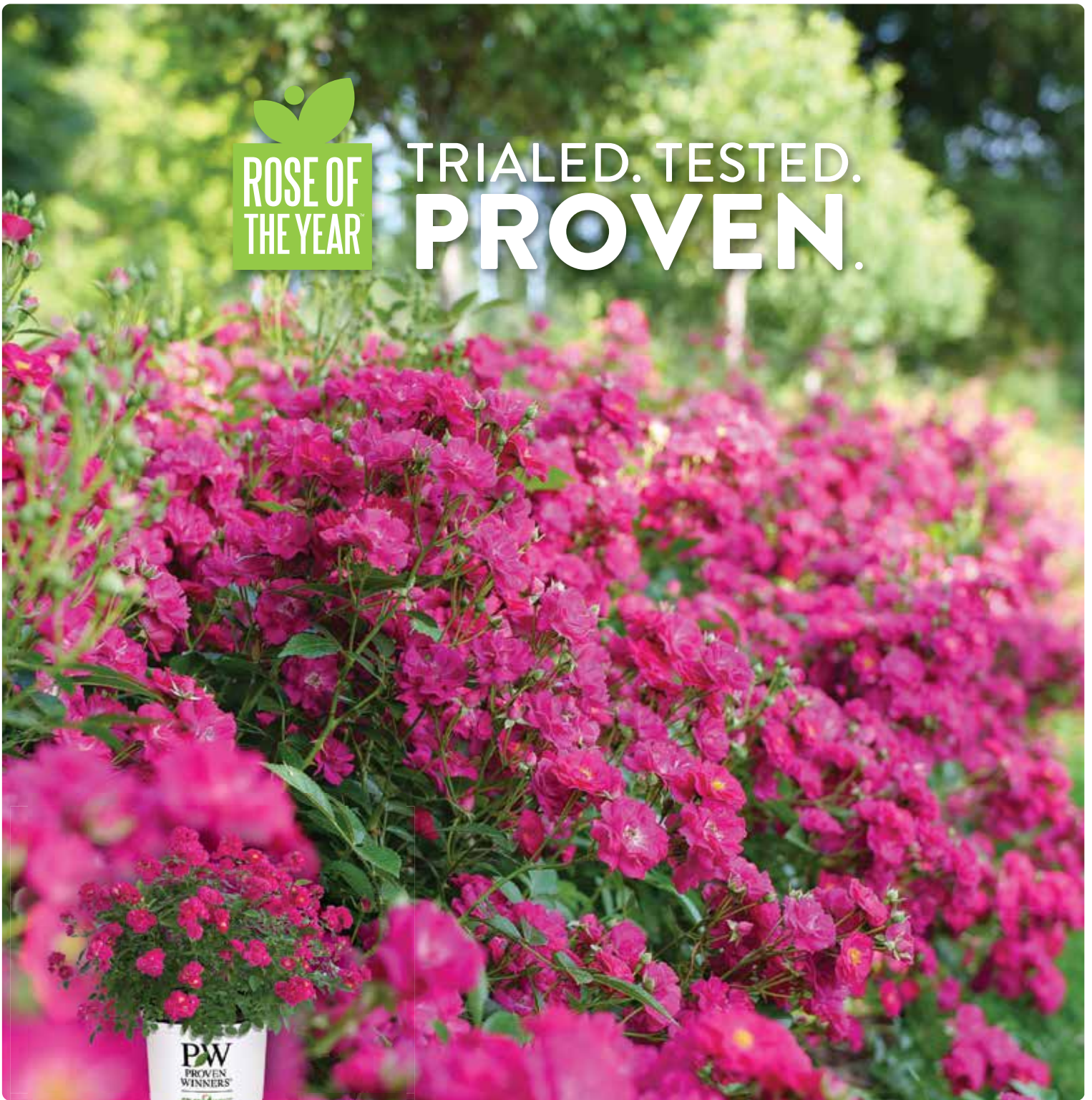
**On this page:** Left: Rooftop gardens and green roofs absorb carbon, help keep roofs cool and help control stormwater runoff. PHOTO COURTESY CITY OF PORTLAND Right: Jim Gilbert, owner of Northwoods Wholesale Nursery, produces a documentary on Oregon's history of farmland protection.. PHOTO BY CURT KIPP



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# Making progress towards sustainability

**When I first saw that this month's issue of *Digger* was focused on sustainability, I was apprehensive.**

I reactively thought about how my small nursery hasn't reached a scale that would let us focus on sustainability.

I thought about what larger nurseries are doing, such as Robinson Nursery. They have stopped shipping 600,000+ pounds of plastic because of their new root bag systems. They have also run studies showing how much carbon sequestration their nursery has managed to achieve. The results are beyond incredible!

Meanwhile, Woodburn Nursery & Azaleas has set up a "bug lab," where they have reduced their spray use by breeding and introducing beneficial bugs into their nursery. As grossed out as I was walking through the breeding lab, you can't help but be impressed.

I see the monumental changes some nurseries are making, and feel overwhelmed. How can I make a difference like that?

But then I read a recent article from *Nursery Management* where they quoted Anna Ball at the Global Garden Retail Conference. She said, "Plants are probably the only product sold that are completely sustainable."

That one quote quickly changed my way of thinking. I realized that my small operation was already working on sustainability. We're doing small things, but they add up. For example, we're reclaiming water from our can yard through drain lines and using it for field irrigation, and we're switching from overhead water to drip, lowering the amount of water used.

Frankly, our entire industry is mindful of good practices such as this. Nursery owners are some of the best stewards of land that I have ever seen. Our products don't just sequester carbon, they continue to do so for the entirety of their lives!

We also are masters of reusing by-products of other agricultural commodities. Think of the timber industry. They used to burn their timber by-products, but now we utilize those for soil and bark needs.

But it doesn't end here. Honestly,



Amanda Staehely

we should be leading the entire sustainability narrative, but other industries have jumped in and taken that marketing opportunity before we even ever saw the real value in marketing it ourselves. We now need to do some catch up in that regard. What could that look like? It will be an interesting adventure for sure.

Aside from the obvious connection between sustainability and our environmental concerns, there's also the idea of keeping the nursery industry and (even more so) Oregon nurseries vital to the end consumer.

Every nursery, big or small, must deal with changing growing practices, product diversity, and marketing strategies to remain relevant.

I should close by mentioning that keeping our own personal businesses sustainable also matters. Being able to keep a business not only profitable, but making the "juice worth the squeeze" in the words of the great Jeff Stone, is a huge conversation for many.

My kids are young enough that we have not had to seriously look at this issue yet, but I have already had it in the back of my mind. We now make business decisions based on how it would potentially affect the future of our nursery and if it is sustainable for future generations.

I guess we do more than I thought in this arena. I can proudly hold my head up with those other great leaders ... maybe not quite as high yet, but we all are true leaders in conservation and sustainability and should all be proud with the work we are doing together. ☺



# Calendar

Get the word out about your event! Email details to [Calendar@OAN.org](mailto:Calendar@OAN.org) by the 10th day of the month to be included in the next issue of *Digger*.

## VARIOUS DATES

### FIRST AID/CPR CLASSES AT OAN

Need a first aid/CPR certification renewal for yourself or one of your employees? The Oregon Association of Nurseries is holding sessions in English on June 18, July 18, September 18, October 16 and sessions in Spanish on June 20, July 19, September 19, and October 17. Class times are 8 a.m. to 12:30 p.m. The cost is \$60 per person. It's the same for first-time certifications as well as renewals. Certification is good for two years and includes instruction and a certification card. Classes are held at the OAN office, 29751 S.W. Town Center Loop West, Wilsonville, Oregon. Register at [OAN.org/Page/CPRclass](https://oan.org/Page/CPRclass)

## MAY 1

### NURSERY GUIDE AD DEADLINE

Get visibility in the best available resource for green industry professionals by advertising in the Oregon Association of Nurseries' Nursery Guide. With over 16,000 listings in more than 5,000 different categories, it gets used all year long by growers, landscapers, suppliers, retailers and brokers. The hard copy book is distributed to 7,000 motivated buyers by mail and at trade shows like Farwest, MANTS, ProGreen and Cultivate. OAN members receive exclusive advertising rate discounts! The deadline for display advertising is May 1. For information go to [OAN.org/Ads](https://oan.org/Ads). Questions? Contact Curt Kipp at [CKipp@OAN.org](mailto:CKipp@OAN.org) or 503-582-2008.

## MAY 4

### GARDENFEST PLANT SALE

Join Washington County Master Gardeners for a fun-filled day and get a jump on spring gardening. Shop for amazing plants, ask questions of Master Gardeners, get free 'how to' guides and visit the Education Garden for ideas. There will also be activities for children and gardener gifts for that special mom in your life. Gardenfest is Saturday, May 4 from 9 a.m.-1 p.m. at Portland Community College Rock Creek, 17705 N.W. Springville Road, next to the greenhouse. Admission is free.

## MAY 4-5

### CLACKAMAS COUNTY MASTER GARDENERS SPRING GARDEN FAIR

Nearly 100 vendors will be participating Saturday and Sunday, May 4-5 at the Spring Garden Fair, 9 a.m.-5 p.m. on Saturday and 9 a.m.-4 p.m. on Sunday at the Clackamas County Event Center, 694 N. E. Fourth Ave., Canby. It will include free pH soil testing, new plant introductions featuring a silent auction, the Garden Fair raffle, free plant check, plant taxis where students tow your purchases for tips, and a potting station to purchase pots and plant them up with garden soil at the fair. Go to [SpringGardenFair.org](https://SpringGardenFair.org) for all the details.



## JUNE 6

### ONPAC / DUFFERS CLASSIC GOLF TOURNAMENT

Registration is live for the Oregon Nurseries' Political Action Committee (ONPAC) annual golf tourney, teeing off at Stone Creek Golf Club, 14603 South Stoneridge Drive in Oregon City, Oregon. Reconnect with friends while supporting a strong nursery industry voice in Salem and Washington, D.C. Check-in begins at 7 a.m. Take advantage of a \$15 discount by registering before May 31. Sponsorship packages begin at \$250, and many include complimentary playing spots. Go to [OAN.org/Duffers](https://oan.org/Duffers) for more information.

## MAY 6

### PLANT ROOT HEALTH SYMPOSIUM

The University of Florida Extension, Florida Nursery, Growers and Landscape Association (FNGLA) and the Root Alliance are hosting the Root Health System Symposium, from 7:30 a.m.-4:30 p.m. Monday, May 6 in Gainesville, Florida. The symposium is designed for greenhouse hydroponic and nursery growers, researchers, and industry professionals wanting to improve root health, reduce crop losses and increase productivity with the latest advancements in controlled environmental horticulture. Cost is \$75 per person. Topics will include water treatment, control of soil pests and diseases, biocontrols, recirculating nutrient solutions, heavy metals, irrigation, automation and growing transplants under LEDs. To register go to [TinyURL.com/RootHealth](https://TinyURL.com/RootHealth).

## MAY 11

### INCREDIBLE EDIBLES PLANT SALE

Give a new meaning to 'let's pick up something for dinner' — organic veggie starts and herbs for your culinary garden. Plan to attend Multnomah County Master Gardener Association's Incredible Edibles Plant Sale, May 11 from 10 a.m.-3 p.m., 1624 N.E. Hancock St., Portland. To maintain a pleasant shopping experience, a staggered entry system allows the maximum number of shoppers at any given time without overcrowding. Pick up a color-coded timed-entry wristband starting at 9 a.m. at the southwest entry.


## JUNE 14

### DIGGER FARWEST EDITION AD DEADLINE

Take advantage of the energy and excitement of the biggest green industry show in the West by advertising in the *Digger Farwest Edition* (published in August and distributed at the show). With an increased distribution of 10,500 copies, your marketing message will connect with motivated industry decision-makers before, during and after the 2024 Farwest Show. OAN members receive exclusive advertising rate discounts! For information go to [OAN.org/Ads](https://oan.org/Ads). Questions? Contact Curt Kipp at [CKipp@OAN.org](mailto:CKipp@OAN.org) or 503-582-2008.

## JULY 13-16

### CULTIVATE '24

Attend the green industry event that offers you countless opportunities to grow your business, build your network, and discover the latest industry trends. Cultivate '24 will be July 13-16 in Columbus, Ohio. Take your learning to the next level when you sign up for Saturday workshops and experience some of the industry's best practices up-close and personal with in-depth production tours. For more information or to register, go to [CultivateEvent.org](https://CultivateEvent.org). 





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# Northwest News

OAN members and chapters are encouraged to send in relevant news items, such as new hires, new products, acquisitions, honors received and past or upcoming events. Email [News@OAN.org](mailto:News@OAN.org).



## OAN leaders lobby in Washington, D.C.

Oregon Association of Nurseries President Amanda Staehely, President-Elect Ben Verhoeven, and Executive Committee Member-at-Large Chris Robinson, along with Executive Director Jeff Stone, met with USDA officials and all seven members of Oregon's congressional delegation recently in Washington, D.C.

The OAN leaders lobbied federal decision makers and officials to include nursery industry priorities in the upcoming Farm Bill, improve specialty crop damage insurance for growers, bolster research and development deductions for green industry companies, pass immigration reform to support industry workforce needs, and recognize industry contributions on climate, particularly carbon sequestration.

"Our delegation led by Amanda Staehely made a strong impression in D.C.," Stone said. "It's about relationships. Our members are tremendous advocates for our industry, explaining the rubber-meets-road reality that happens at working nurseries, in a way that we hope will enable informed decision making. This trip was no exception, and Amanda, Ben and Chris did a great job."

The group toured the White House by arrangement of U.S. Rep. Lori Chavez-DeRemer (R-Oregon 5<sup>th</sup> District), and also took in local sights and culture.



Monterey County, California, farmworkers harvest a cauliflower farm. PHOTO COURTESY CALIFORNIA DEPARTMENT OF WATER RESOURCES

## STUDY: CALIFORNIA AG OVERTIME LAW REDUCED TAKE-HOME PAY

A new study shows that California's ag overtime law reduced both overtime hours worked and actual worker take-home pay, the Agri-Pulse online newsletter reported.

California passed Assembly Bill 1066 in 2016, which mandated that agricultural workers be paid extra for overtime hours in a workweek. Although federal law exempts farms from being required to pay their workers overtime, it does not preempt individual states from requiring it. The California law inspired similar legislation in Colorado, New York, Oregon and Washington.

Before ag overtime took effect, 57% of U.S. crop workers pulled in more than 40 hours per week, according to Alexandra Hill, an assistant professor in agricultural economics at the University of California at Berkeley.

The backers of the measure argued that it would improve the well-being of farmworkers through higher pay. However, Hill found little evidence to back the claim upon examining employment data from the National Agriculture Work Survey.

The law caused a large and statistically significant decrease in the number of employees

working 56–60 hours a week, according to her paper published in the journal *Choices Magazine*. Yet the bracket just below the law's threshold at the time — for workers performing 46-50 hours per week — saw a more than a 30% bump as more employers reduced overtime hours.

Hill also found that ag overtime decreased worker take-home pay. The share of the workforce with higher and with midlevel earnings each dropped by a third and led to a \$100 decrease in weekly earnings. Overall, the law cut up to 45,000 hours annually across the industry and dropped pay by as much as \$9 million.

In Oregon, the Oregon Association of Nurseries is laying the groundwork to reexamine Oregon's agricultural overtime law, which is currently being phased in. Currently, overtime pay is required for work over 55 hours in a given workweek. That goes to 48 hours on January 1, 2025, and then 40 on January 1, 2027.

"This is yet another concrete example of the unintended consequences of ag overtime laws that have been enacted in California, Washington, and in Oregon. In the end, these laws do not benefit the farmworker when their income is actually reduced as a result of the laws," OAN Executive Director Jeff Stone





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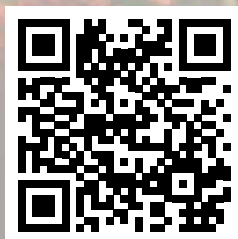
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said for *Digger*. “Oregon should not be so arrogant to think that we would not suffer the same fate as California and Washington. We are laying the groundwork in 2025 to convince the Legislature to adjust agricultural overtime to support both the farmworker and agriculture operations.”

---

### SMITH GARDENS ACQUIRES SKAGIT HORTICULTURE FACILITY

Smith Gardens, Inc. has acquired Skagit Horticulture’s inventory and assumed control of Skagit’s former Riverbend facility operating out of Mount Vernon, Washington, according to a company statement. Terms of the purchase were not disclosed.

Skagit announced in February that it was closing April 7, citing business conditions, rising costs and the business climate in the state of Washington.

The Riverbend site housed the merged operations of the former Skagit Gardens founded in the 1960s and Etera/ Northwest Horticulture formed in the 1990s. The facility includes 24 acres of greenhouse and 20 acres of outdoor production space. The acquisition expanded Smith Gardens’ capacity, allowing the company to continue its tradition of growing quality plants and a diverse product mix, the grower stated.

Smith Gardens is operated by fourth-generation owners Eric Smith, CEO and Mark Smith, COO. Based in Bellingham, Washington, Smith Gardens employs up to 1,000 people in four greenhouse facilities in Washington, Oregon, and California that service big-box retailers in the Pacific Northwest and Alaska. The company also owns Pacific Plug & Liner in Watsonville, California, which provides young plant liners to growers in North America.

---

### OSU: AGRITOURISM IN WILLAMETTE VALLEY TOPS \$985 MILLION

A new study from Oregon State University finds that agritourism in the



Many members of the Oregon Association of Nurseries court agritourism. Bauman Farms in Gervais, Oregon, includes a bakery, restaurant, farm store and fall corn maze in addition to its retail nursery. OAN FILE PHOTO

Willamette Valley brings in nearly \$1 billion each year.

The OSU study found that 4,000 of 18,679 farms in the Willamette Valley were engaged in agritourism. Additionally:

- Agritourism brings up to 13.7 million people to farms in the region each year.
- Approximately 9,000 full and part-time jobs are supported by agritourism.
- Some 22% of Willamette Valley farms produce one or more types of agritourism products.

Many members of the Oregon Association of Nurseries court agritourism. **Bauman Farms** in Gervais, Oregon, includes a bakery, restaurant, farm store and fall corn maze in addition to its retail nursery. At **Al’s Garden & Home** in Sherwood, Oregon, wine from Argyle, Seven Bridges and Rain Dance is poured by the glass and tasty noshes from local bakeries are offered.

Then of course there are large scale events like Gardenpalooza (a multi-vendor plant sale at Bauman’s), Wooden Shoe Tulip Festival (a festival at **Wooden Shoe Tulip Farm** in Woodburn, Oregon), Dahlia Days (**Swan Island Dahlias** in Canby, Oregon) and many others. More and more agricultural businesses are following this agritourism trend.

The OAN supports agritourism by publishing the biannual Plant Something Oregon Road Map, with 35,000 copies distributed throughout the state. It

features every OAN member retailer in Oregon and Clark and Cowlitz counties in southwest Washington. There are separate tables listing events, public gardens and landscape services as well.

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### OAN’S TOP LEGISLATIVE PRIORITY SIGNED BY GOVERNOR KOTEK

Oregon Gov. Tina Kotek signed Oregon Association of Nurseries’ top legislative priority for 2024, House Bill 4111, into law on April 4.

HB 4111 fixed longstanding issues with tax treatment of farm equipment, eliminating the confusion for assessors and farmers by removing the distinction between real and personal tangible property for the farm equipment tax exemption. The bipartisan legislation led by the OAN was passed unanimously by both legislative chambers.

“This kind of clean sheet is very rare for a tax bill,” Executive Director Jeff Stone stated in an update to association leaders.

---

### HOTEL REGISTRATION NOW OPEN FOR FARWEST SHOW

Secure your hotel accommodations now for the Farwest Show in Portland, Oregon, August 21-23, at one of four premium hotels: Hyatt Regency, Doubletree by Hilton, Hotel Eastlund, and Courtyard by Marriott.

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the hotels and receive complimentary WiFi and more. Each hotel is conveniently located within walking distance of the Oregon Convention Center. Discounted rates will be available to book until July 31.

Please be aware that there are companies contacting exhibitors directly claiming to have room blocks on behalf of the Farwest Show. They are not associated with the Farwest Show, and we have no control over booking and cancellation fees associated with their service. No housing coordinator for the Farwest Show will make calls to solicit reservations.

Go to [FarwestShow.com/Hotel](http://FarwestShow.com/Hotel) for more information or to make a reservation.

## AI INNOVATIONS ARE TRANSFORMING AGRICULTURE

AI is helping the ag industry, a cornerstone of human civilization, tackle

three key challenges today and has the potential to revolutionize farming, according to *Forbes* magazine.

Pests devour approximately 40% of global agricultural productivity annually, costing at least \$70 billion. Accurate, early identification and control of pests is essential to minimize crop damage and reduce the reliance on chemical pesticides. Data such as weather reports, historical pest activity, and high-resolution images captured by drones or satellites are readily available today. Machine learning models and computer vision can help predict pest invasions and identify pests in the field.

Continuous monitoring and analysis of soil health are essential to ensuring optimal growing conditions and sustainable farming practices. Optimizing water use is crucial to reducing waste and enhancing productivity and plant health.

Precise identification and elimination

of weeds is critical to preventing them from competing for precious resources with crops and minimizing herbicide use. Thanks to computer vision, drones and robots can now identify weeds amongst crops with high precision. This allows for targeted weed control, either mechanically or through precise herbicide application.

## USDA HOSTING WORKSHOPS ON EXPANDED NURSERY INSURANCE OPTION

The U.S. Department of Agriculture has expanded its Nursery Value Select (NVS) crop insurance program and is hosting a virtual session for nurseries to learn more about the program. USDA said in a press release that this session will be valuable for producers in the newly expanded areas. It's particularly important for users of the Nursery Field Grown »

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and Container (FG&C) crop insurance program, which is slated to end beginning with the 2026 crop year.

NVS is a program that enables nursery producers to select the dollar amount of coverage that best fits their risk management needs. Its expansion is part of USDA Risk Management Agency's efforts to provide insurance options for a broader group of producers, including specialty crop producers.

The virtual session is at noon Thursday, July 18. Join the meeting at [TinyURL.com/USDAInsurance](https://TinyURL.com/USDAInsurance).

### OREGON MOVES TO ISOLATE EMERALD ASH BORER

The Oregon Department of Agriculture has notified nurseries that it has adopted a permanent emerald ash borer (EAB) quarantine, limiting the movement of ash, white fringe and olive tree materials from Washington County.

ODA says it has hired contractors to remove trees in the Forest Grove area, which is heavily infested with EAB. The city is located about 25 miles west of Portland.

The removals began over the winter and will continue this spring before the emergence of adult EABs. The downed trees are being burned nearby in the ODA's new air curtain incinerator. This will reduce the overall numbers of EAB that take flight this summer, hopefully slowing the spread to surrounding areas.

The project is being funded by a grant from Oregon Department of Forestry. The grant will allow the tree removals to be done on 36 different properties on the south side of Forest Grove at no cost to landowners and provide funds to plant replacement trees this fall.

To learn more about EAB from the Oregon Invasive Species Council, go to [TinyURL.com/OregonEAB](https://TinyURL.com/OregonEAB).

### DARCY RUEF REPRESENTS OAN AT WOMEN IN AGRICULTURE ROUNDTABLE

Oregon Association of Nurseries Vice President Darcy Ruef ([AI's Garden](#))



ODA says it has hired contractors to remove trees in the Forest Grove area, which is heavily infested with EAB. The city is located about 25 miles west of Portland. PHOTO COURTESY OREGON STATE UNIVERSITY

**& Home**) represented the association at a recent Women in Agriculture Roundtable with U.S. Department of Agriculture Trade and Foreign Affairs Under Secretary Alexis Taylor.

The focus was on trade barriers and opportunities facing agriculture. The discussion was wide ranging and included Farm Service Agency State Executive Director Gail Greenman, Oregon Department of Agriculture Director Lisa Charpillouz Hanson, USDA Rural Development Deputy Director Jill Rees along with representatives from the agricultural industry.

Ruef highlighted the fact that relationships matter in trade and also with the USDA. OAN works the closest with the Animal Plant Health Inspection Service (APHIS) on plant health and keeping green goods moving through the U.S. and internationally. Darcy pointed out that the OAN has worked with Taylor during her prior stint at USDA when OAN members had shipping troubles and thanked her for helping the industry resolve the problem.

### PUBLIC COMMENT PERIOD BEGINS FOR GROUNDWATER ALLOCATION RULES

The Oregon Water Resources Department (OWRD) has opened the public comment period for their new Groundwater Allocation Rules. Public hearings are being held throughout Oregon and virtually.

The agency says current groundwater right permitting rules allow for aquifers to decline beyond what nature can replace

and do not consider long-term or cumulative impacts on surface water.

“Addressing the long-term impacts of groundwater use requires updating the rules for reviewing new water right applications,” the agency said, adding, “These new rules will only apply to new water right applications and not to existing or permit-exempt water users.”

“As currently proposed, the rules will create a de facto moratorium on new ground water applications,” Oregon Association of Nurseries Executive Director Jeff Stone said. “This is the most significant change to Oregon water law in many years.”

Stone also underscored that nurseries seeking expansion of operations would face likely rejection of groundwater applications.

There are two remaining hearings scheduled for May:

**Southern Oregon**, May 16, 2024, 7-9 p.m., Jackson County Auditorium, 7520 Table Rock Road, Central Point.

**Salem and virtual**, May 21, 2024, 7-9 p.m., North Mall Office Building, Room 124, 725 Summer St. NE, Salem. This is a hybrid meeting including in-person and virtual attendance. To register for the zoom hearing, go to [TinyURL.com/H2OHearing](https://TinyURL.com/H2OHearing).

Comments can be submitted in person by attending one of the hearings or may be submitted in writing to: Laura Hartt, Oregon Water Resources Department, 725 Summer Street N.E., Suite A, Salem, OR 97301. Written comments must be received by May 31 at 5 p.m.

## RATEPAYER GROUP ASKS REGULATORS TO REJECT PGE RATE HIKE BID

Oregon's residential ratepayer advocate has asked the Public Utility Commission to dismiss Portland General Electric's latest proposed rate increase, *Portland Business Journal* reports.

PGE has requested a 7.4% overall average rate increase in 2025, 7.2% for the residential customers that the Citizens' Utility Board represents. It would come on the heels of an 18% overall increase that hit PGE residential customers in January, with an expected 2.7% boost for wildfire mitigation costs still due to kick in this July (PGE said it pushed that effective date back from April). Rates also rose in 2023, and the new PGE request would drive PGE prices about 40% above where they stood in 2022, according to CUB.

"We're asking the commission to do something they have never done before," Bob Jenks, CUB's executive director, said in a news release. "We are seeing historically high bills for many PGE customers and we need regulators to do something bold and unprecedented. Now is the time to flip the script and show our utilities that consumer protections come before profits."

"PGE is and will continue to be fully engaged in the public Rate Review process administered by the Oregon Public Utility Commission," a PGE representative said.

## OSU RESEARCHERS FIND NEW WAY TO MEASURE WATER CONTENT OF SNOWPACK

A heavy snowpack is fun for skiers and sledders, and it also acts like an open-air storage tank that melts away to provide water for drinking, irrigation and

other purposes during dry months.

But exactly how much water is held in snowpacks, and for how long?

Researchers at Oregon State University have devised a new method for measuring snowpack water content, the university reports in a press release.

Snowpack is traditionally measured at its usual peak on April 1. That information, critical to water managers around the globe, has taken on new clarity thanks to a new, more holistic calculation technique developed by researchers in the Oregon State University College of Engineering.

The research was recently published in *Hydrology and Earth System Sciences*. It found a 22% decrease in the amount of water held in snowpack over a season in the mountains of the lower 48 states over a 20-year period. Data from several dozen sites in Oregon from 1980 to 2020 found a 48% decline in snow water equiva- >>

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In addition to introducing a better tool for gauging how much water is in snowpacks over periods of time, the findings are important because of what the new metric revealed about mountain snowpacks, which play an outsized role in the nation's water storage.

Researchers noted that of all the water stored in the form of snow in the lower 48 states, 72% of it is in the mountains, though mountains cover just 16% of the total area.

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### USDA DEFENDS METHODS OF KILLING GRASSHOPPERS, MORMON CRICKETS

USDA's Animal and Plant Health Inspection Service (APHIS) argued in federal court in Portland, Oregon, that its methods for killing grasshoppers and Mormon crickets have withstood rigorous scientific scrutiny, according to a report by *Capital Press*, a newspaper in Salem, Oregon. The USDA is defending itself in a lawsuit filed by the Xerces Society and Center for Biological Diversity.

To minimize the impacts on non-target species, the agency establishes no-spray buffer zones and applies chemicals at times when other insects are less active. Controlling the pests with chemicals on rangelands in 17 Western states is necessary to protect the region's agriculture industry and natural resources, as outbreaks can quickly wreak economic and environmental devastation, the agency said.

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### BATTLE BREWING OVER NEW FEDERAL REPORTING RULES AFFECTING SMALL FARMS

The government has appealed a decision by a federal judge in Alabama, who ruled that the Corporate Transparency Act exceeded the powers granted to Congress by the Constitution, the *Capital Press* in Salem, Oregon reported. The act requires owners and top employers of small businesses to send their addresses and photo IDs to the federal financial crime investigators.

The government says the information



Deere & Company has entered into an agreement with SpaceX to connect its new and existing farm equipment to the satellite internet service. PHOTO COURTESY SPACEX

collected from small businesses will ferret out shell companies and help law and intelligence officers foil human smugglers, drug traffickers and terrorists.

The average U.S. farm in 2022 sold \$285,000 worth of goods, according to the USDA census of agriculture. Most farms likely will fall under the law.

The appeal has gone to the 11th U.S. Circuit Court of Appeals.

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### GOV. KOTEK SIGNS DRUG RECRIMINALIZATION BILL

Possessing user quantities of hard drugs will soon be a crime in Oregon once again. Gov. Tina Kotek on April 1 signed House Bill 4002 which does exactly that. It also expands funding for substance abuse treatment, Oregon Public Broadcasting reported.

The signing concedes the failure of Oregon's four-year experiment in hard drug decriminalization. Possession becomes a misdemeanor again, effective September 1.

"Success of this policy framework hinges on the ability of implementing partners to commit to deep coordination at all levels," Kotek wrote in her signing statement. "Courts, Oregon State Police, local law enforcement, defense attorneys, district attorneys, and local behavioral health providers are all critical to these conversations and necessary partners to achieve the vision for this legislation."

The Oregon Association of Nurseries got on board with the bill where other

similar groups not directly connected with the issue remained neutral. "We are citizens of Oregon, and the health of our communities is of great concern to us," OAN Executive Director Jeff Stone said. "Decriminalization was affecting livability. All could plainly see how it was affecting workplaces of all kinds, and neighborhoods. The state's approach had to be recalibrated. This gives our communities, and those affected directly and personally, more of a fighting chance."

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### JOHN DEERE PARTNERS WITH SPACEX TO UTILIZE STARLINK SATELLITE NETWORK

Deere & Company has entered into an agreement with SpaceX to provide cutting-edge satellite communications service (SATCOM) to farmers using the Starlink network, according to a Deere statement.

The SATCOM solution will connect both new and existing machines through satellite internet service and ruggedized satellite terminals. This will fully enable technologies such as autonomy, real-time data sharing, remote diagnostics, enhanced self-repair solutions, and machine-to-machine communication, all of which help farmers work more efficiently while minimizing downtime, Deere said in a statement.

The SATCOM solution will initially be available through a limited release in the United States and Brazil starting in the second half of 2024.



## Announcements

### TESS CHAPMAN JOINS OAN AS MARKETING COORDINATOR

The Oregon Association of Nurseries has hired Tess Chapman as Marketing Coordinator. Chapman started working at the OAN on Monday.



Tess Chapman

Chapman started her career as a freelance writer before working for a marketing agency over the last five years. She is a native Oregonian and graduated from Portland State University with a bachelor's degree in arts and letters. "I'm enthusiastic about bringing my marketing experience and skills to this role and having a meaningful impact in helping promote the association and its events to the industry," Chapman said. "It's encouraging to work in such a constructive environment."

As marketing coordinator, Chapman will be responsible for the OAN's online and social media presence, as well as crafting a variety of content and creating digital and print materials.

"Chapman occupies a new position that was created to help market the association to our members and non-members and to increase member engagement in our programs and events and we look forward to her contributions," Executive Director Jeff Stone said.

"We're thrilled to welcome Tess to our team! Her marketing background promises fresh perspectives to invigorate our marketing efforts. Tess's joining marks an exciting phase in our team's growth, and we're eager to collaborate with her as we strengthen the marketing of the association and its members." Director of Marketing and Member Services, Beth Farmer, said.

### STAR ROSES AND PLANTS HIRES SALES DEVELOPMENT MANAGER

Star® Roses and Plants has hired Jack O'Donnell as sales development manager. He brings over 25 years of experience in horticulture sales and development.



Jack O'Donnell

O'Donnell will work closely with each member of the sales team to provide advice, solutions and improving the customer experience, the company said in a press release.

O'Donnell most recently worked as southern region sales Mmanager at Dümmer Orange where he directed the southern region in retail program integration, new product development, and corporate marketing strategies with growers, brokers, and retail partners.

### MCHUTCHISON AND VAUGHAN'S HORTICULTURE NAME NEW PRESIDENT

Ken Turrentine has been named president of **McHutchison, Inc.** and Vaughan's Horticulture, a position in which he will lead both companies.

With 20 years of professional experience working in the horticultural industry, Turrentine previously served as a key account sales manager and western regional sales manager for Vaughan's Horticulture from 2019 to 2022.

"I'm really excited to rejoin the McHutchison and Vaughan's Horticulture teams," he said. ➤➤



Ken Turrentine

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**EASON ADDS ANNE CALDERON TO CUSTOMER SERVICE TEAM**

Anne Calderon has joined the customer service team at **Eason Horticultural Resources.**

Calderon began her career in 1996 and in the past 28 years has worked in customer service for two industry brokers. She has also worked in sales and marketing as a product specialist.



Anne Calderon

**BAILEY SALES TEAM WELCOMES NEW REPRESENTATIVES**

Johanna George and Paul Hassing are the newest territory sales reps at **Bailey Nurseries.**

George will partner with customers in southeast Minnesota, eastern Iowa, and Missouri. Hassing will partner with customers in the Twin Cities, northeast Minnesota, and western Ontario.

Johanna George joins the team at Bailey with over 20 years of experience in the industry.



Johanna George

Paul Hassing started at Bailey 25 years ago, working in many areas across the company.



Paul Hassing

**FORMER NWREC DIRECTOR ASSUMES ENTOMOLOGIST ROLE**

Surendra Dara, former North Willamette Research and Extension Center director and professor in the horticulture department at Oregon State University has assumed a new role at the Extension Service as entomologist.

Dara is an entomologist with more than 25 years of experience in integrated pest management and microbial control. ©

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# A story of farmland preservation

Longtime Oregon nurseryman spearheads documentary to raise awareness of the issue

Since Senate Bill 100 passed, nurseryman Jim Gilbert has seen various attempts to weaken it, which have largely been turned back. PHOTO BY CURT KIPP

BY CURT KIPP

**J**IM GILBERT is passionate about Oregon's unique land use planning system, which prioritizes the preservation of farmland. That's why the 80-year-old nurseryman collaborated with filmmaker Joe Wilson to create a documentary, "An Oregon Story: Saving Our Beaches, Farmland and More."

The 1 hour, 20 minute film tells the tale of how visionary leaders created legal protections for farmland more than five decades ago, to prevent suburban sprawl from gobbling up the verdant farmland in the Willamette Valley. Gilbert served as producer and Wilson, a former newspaper editor, as director.

"We have a very unique and wonderful state and we need to keep it that way," Gilbert said. "This part of Oregon history is not well known."

Gilbert pursued the film project while working at **Northwoods Nursery**, a 66-acre wholesale growing operation he founded in 1979 and still owns. His nursery has introduced exotic fruits and berries from Russia, Ukraine and elsewhere to Americans.

Gilbert considers his involvement in the documentary to have been time well spent, knowing that farmland preservation laws make it possible for him to do what he loves.

"I've seen it a few times and the effect on me is still the same," Gilbert said. "It's an emotional feeling for me. We're basically standing on the shoulders of giants, the people who created our land use planning programs. Gov. Tom McCall, an Oregon governor who took such a strong stand for the protection of farmland — it's remarkable."

The documentary draws on archival footage, new interviews shot beginning in 2019, and of course, lush footage showing the state's spectacular natural beauty.

Oregon's big farmland protection breakthrough came in 1972, when Senate Bill 100 was passed by the Oregon Legislature and signed by Gov. McCall, a Republican. It set up statewide land use planning rules and goals that are still in place today. Preservation of agricultural land is high on the list of mandatory statewide land use planning goals, which also include land use planning and citizen involvement.

"The film is really honoring those people who did this work," he said. "They deserve a lot of respect and gratitude for creating our land use planning program."

The decision to make the documentary originated in a conversation Gilbert had with younger people when visiting a local hot springs in the Cascade Range. They weren't familiar with Oregon's innovative

land use planning history, which began with preserving public access to ocean beaches under Gov. Oswald West, who served from 1911–1915. West signed the legislation in 1913, and a state park on the coast was later named for him.

Gilbert mentioned Oswald West State Park to the younger people in the soaking tubs and, to his chagrin, they asked where "Oswald East State Park" was. It reminded him that too few Oregonians are aware of the state's history of land use planning and farmland protection.

Since Senate Bill 100 passed, Gilbert has seen various attempts to weaken it, which largely have been turned back.

"One of my motivations of doing this is the realization that most Oregonians don't know this story," he said. "If you don't know history, you're doomed to repeat the bad stuff."

The state's rules require cities to maintain a 20-year supply of land for future growth, but also requires them to avoid taking over prime farmland, and use areas with lower quality soil first. The law recognizes that once farmland is converted to other purposes it is never converted back.

The most recent session of the Oregon Legislature included a bill to create exceptions to the urban growth



## A story of farmland preservation

boundary expansion process, allowing cities to add land for expansion more easily. The purpose was to address a persistent housing shortage and high housing costs by allowing more production. The bill passed and was signed by Gov. Tina Kotek, a Democrat, who has made housing one of her highest priorities.

Gilbert does not believe the exceptions were necessary. He did not like the precedent.

“It’s very easy to build on farmland, it’s nice and flat, but it’s painful to watch happen,” he said. “They come in and scrape off the topsoil that nature has spent thousands of years creating and throw it away and build houses on it. There’s lots of places you can build without taking away some of the best farmland in the world.”

Others say the system needs to remain more flexible if it’s to stay viable and relevant. The Oregon Association of Nurseries took a neutral stance on the bill after working with the governor’s office to make

### Showings in May

**Thursday, May 9 at 6:30 p.m.**

— **Hollywood Theatre**, 4122 N.E. Sandy Blvd., Portland, OR 97212. Tickets at [TinyURL.com/FarmMovie.com](http://TinyURL.com/FarmMovie.com). Hosted by 1000 Friends of Oregon.

**Saturday, May 18 at 2 p.m.**

— **Cannon Beach History Center & Museum** — 1387 S. Spruce St., Cannon Beach, OR 97110. Hosted by Cannon Beach History Center & Museum ([CBHistory.org](http://CBHistory.org)).

**Thursday, May 30 at 7 p.m.**

— **Fort George Brewery** — Fort George Lovell Showroom, 1483 Duane St., Astoria, OR 97103. Hosted by Fort George Brewery ([FortGeorgeBrewery.com](http://FortGeorgeBrewery.com)).

sure the scope of the exceptions was very limited. In part, the motivation was to keep the system adaptable so that pressure does not mount to do away with it entirely.

“Farmland preservation is extremely important to the association,” OAN

Executive Director Jeff Stone said. “We have built our reputation in the state capital on problem solving and working with people. Land use is a very complicated issue.”

Gilbert has been arranging screenings of the film throughout the state since the start of the year. It can also be viewed at [AnOregonStory.com](http://AnOregonStory.com). Some showings are free; others have a nominal cost to cover the cost of renting the theater. Gilbert didn’t expect to make any money, but that wasn’t his aim. It’s all about the message.

“The system as it is in place, it works,” he said. “Most UGB expansions get approved .... There is going to be growth. It’s going to happen. But we’d like it to be smart growth.”

Next up will be an entirely new, 40-minute edit of the film for schools and educational institutions. Gilbert said this version will be built from scratch and he is taking donations to fund it at the film’s website. ☺



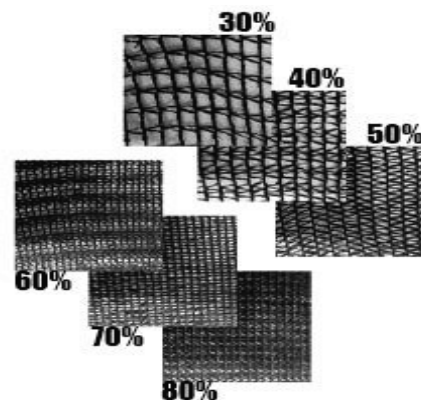
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# Green overhead

Ecoroofs are growing business for cities and the green industry

BY ERICA BROWNE GRIVAS

**G**REEN ROOFS are not a new idea, but experts say they have powerful implications in an era of climate change.

In use for decades in European cities, fueling a multimillion-dollar market, they go by many names, from ecoroofs, green roofs, living architecture, green infrastructure, and roof gardens. In the U.S., Portland, Oregon, and Chicago, Illinois, were early adopters (Portland in 1996) with civic programs, and Seattle, Washington, New York, New York and Washington, D.C., have followed suit.

Many cities, including Portland, have implemented incentives for retrofitting existing buildings. Portland also mandates green roofs for new buildings of more than 20,000 square feet as a way of managing stormwater.

Beyond offering beauty and a leafy relief from hardscape, the public benefits of green roofs range from stormwater management and carbon sequestration to air filtration and urban heat island mitigation — not to mention the creation of jobs for people and bolstering habitat for pollinators. Private benefits to building owners and residents include lowering energy costs, reducing noise, extending the life of roof membrane and increased property value. And green roofs that are accessible to building residents also contributes to their wellness. >>

Rooftops in Portland's South Waterfront district are dotted with rooftop garden spaces and green roofs. PHOTO COURTESY CITY OF PORTLAND



## Green overhead



Many cities, including Portland, have implemented incentives for retrofitting existing buildings. Portland also mandates green roofs for new buildings of more than 20,000 square feet as a way of managing stormwater. PHOTO COURTESY CITY OF PORTLAND

“The big idea is we need to roof areas of our cities to prepare for the ongoing impacts of climate crisis which are well documented and being experienced everywhere,” Steven Peck, founder of Green Roofs for Healthy Cities ([GreenRoofs.org](https://www.GreenRoofs.org)), an industry organization based in Toronto, Canada. “I don’t think there’s another green building technology that can match it in terms of the range and scope of benefits they provide.”

While the amount of total green roofs in the U.S. is unknown, Peck said U.S. member surveys indicate 10% annual growth in the last few years.

### Components and how they work

“Ecoroofs replace conventional roofing with a living, breathing vegetated roof system,” the City of Portland stated on its website.

Green roofs are typically built atop a strong waterproof membrane. They incorporate root repellent systems, drainage systems, filter cloths, irrigation systems, lightweight growing media, and plants. The irrigation system is optional, but highly recommended for long-term success.

Green Roofs for Healthy Cities trains professionals on implementation and installation and recommends using a designer and contractor experienced with green roofs.

The plants most often used are sedums. Their shallow, horizontal root systems and high heat and wind tolerance from growing on rocky mountaintops make them adaptable to many sunny urban rooftops. They may be planted on-site or sold and assembled as modular tiles. For sedums, 4” of growing medium

is typical; other plants with deeper roots can be grown if the structural analysis of the roof permits the extra weight. Ecoroofs can weigh 15–30 pounds per square foot saturated, according to Portland’s Ecoroof Handbook.

Samuel Hoefler of Etera ([Etera.com](https://www.Etera.com)) (Forest Grove, Oregon) grows and sells *Sedum* tiles. He has seen business growing on average about 20% a year, and the last two, 30%. His stackable tiles which mix evergreen and deciduous sedums for year-round appeal are delivered in pallets and laid on the growing medium. “They look great right away,” he said. He is interested in including native sedums.

Peck, of Green Roofs for Healthy Cities, anticipates that the drive for increased biodiversity will encourage the use of a range of pollinator-friendly

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plants. “I think that as we move forward, people are realizing that ... there’s a role for *Sedums* to play, but maybe it’s not a dominant role with all green roofs,” he said. “I mean, [not] if you want a biodiverse green roof, because we also happen to be in a biodiversity crisis.”

*Living Architecture Monitor*, a quarterly magazine of the green roof and wall industry, predicts that new compact versions of native plants will help broaden the palette of plants used for green roofs.

**Pac Fibre Soils** (Canby, Oregon) creates multi-layer system mixes designed for both extensive (up to 4” depth) and intensive (greater than 4”) roofs. For one-time installation without replacing, Brad Zimmerman said the mix incorporates local pumice and uses a lighter ratio of organic matter than conventional planting mixes to reduce compaction and weight. The intensive mix has more organic matter than the extensive, so it retains more nutrients, but it’s heavier in the rain.

### What they do

“While other design approaches often do one thing well, ecoroofs do a lot of things pretty well,” said Casey Cunningham, landscape architect for the Portland Bureau of Environmental Services. “In 2018 the Portland passed an ecoroof requirement for the central city, mandating ecoroofs on new buildings with a net area over 20,000 square feet, which is one of the most aggressive policies around.”

Cunningham said Portland now hosts over 700 green roof projects, totaling about 57 acres.

In Portland’s monitoring since 2002, eco roofs capture an average of 60 percent of the rainwater they receive, reducing runoff, and protecting sewers and streams. They improve air quality by trapping pollutants and reducing air temperature and increase natural biodiversity and habitat on urban sites that are usually “biologically dead spaces.” The roof structure may last twice as long as conventional roof materials, saving replacement costs.

Dr. Olyssa Starry, an assistant professor of urban ecology at Portland State



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## Green overhead



Portland now hosts over 700 green roof projects, totaling about 57 acres. PHOTO COURTESY CITY OF PORTLAND

University who researches green roofs, touts their unsung benefits and potentials. “We have good research that green roofs can lower people’s stress levels,” she said, based on cortisol level studies. Her studies have also shown green roofs can increase habitat and biodiversity and trap pollutants.

She sees them as a powerful tool for education. “These spaces are a catalyst for beginning conversations about difficult topics like climate change,” she said.

Yet she would like to see more expansive policies. “We have been able to install acres and acres but compared to the acres of development in the same time period, we’re not keeping up,” Starry said.

“We’re asking too much of these systems. We really need to see them as part of an overall greening strategy. Cities need to adopt comprehensive plans that incorporate bioswales, street trees and city parks, but they are an import component of that plan.”

### Are they expensive?

The biggest barriers to green roof implementation are the initial construction

cost — and before that, the required structural analysis, said Peck.

“Before you know if you can put a green roof on, you need to know what the structural loading capacity is, and that could cost \$1,000 or \$2,000,” he said. “So, people are reluctant to put the money in without knowing if they can proceed.”

However, the economic and environmental benefits far outweigh the upfront costs, Peck said.

Peck notes that Toronto, Ontario’s incentive program offers a buy-out option, which helps subsidize both incentives and structural analyses.

However, a 2011 report by the federal General Services Administration said that green roofs have a return on investment of 224%. “Costs range widely depending on what your design goals are,” landscape architect Cunningham said. You can build up a naturalistic look slowly, with less upfront cost, but it may take longer to look full and will likely go brown in winter without irrigation.

“At the high-cost end, there are pre-

manufactured trays that interlock and provide instant lush plant coverage .... These more manicured designs will cost more in carbon footprint and in dollars, up front and in maintenance, but this style looks green and controlled year-round. Both approaches and the range in between work, but an owner needs to be clear in what their expectations are and know that there are options.”

### Do they leak?

Addressing common misconceptions, Cunningham said, fear of leaks is a big one, but “We haven’t seen any problems here where the ecoroof was the cause.” He suggests minimizing seams and protrusions as much as possible to slow breakdown of the waterproof membrane.

These tips will prolong the life of your green roof, he said: “Some small but consistent maintenance steps will also keep an ecoroof providing all its benefits for a long time, such as keeping the drains clear, removing unwanted volunteer vegetation before it goes to seed, and a mow or remov-



al of dry material before July, to reduce any risk of an errant spark starting a fire.”

### Maximizing cooling

Beyond carbon sequestration, Portland State’s Starry said she would like to see a focus on promoting the cooling benefit of green roofs to moderate the urban heat island effect. “When water is available, green roofs can cool the urban environment,” Starry said. That doesn’t happen much in the Pacific Northwest’s dry summers, she said.

To prevent the plants from going dormant, “The question is finding a balance using smart irrigation strategies to provide that cooling benefit without wasting water,” and to choose plants that would optimize that cooling effect, Starry said.

Sedums have been the traditional plant choice, but Starry said their conservative release of water during



Rooftop gardens and green roofs improve air quality by trapping pollutants and reducing air temperature. PHOTO COURTESY CITY OF PORTLAND

An advertisement for HC-Companies. On the left, there is a circular logo with the letters 'HC' and a small leaf icon above the 'C'. To the right of the logo, the text reads "Leader in Horticultural Containers". Below this, in a cursive font, it says "We don't just talk sustainability - we live it!". The background of the advertisement shows a close-up of a black plastic nursery pot filled with soil and a small green plant. The pot is sitting on a bed of mulch next to a stone wall.

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## Green overhead



With careful plant selection, green roofs can increase natural biodiversity and habitat on urban sites that are usually biologically dead spaces. PHOTO COURTESY CITY OF PORTLAND

photosynthesis suggests that plants like warm-season grasses would go further toward cooling the air and the building.

There's another way green roofs may be able to help with cooling and save even more energy — by combining them with solar panels. The panels are mounted on stands above the green roofs in a concept sometimes referred to as a “biosolar roof.”

The combination creates an energy-saving synergy of efficiency. The green roof helps cool the panels down, so they produce more electricity, and the soil can be used as ballast saving the construction and addition of sandbags and roof penetrations, Peck said.

“The compatibility of photovoltaic panels and ecoroofs is getting more and more recognition,” said Cunningham, “which is exciting because plants benefit from the dappled shade, and the panels are more efficient with the cooler air around them.

### Learn More

Portland's Ecoroof program:

[TinyURL.com/PDXGreenRoof](https://TinyURL.com/PDXGreenRoof)

Olyssa Starry's research:  
Green Roofs for Healthy  
Cities, training programs, educa-  
tion and awards,  
[greenroofs.org](https://greenroofs.org)

*Green Roof and Wall Policy  
Guide* (2023) by Green Roofs  
for Healthy Cities, [TinyURL.com/  
RoofWallGuide](https://TinyURL.com/RoofWallGuide)

*Living Architecture  
Monitor*, a journal published by  
Green Roofs for Healthy Cities  
[LivingArchitectureMonitor.com](https://LivingArchitectureMonitor.com)

“This is probably the main way green roofs can help with climate change,” Starry said

### Increasing food growth

In addition, “there's work now to see if we can grow food underneath the solar panels,” said Peck, which can help

increase food security and equity in cities. “Those are called agrivoltaic rooms.” In addition, “there's agricultural work that's being done with lighting, use of nutrients, hydroponics and aeroponics.” to enable the growth of more food with less soil and weight on the roof.

Ultimately, Cunningham is optimistic about the outlook for green roofs.

“Also, just seeing more built projects and proof that greenroof technology works is slowly steadily trending us toward a mainstreaming of plants on buildings, which may be essential to livability in cities in the face of climate change. ☺

*Erica Browne Grivas is an award-winning journalist and gardener pushing zone boundaries in Seattle, Washington. She can be reached at [EBGrivas@gmail.com](mailto:EBGrivas@gmail.com).*



# The carbon footprint of nurseries

Growers hope to get credit for the sequestration value of the plants they grow

BY JON BELL

**A** FEW YEARS AGO, Mark Bigej, who owns retailer **Al's Garden & Home** (Woodburn, Oregon) with his dad and two sisters, decided it was time for a family meeting to talk about the business. The gathering included most of the family members involved in the company, including Bigej's then college-aged children.

Talk turned to Al's mission, vision and values, which then led down the path to sustainability — a natural direction for Al's. "It's always been a part of who we are," Bigej said. "We were sustainable before it was fashionable."

But just how sustainable was Al's, which comprises four popular retail garden centers and a nursery operation? That was a little more challenging to quantify.

So Bigej tasked his son with figuring it out. With time off from med school for a gap year — and a mind for scientific research — Bigej's son conducted a study of Al's to size up the company's environmental footprint.

"What we wanted was an honest-to-goodness look in the mirror of where we thought we were so we could do better," Bigej said.

His son looked into everything: utility bills, plant num- ➤

## The carbon footprint of nurseries



Al's Garden & Home into everything in their audit: utility bills, plant numbers and sizes, how much natural gas is used at the operation's 615,000 square feet of greenhouses, how much carbon is sequestered by plants grown on Al's nearly 16 acres, and more. OAN FILE PHOTO

bers and sizes, how much natural gas is used at the operation's 615,000 square feet of greenhouses, how much carbon is sequestered by plants grown on Al's nearly 16 acres, and more. The calculations did not include how much carbon the plants continue to sequester once they're planted in a customer's yard, where they could continue to absorb carbon for years.

And what the study ended up finding is that Al's is actually a pretty environmentally-friendly business.

"The report, to the best of our ability, reflects what we are doing," Bigej said. "We are not carbon-neutral by any means, but it's pretty cool to see how green of an industry we really are."

Indeed, the nursery industry is comparably light on the environment, and many of its products are some of the most effective tools at sequestering carbon.

As the state of Oregon looks to implement greenhouse gas emissions limits and crack down on high emitters, nurseries are paying attention and taking stock. Tighter regulations could lead to higher costs for nurseries — say, for example, increased prices for natural gas, which is key for warming greenhouses — and stifle efforts to produce the very



**"If it was easy to do, it would have already been done. It could be cool to try to build something from nothing. But being first means you get the good attention — and the bad attention."**

— Jeff Stone,  
OAN executive director

plants and trees that help sequester carbon. At the same time, maybe nurseries deserve some kind of benefit — a credit or tax incentive — for all the carbon they do capture.

It's a conversation that's just starting to heat up and could have big impacts on nurseries around the state. It's also an issue that Oregon could take the lead on and set the standard for other states all over the country.

"We are talking about it nationally, and people are saying, 'Why don't you, as in Oregon, figure this out?'" said Jeff Stone, executive director of the Oregon Association of Nurseries. "If it was easy to do, it would have already been done. It could be cool to try to build something from nothing. But being first means you get the good attention — and the bad attention."

### Talking the talk

Talk of climate change, carbon emissions and, conversely, carbon storage, is nothing new, even in the nursery industry. Stone said the OAN has been in the space "quietly" for some time now, and even launched the Climate Friendly Nurseries Project with the Oregon

Environmental Council in 2009. That three-year project helped nurseries measure and reduce energy, resource use and greenhouse gas emissions while achieving greater economic efficiency and profitability.

But that project, though ahead of its time, is more than 10 years in the past now, and the conversations around climate change and cutting emissions has only amplified. Because of that and moves at the state government level — including former Gov. Kate Brown’s 2020 executive order aimed at cutting greenhouse gas emissions — many nurseries and growers in Oregon have taken a more proactive approach.

“The whole world is very focused on carbon right now,” said Tyler Meskers, co-owner and vice president of **Oregon Flowers Inc.**, a cut-flower grower in Aurora, Oregon. “This is definitely important to us.”

Like Al’s Garden & Home, Oregon Flowers was curious about its own carbon footprint, especially in light of the fact that the majority of cut flowers in the U.S. are imported from Colombia and Ecuador and flown or trucked across the country — not the most carbon-friendly model.

But Meskers said Oregon Flowers wanted to create a baseline for itself and see where it stood. He said his assessment was fairly informal. “It was a lot of Googling ... not very scientifically proven.”

But it was a place to start. He looked at everything from electricity and fuel use to waste and how much carbon on average is stored by flowers before they’re cut. The company’s greenhouse operations obviously produce more carbon, but some of that is offset by what Oregon Flowers’ grows in its fields.

“We came out to be pretty carbon neutral,” Meskers said. “I was pretty pleased to see that.”

#### Where credit is due

**Robinson Nursery Inc.** (Amity, Oregon), which grows shade and ornamental trees just outside McMinnville, also wanted to get a sense of its carbon footprint. To do so, the nursery used an online carbon calculator developed by Oregon State University, which lets entities >>



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## The carbon footprint of nurseries



Tyler Meskers (right) and his father Martin Meskers look over plants in the greenhouse at Oregon Flowers in Aurora. In his evaluation, Meskers looked at everything from electricity and fuel use to waste and how much carbon on average is stored by flowers before they're cut. The company's greenhouse operations obviously produce more carbon, but some of that is offset by what Oregon Flowers' grows in its fields. OAN FILE PHOTO

input all kinds of data to come up with an accurate assessment.

Josh Robinson, co-owner of the nursery, said that the results were impressive, illustrating that over the 40-year life of the nursery, about 70% of the trees planted there and shipped out to be planted elsewhere that are likely still living have sequestered about 23 billion pounds of carbon — the amount of emissions spewed by about 2.5 million cars in a single year.

“To me, that paints a really cool picture that the product we produce does a lot of good,” Robinson said.

And yet, Robinson worries that legislators looking to cut emissions may not

be seeing the whole picture when they talk about banning natural gas or requiring that newer, more efficient equipment be used in agriculture.

“They may be good intentioned,” he said, “but I don't know if they always understand what's going on at the frontlines of a nursery. Don't hurt us by making us use equipment that is going to cause us to go backwards a few steps and lose the environmental gains we're already making.”

A case in point to Robinson's sentiment: Artificially inflating the cost of natural gas to dissuade nurseries from using it. Bigej said Al's gas bill went up by about 40% last year alone, directly as a result of Gov. Brown's executive order.

“They are trying to make it cost prohibitive,” he said. “But we are sequestering more carbon than we are using in these plants that are going to do the work for years and generations to come. I absolutely think we should get an agricultural exemption or credit for that.”

Such a credit is part of what Stone is looking into as a potential policy or piece of legislation to eventually take to the Oregon Legislature or even all the way up to the U.S. Congress. In addition to work he's already put into the issue, Stone will be touring nurseries in Oregon this summer to ask members what they want to see when it comes to carbon reduction and a potential credit for sequestration. ➤➤

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## The carbon footprint of nurseries

“I think it’s in the interest of our members to help give them the best possible voice on the issue,” he said. “I want to know, do they just want to keep their heads down and do what they do, or do they want to be seen as growers who are helping the planet? Because that’s what they’re doing.”

### Making strides

Part of OAN’s effort is also happening in tandem with research that’s going on at Oregon State University. Ryan Contreras is a professor there and associate head of the Department of Horticulture. He said mitigating climate change is an interest and a priority, which is why various departments have been working on developing more efficient cropping systems and cultivars.

Different researchers are also look-

ing into carbon sequestration in various systems, such as turf grass, which associate professor Alec Kowalewski has been heading up.

“Everybody looks at golf courses and lawns as a terrible waste,” Contreras said, “but they may not be as bad as you think, specifically when it comes to carbon sequestration.”

He also said OSU has recently hired a biotechnologist, who will help provide insight into how plants work so that, in the future, plants will be better able to store carbon even in the face of drought. In addition, the department has also requested to hire a whole plant physiologist, who could help with a lifecycle analysis of plants to determine more exactly what it takes to grow a plant versus how much carbon it sequesters.

“This is a huge, important issue to

the nursery industry,” Contreras said.

“I think the green industry has a great story to tell,” echoed Robinson. “Plants are the only things that successfully sequester carbon, so naturally the products we produce are one of the best things for human health and the environment without a doubt. We just need to figure out how best to quantify what it is that we’re doing.” ©

*Jon Bell is an Oregon freelance journalist who writes about everything from Mt. Hood and craft beer to real estate and the great outdoors. His website is [www.JBellInk.com](http://www.JBellInk.com).*

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# Power savings

Energy Trust rebates can help nurseries switch to LED lighting and lower power bills

All of the LED lights in the cold storage warehouse at Baley Nurseries are more cool-toned to more closely resemble daylight and provides more accurate color perception, said Carlton Davidson. The old high-pressure sodium lights had a yellow/orange hue that made you misinterpret colors and made it harder to see yellow or gold markings tags on the trees. PHOTO BY VIC PANICHKUL

BY VIC PANICHKUL

**N**URSERY OWNERS might still be in shock at their electricity bill since rate increases approved by the Oregon Public Utilities Commission took effect in January. But there's still a way to quickly trim electricity consumption: update lighting.

For warehouses and cooler spaces still using incandescent lighting, fluorescent lighting, or high-bay metal-halide lights, upgrading to LEDs can make a significant impact on monthly energy bills. Plus, Energy Trust of Oregon has rebates to help offset installation costs. "Most nurseries still have fluorescent lighting — T8 and T5 tubes — for office space and storage. Often in warehouses, they'll have T5 high output lights," said Laurent Stievenard, sales manager at **Pacific Lamp Wholesale**. "When I go to nurseries, I see old fluorescent or metal-halide lamps. Just switching them to LED would save 50 percent of the energy consumption."

The LED lights throw off more lighting for less wattage. "Metal-halide bulbs run from 400W to 1000W in the 'UFO' fixtures (round high-bay lamps that look like flying saucers)," Stievenard said. "To get the same amount of brightness with LEDs, you only need 200W bulbs."

Growers can also save energy by using motion sensors so that the lights go off when nobody is in the room or facility. "When you start integrating motion sensors, you can save up to 90 percent," Stievenard said.

Motion sensors and lighting controls have advanced ➡



The LED lamps in the cold storage warehouse are networked together and connected to wifi so that they can be controlled via a phone app. The app allows Bailey to not only control the intensity of the lights on the fly, but also the tone of the light (warm or cool). The lights are also set on a schedule so that they turn off and on at certain times. PHOTO BY VIC PANICHKUL

## Power savings

over the years, just as light bulbs have. There are motion sensors that dim lights before they go out completely, lights that are equipped with light sensors so that they dim if a nearby skylight is providing enough light and then raise when the sunshine fades. And that's not all.

"There are even smart lighting systems now where you can dim or raise lights through an app on your phone," Stievenard said.

### Better color ranges with LED

LED bulbs have also advanced with a range of color temperatures available, from warmer lighting that mimics natural sunlight, to cooler, brighter lighting. Different color temperatures, measured in kelvins, might be appropriate depending on the application.

"Sometimes you'll go into an office and it's really intense lighting, because they're using that 5000K hue," said Carlton Davidson, who oversees operations planning and scheduling for **Bailey Nurseries'** West Coast operations. "Some people complain that it bothers their eyes. So in our offices, we use more of a warm light, which is between 2700K and 3000K so it's a lot easier on the eyes, more like your traditional soft white incandescent light bulb."

For LEDs, 2700K represents warmer light like that produced by incandescent bulbs and 5000K is cooler light like sunlight.

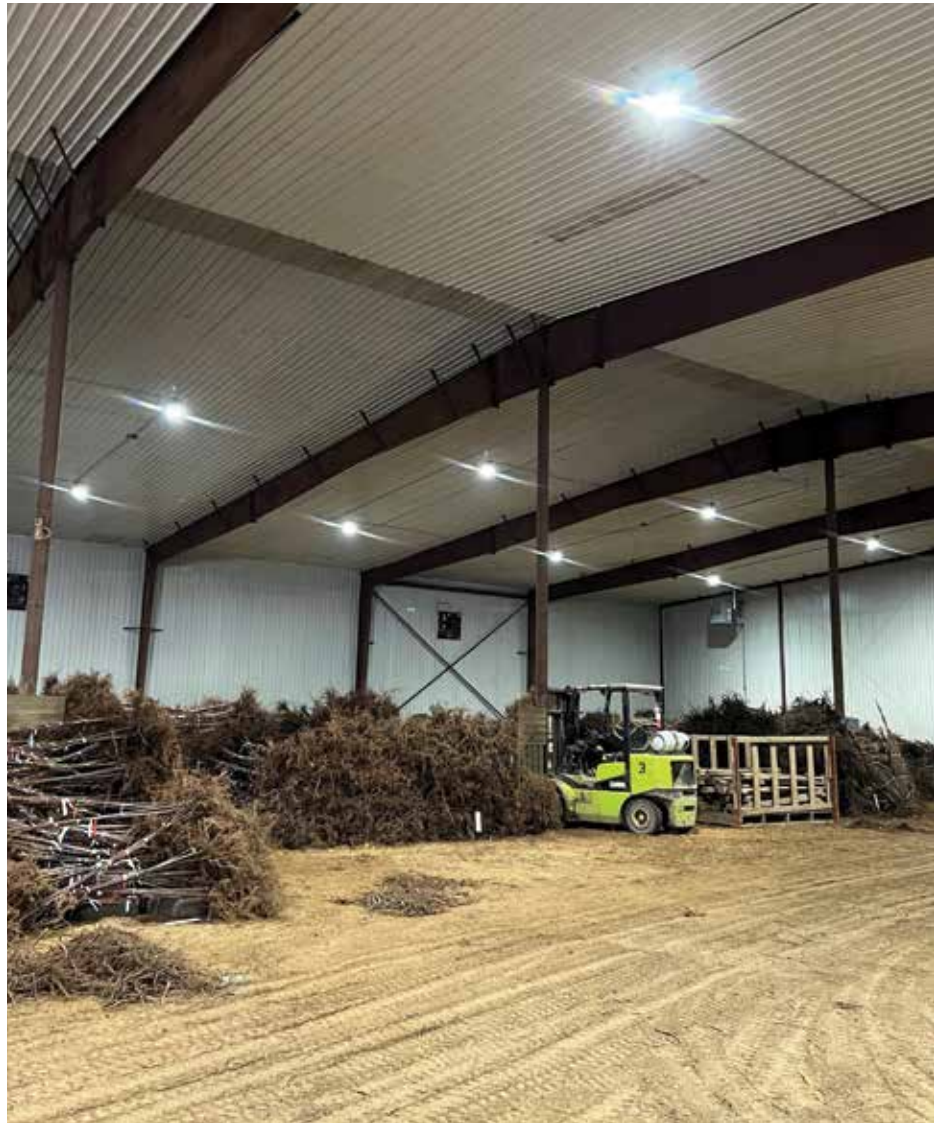
"In the warehouse, the ceiling is 20–30 feet above you and you want more of a brighter daylight so you can see true colors," Davidson said. "We're dealing with bare root trees in the warehouse, so that brighter light lets you see better than the old high pressure sodium lights, which gave a yellow cast."

Technology in LED lighting has advanced so far that "you can even switch the kelvins from warm light to cool light with the flick of a switch," Davidson said.

### Tapping into Energy Trust

Energy Trust of Oregon offers assistance to help nurseries save money on power consumption due to lighting.

"We have a great lighting program,



At Surface Nursery, high-bay sodium and mercury-halide lights were replaced with UFO-style LED lights. Every incandescent and fluorescent bulb at the nursery was replaced with LED, said Vice President Shawn Nerison. PHOTO BY SHAWN NERISON

and it's what we recommend for businesses looking for a quick way to see energy savings," said Ashley Bartels, marketing manager for energy programs at Energy Trust of Oregon.

LEDs use up to 90% less energy than traditional incandescent bulbs, and can last up to 25 times longer, according to the U.S. Department of Energy.

There's a range of lighting incentives available, but they fall into two main categories: rebates and calculated incentives.

Rebates are cash incentives set at certain dollars per item. For instance, rebates for lighting controls are between \$30–\$60 per sensor. High bay lights are between \$120–\$300 per light, depending on size, and if you add controls for those lights, the incentives can be \$175–\$355 per light.

Calculated incentives are for larger and more complicated projects that might

involve more than lighting or more than one facility. Talking to an Energy Trust representative can be a helpful first step in figuring out what works best for your facility and which incentives are available.

"We just increased our calculated incentives, so now is the time to look into new lighting," Bartels said. "Energy Trust can come out to your property to do an assessment and walk you through your options and savings potential."

Calculated incentives are based off energy savings the business receives from implementing the project.

"The calculated incentives were raised from \$3 per therm (a therm equals 100,000 BTUs) to \$5 per therm, and cover up to 90 percent of the project cost," Bartels said. They would also involve an assessment of the project by an Energy Trust partner.

For small businesses, Energy Trust also currently has a special, limited-time program that would install LEDs at no cost. To qualify, nurseries should have to have under 50,000 square feet of lighted space, or under 50 employees. The offer is eligible small to medium-sized business customers who install energy-efficient lighting solutions at their existing commercial building, multifamily property, or industrial facility.

To date, Energy Trust has helped nearly 1,000 Oregon small businesses update their lighting at little to no cost. **Bailey Nurseries** and **Surface Nursery** are two Oregon Association of Nurseries members who have taken advantage of Energy Trust incentives to upgrade lighting. In interviews with *Digger*, each provided different examples of how the incentives were used.

### Do-it-yourself approach

Surface Nursery worked with Pacific Lamp, who walked through the facility, and did an audit, and wrote a lighting plan for them in 2022. The nursery then purchased the equipment from Pacific Lamp and installed it themselves.

“We had sodium and mercury halide lights, and we removed all the old fixtures and put in high-bay UFO LED lights,” said Shawn Nerison, vice president of Surface Nursery. “We replaced fluorescent bulbs in the office with LED bulbs. You don’t need ballast anymore and we put in 4-foot-long LED bulbs. They fit in the same fixture.”

Surface made improvements throughout their operation. “We did four warehouses and our shop, coolers, offices, and equipment storage buildings,” Nerison said.

The nursery also replaced outdoor

lights on buildings and the parking lot with LED lights. “I don’t think there are any more incandescent or fluorescent lights,” Nerison said. “Our cost was literally \$1 per light fixture. [For] a project totaling \$23,000, I literally wrote a check for \$150.”

Once the equipment arrived, the nursery went to work installing the lighting, one building at a time. They later received a call from Energy Trust to verify that the work was done. Energy Trust asked for pictures showing the new fixtures installed.

The project was easy, in part because Pacific Lamp was familiar with Energy Trust programs, and had experience working with other nurseries.

“My goal is to find older lighting technology and to find savings for the nursery,” Stievenard said. “The Energy Trust rebates are so substantial, so




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## Power savings

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For Surface Nursery, the only cost was the materials. There was no installation cost to pay, because Surface was going to install everything themselves. “The cost for the project was \$23,775 and the rebate from Energy Trust covered \$23,625,” Stievenard said. “The nursery paid \$150. I take care of everything. I do all the paperwork and I apply for the Energy Trust rebate on their behalf and the nursery pays for what the rebate doesn't cover.”

The rebate covers materials only, so if the nursery can't do the work themselves, Pacific Lamp can quote labor costs. “Ninety percent of nurseries install the lighting themselves,” Stievenard said. “They're very easy to install.”

While this project was more limited in scope, Energy Trust's incentives also work for large-scale projects.

### The big bang

Bailey Nurseries initiated the process for the project at its Dayton facility in 2019 but the project didn't start until 2020. The project totaled \$340,000, and Energy Trust covered 85 percent of the project costs. “We were very fortunate that the incentives in the lighting arena were very favorable,” Davidson said.

The incentive program was wide in scope. “It covered every single light bulb in Dayton and it covered every single light fixture, interior and exterior,” Davidson said.

It covered offices, warehouses, refrigeration coolers, pole barns, exterior detached buildings that house equipment and machinery. “It was a complete walk-through by the vendor and the electrician,” Davidson said. “There wasn't a fixture that wasn't touched and converted to LED.”

The older lights were fluorescent or high-pressure sodium fixtures. When the nursery converted the high-pressure sodium fixtures, they went from a 400W to a 150W fixture.

“We did have a good incentive partly too because our lighting is controlled,” Davidson said. “We have the ability to control the lights through an app on our phone or computer so we can set sched-



Surface Nursery worked with Pacific Lamp and purchased all of the lights, like the high-bay UFO-style lamp above, from Pacific and handled the installation themselves. PHOTO BY SHAWN NERISON

### Energy Trust programs

Energy Trust of Oregon no-cost small-business lighting program:

**TinyURL.com/ETNoCost**

Office and industrial lighting rebates: [TinyURL.com/ETOfficeIndustrial](http://TinyURL.com/ETOfficeIndustrial)

Greenhouse and nursery upgrade rebates: [TinyURL.com/GreenNursery](http://TinyURL.com/GreenNursery)  
Horticultural lighting and lighting controls: **TinyURL.com/HortLights**

For questions on Energy Trust lighting incentives, call 800-326-2917 or email [Lighting@EnergyTrust.org](mailto:Lighting@EnergyTrust.org)

### Resources

Pacific Lamp Wholesale: Laurent Stievenard, sales manager, 10725 SW 5th St., Beaverton, Oregon, [Laurent@PacLamp.com](mailto:Laurent@PacLamp.com), 415-527-8911

Farnham Electric: 1050 NE Lafayette Ave., McMinnville, Oregon, [info@FarnhamElectric.com](mailto:info@FarnhamElectric.com), 503-472-2186

North Coast Electric: 27600 SW 95th Ave., Wilsonville, Oregon, 503-570-6174

ules when lights come on and when they turn off. We can also control the intensity of the light.”

And all of the fixtures in their warehouse and coolers have a photo cell, so they turn on when someone walks in, and turn off when there's no motion in the space.

Bailey worked through their long-time electrician, Farnham Electric in McMinnville, and supplier North Coast Electric in Wilsonville. North Coast Electric has a special projects department, and within that department, they have a pretty good relationship with Energy Trust.

“So it was the electrician, the supplier and the nursery working together and the supplier coordinated everything through Energy Trust,” Davidson said. “They tracked the dollars for us and they did the proposal. They worked with Energy Trust on all the details. We looked at the paperwork and gave them the final approval.”

Because the project took several months to complete, Bailey paid in stages as each stage was completed. Energy Trust came out to verify completion and once it was, the rebate form was submitted and Bailey got a check from Energy Trust, Davidson said.

“Going through this project made me think about my own house,” Davidson said. “That same year I switched over my Christmas lights to LED.” He also did a home remodel and switched every bulb out to LED.

“Part of the reason we did this project wasn't just for money savings but for conservation, to be more sustainable, and it's about good stewardship,” Davidson said.

As a nursery and an industry, stewardship encompasses more than just being good stewards of the land, but good stewards of resources as well. ©

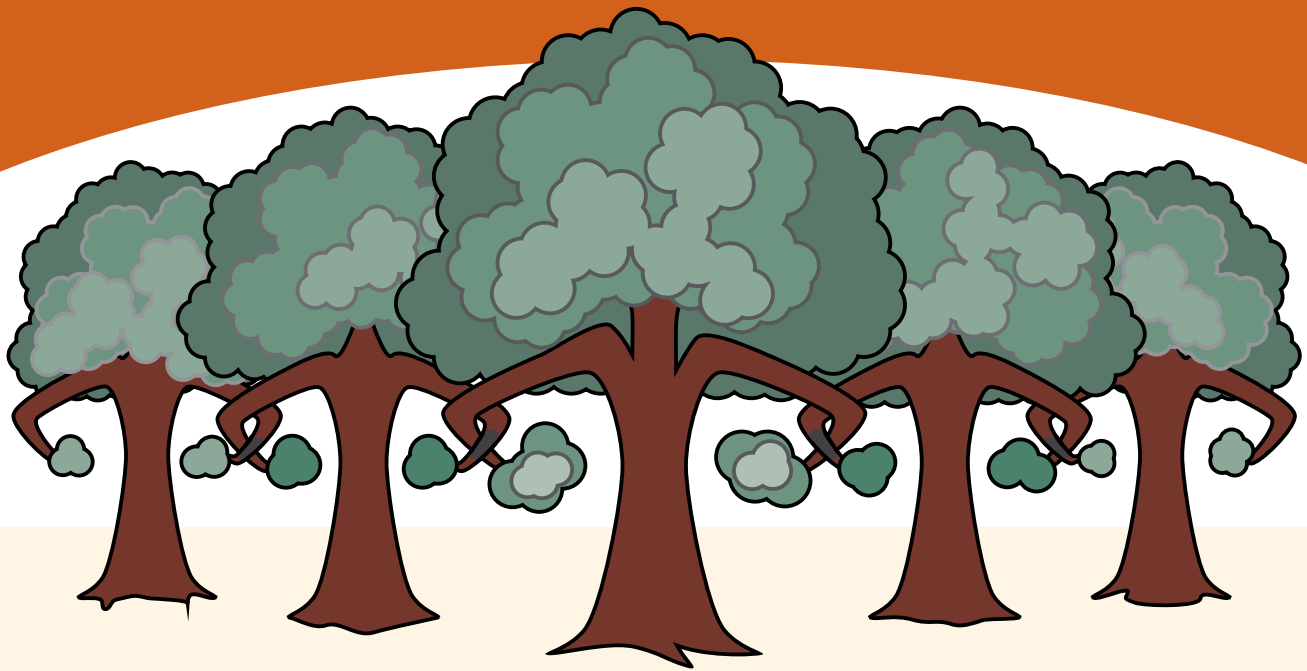
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*Vic Panichkul is publications manager at the Oregon Association of Nurseries and managing editor and art director for Digger Magazine. Contact him at 503-582-2009 or [VPanichkul@OAN.org](mailto:VPanichkul@OAN.org)*

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## Our members are united and influential

### OAN Government Relations program

Advocacy, like business, is personal as well as strategic. By building bipartisan relationships, the OAN gives members the opportunity to impact public policy.

When critical issues arise, OAN's Government Relations Team serves as your defense system against adverse regulation. But we are more than just reactive. Our daily efforts to advance member interests are based on shared principles, with a laser focus on outcomes.

There are two main objectives:

#### 1. Promote a positive business climate.

Growing, shipping and selling product needs to have positive business climate to compete on a state, national and international level.

#### 2. Protection from burdensome laws.

Regulation, taxation and bad laws can all hurt a nursery and greenhouse operation quickly. OAN serves as a sentry against burdensome laws that affect members.

### Working at all levels

The OAN Government Relations Team works at the local, state and federal levels to advance the industry:

**State:** Elected and agency officials depend on OAN for accurate information on the nursery industry and the challenges it faces. We have the unique ability to engage decision makers in every corner of the state (urban or rural). We find solutions on labor, land use and water issues, while supporting funding for research, education and statewide extension services.

**Federal:** The OAN has a proven track record as a national leader. We engage Oregon's members of Congress on issues such as federal immigration reform and the Affordable Care Act. We work with USDA officials to address pest and disease issues. And we collaborate with AmericanHort to address issues affecting nurseries nationally.



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The OAN draws its strength and direction from member involvement, including training them to give effective testimony. That in turn allows our professional staff, with decades of experience, to work every day on your behalf.

The advocacy effort by the association focuses on hitting issues that affect your pocket-book: labor, water, environmental regulations, health care and pest and disease protection are a small segment of the issues the association and its members discuss.

The OAN is your political voice. Members set the policy direction and the association talks to elected officials, agencies at the federal and state level and shapes issues with the press.

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**The Oregon Association of Nurseries is the community dedicated to the long-term success, profitability and excellence of Oregon's nursery and greenhouse industry.**

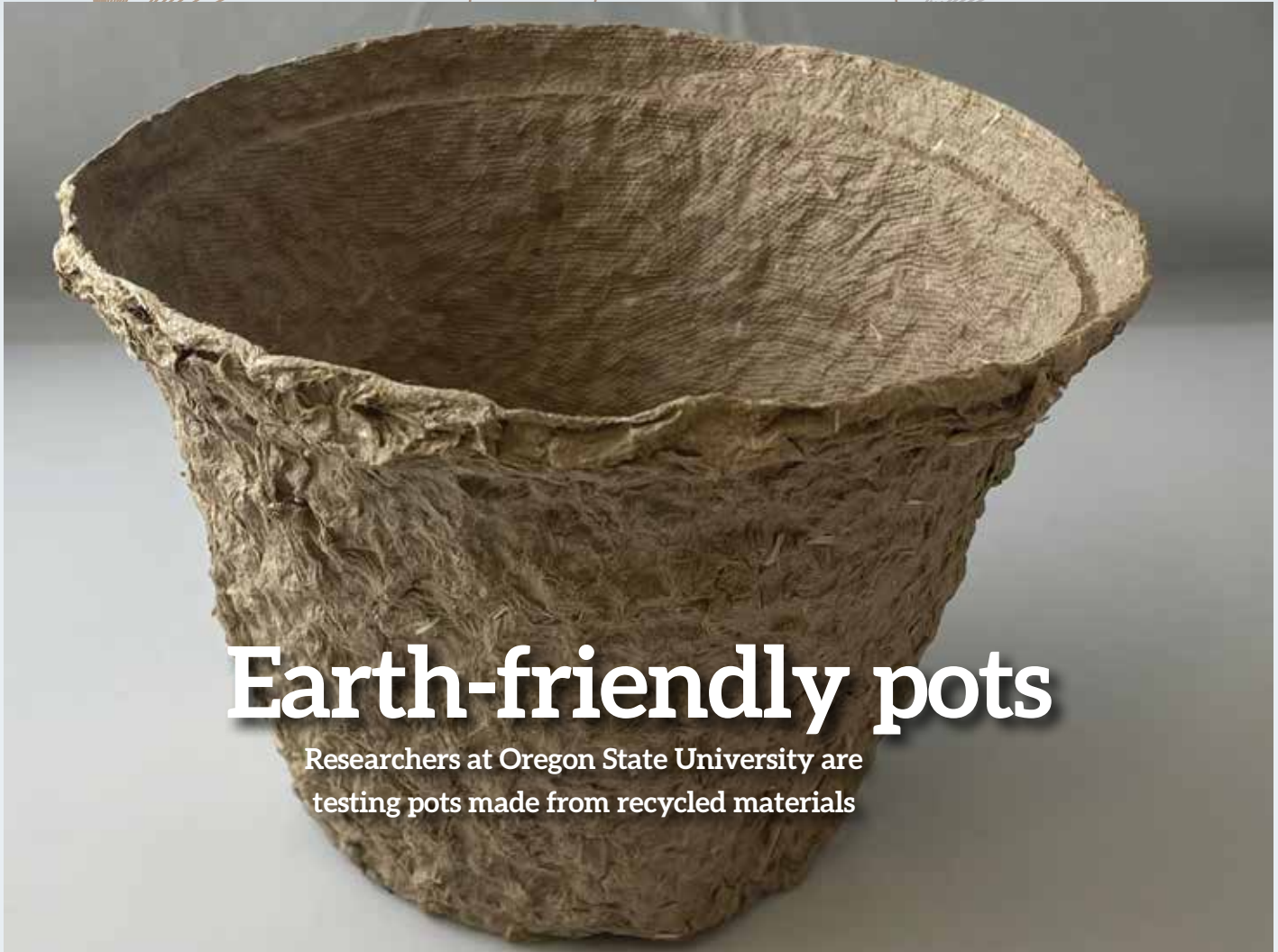


# GROWING KNOWLEDGE

Series content is coordinated by Dr. Lloyd Nackley, associate professor of nursery production and greenhouse management at Oregon State University in Corvallis, Oregon.



An ongoing series provided by Oregon State University in collaboration with the United States Department of Agriculture and in partnership with the Oregon Association of Nurseries



## Earth-friendly pots

Researchers at Oregon State University are testing pots made from recycled materials

Nursery biopots made with recycled cardboard, hemp hurd, and apple pomace. PHOTO COURTESY OF OREGON STATE UNIVERSITY

BY JOOYEOUN JUNG AND YANYUN ZHAO

**A**N ESTIMATED 44 MILLION TONS of plastic was disposed of in the United States in 2019. We buried 86% in landfills, incinerated 9%, and recycled 5%. In the same year, containers and packaging accounted for 70% of the total plastic waste.

### Nursery industry reliance

Greenhouses and nurseries are among the places where plastic containers are being heavily used, particularly in the form of plastic seedling containers/pots. These pots are made of non-renewable petroleum-based materials, such as polystyrene (PS), polyethylene (PE), and polypropylene (PP) that causes an ongoing environmental crisis. The daily reliance on these materials gives rise to a continuous threat to our ecosystem, resulting in wide-

spread and detrimental consequences.

Oregon's nursery and greenhouse industry is the state's largest agricultural sector. Annual surveys conducted by the Oregon Agricultural Statistics Service consistently show the nursery/greenhouse industry leads all other sectors of Oregon agriculture in sales, payroll, and full-time employees. Oregon trails only California and Florida in nursery production and accounts for 15% of all U.S. nursery crops.

In nursery gardens and greenhouses, seedling pots are used to initiate plant growth (from seeds to seedlings) and protect them against pests and diseases under controlled cultivation conditions.

Once the seeds turn into seedlings, the used plastic seedling pots retain the residues of soil, organic matter, and agrochemicals. Consequently, these pots require specific procedures



## Growing Knowledge

for collection, disposal, and recycling. Because of the high cost of these practices, the seedlings pots are often neglected in a landfill or incinerated, which result in the emission of toxic substances both in the soil and atmosphere.

### An alternative

The industry needs sustainable solutions to reduce plastic waste and an alternative is the use of plantable biopots without separating biopots before planting, which favors microbial biodegradation.

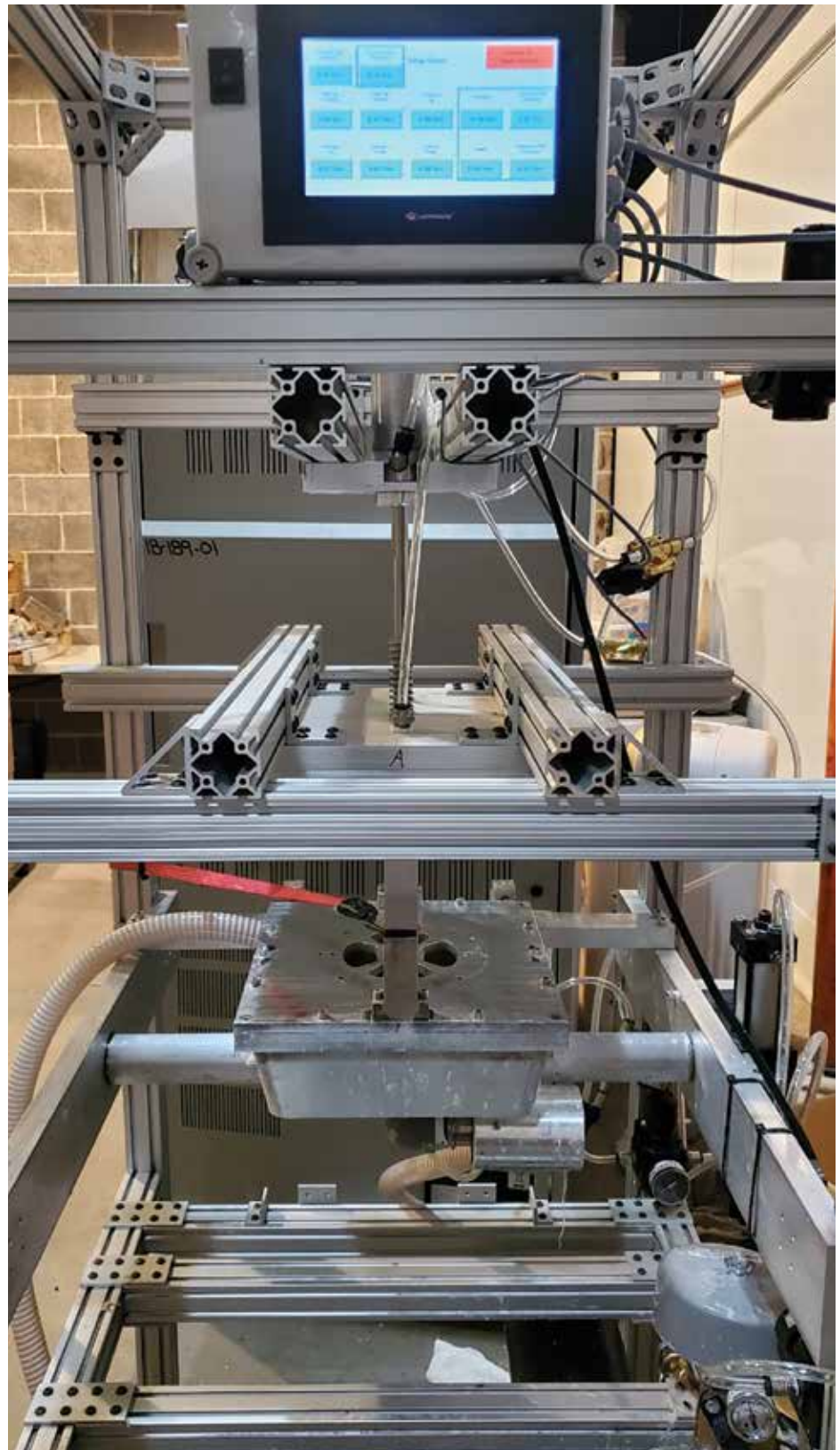
Fiber-based molded pulp packaging products (MPPs) are among the most promising sustainable packaging owing to its renewability, recyclability, biodegradability, or compostability.

The base formulation to produce MPPs, called “pulp”, needs to be developed depending on the desired properties of MPPs. Oregon State University, Department of Food Science and Technology built the pilot-plant scale transfer-molded pulp machine (see photo on this page) and exchangeable 3D mold for creating nursery biopots (see photo on page 43).

Lignocellulosic material is the key component in the pulp as the structural matrix of MPPs. Currently, combinations of wood pulp or recycled paper fibers are employed to obtain commercial biopots, whereas strong chemical uses and energy-intensive procedures for refining wood into pulp and paper fibers are required.

Wood is the most widely used raw material for production of cellulose fibers in the world. However, considering its applications in the construction, furniture, pulp, and paper industries, it is a relatively expensive source (Blanco et al., 2018). Furthermore, CO<sub>2</sub> and sustainability reasons, there is a general trend to keep wood in its solid form and use it in applications for long-term use rather than disintegrating it to its biopolymeric constituents (Ahmadi Heidari et al., 2023).

Meanwhile, the advancement of electronic media decreases the recycling fibers from paper waste. According to the U.S. Bureau of Labor Statistics, the cost of pulp for corrugated boxes increased over 25% between



Oregon State University's Department of Food Science and Technology built the pilot-plant scale transfer-molded pulp machine. PHOTO COURTESY OREGON STATE UNIVERSITY

2020 and 2021. Agricultural and food industries face a huge environmental and economic burden for discarding unavoidable loss and byproducts during processing.

Recent estimates indicate that nearly 998 million tons of agricultural waste are generated annually (Lau et al., 2021), and a large portion of them inevitably ends up in landfill.

There are efforts to change from disposing of these wastes to recycling and reusing them, with the benefits of using these wastes as a fiber resource because of their fast annual growth and the smaller amount of lignin. The utilization of these wastes is an environmentally and economically sustainable way to produce lignocellulose materials compared to the clear-cutting of rain forests or primeval forests. Hence, OSU researchers are putting lots of effort into utilizing these wastes and create great value



A 3D mold for creating nursery biopots. PHOTO COURTESY OREGON STATE UNIVERSITY



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# ONF Horticultural Scholarships



## Sustaining the Next Generation of Nursery and Landscape Professionals

The Oregon Nurseries Foundation (ONF) makes scholarships possible for students preparing for careers in horticulture and related fields. Awards can be sponsored by individuals and OAN chapters as a way to support the next generation of green industry professionals. Thanks to the generosity of awarded more than \$20,000 in 2023 scholarships. For more information on sponsoring a scholarship, contact **503-682-5089** or **Scholarships@OAN.org**.



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## Growing Knowledge

as renewable resources for developing plantable biopots and reducing the use of plastics.

### Plantable and biodegradable

Plantable biopots are distinguished from compostable and recycled or bio-based plastic ones since they can be planted into soil, and they're biodegradable. Meanwhile the other containers must be externally composted or recycled. Plantable biopots reduce the time involved in transplanting and landscape cleanup.

Besides the ecological benefits, they also have economic advantages since there are no costs associated with their disposal.

OSU researchers developed pulp formulation and transfer-molded pulp biopots using byproducts from apple juice processing, hempfiber, and recycled cardboard (see photo on page 41), but still need further research and practical applications to resolve following limits, including increment in water consumption, possible breaking during crop production and transportation, fungal growth, and limited use of plant-based wastes.

### References

### Improvements

OSU researchers will improve the present biopot in four ways.

First, the plantable biopots remain sturdy and reduce water consumption until growing plants and transplanting them into the ground.

Second, the sprayable coating onto inner and outer surface of biopots prevents fungal growth and improves plant growth.

Third, plantable biopots made of 100% plant-based wastes can be natural fertilizers when they biodegrade.

Finally, the current development competes in price with pots made from recycled paper pulps. Hence, plantable biopots made of 100% plant-based waste pulp will enhance productivity and sustainability of nursery crops as well as reducing the dependence of using plastics.

We are expecting that molded pulp packaging manufacturers can adopt pulps made of 100% plant-based agricultural and food processing wastes and produce plantable biopots. Agricultural and food

Ahmadi Heidari N, Fath Taheri H, Siqueira G, et al. Thermally Insulating Composites: Aerogels from Brewery Sustainable Chemistry 10698–10708.  
Blanco JA, Page-Dumroese DA, Tirocke JN, et al. Modelling the management of woody debris: Importance of woody debris for natural resource modeling. Natural Resource Modelling 2018; 31:1-15.  
Sabran MR, Shrivastava S. Utilization of Vegetable Waste as Functional Ingredient in Food. Nutrition, 8.

processing industries which produce unavoidable byproducts can also adopt the technology and recycle organic waste into value-added materials. Our work is aligned with the National Strategy to Reduce Food Loss and Waste, especially increase the recycling rate for all organic waste.

Oregon State University researchers are expanding our research to incorporate various plant-based agricultural and food processing byproducts and to develop other semirigid biodegradable containers or trays for single-use food packaging as seen in **Figure 1** using a self-designed and built pilot-scale transfer-molded pulp machine.

We will keep generating essential information for commercialization in sustainable and environmentally friendly nursery gardens and greenhouses and working on federal grant for the multi-state research and extension program for improving production efficiency, handling and processing, productivity, and profitability of nursery crops over the long term. ©

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# Charting a course through a perfect storm

**The political process can be aggravating, and most of the population is disconnected from it at an alarming rate.**

This column has consistently warned of the clear and present danger to our system of government and nation due to the lack of understanding of how things happen at a state and national level.

It is one thing to fundamentally disagree with policy. Engagement in policy is essential and critical to serving the public good. But putting ourselves in a bubble and watching it all burn down will give us what is next — chaos.

That is only part of the equation. The other growing issue is the large amount of turnover in our state and federal legislative bodies. We must be the adults in the room to help chart a course. Without our engagement, we have no say over our destiny.

## Closing the gap with legislators

Of the Oregon legislators who held office in 2020, 15 members of the Senate and 32 members of the House are no longer seated legislators as of this writing. That represents a staggering 50% turnover in the Senate and 53% in the House.

Although these figures take into account the advancement of legislators moving to the other chamber, the normal churn of departures — and with it, the loss of institutional knowledge and collaborative know-how — is a challenge for anyone interested in sound policy, including our industry.

Even legislators that are not aligned in any significant way with our policy goals will be missed. Many would take the time to consider the solution-oriented approach of the nursery and greenhouse industry. Now, a new group is taking the reins.

Heading into the 2025 session, at least 23 senators and 37 representatives will have churned through the legislature (66%), meaning in 2025 only seven senators and 23 representatives (33%) were legislators in 2020. Why does this matter? The state legislature and the new cadre of interest group lobbyists have not built relationships that

render good decision making.

How do we close the gap? We make it personal, meaning we engage in person. This means emailing your elected official. Be constructive and provide a sensible solution. The association does this on your behalf, but it takes everyone.

We do tours to get shoes dirty and open minds about what it means to be in production agriculture. We engage at the state capitol to provide a complete picture of the diverse membership we have. We have a political action committee to participate in the election of nursery industry friendly office seekers.

Activists and political staff members have become the new proving grounds for future candidates. They used to come more from church, business, and broad community leaders. We must be vigilant.

## Someone old, someone new

Matt Mika, AmericanHort's vice president of advocacy and government affairs, has a little handy dandy sheet to provide members in the need to educate and inform Congress. It is stark. In the U.S. House, 81 of the 435 members were new this session (40 Republicans, 34 Democrats). Of these new members, 12 have never served at the state or local level prior to being elected to the 118<sup>th</sup> Congress. Over 200 members of the U.S. House have never voted on a Farm Bill before — and half have been in D.C. for less than five years.

The Farm Bill is the largest agricultural policy bill that is renewed every five years. This is the seventh Farm Bill in my career. It is not just the members, but out of the 54 members of the House Agriculture Committee, only seven staffers of these members' offices have worked on the Farm Bill.

House freshmen in both parties have a lower median age than incumbents in the chamber. For the Republican caucus, the youngest house member is 33, the median age is 59 and the oldest is 85. On the Democratic side, the youngest is 26. I have shirts older than that in my closet. The median is 61.4 and the oldest is 86.



Jeff Stone  
OAN EXECUTIVE DIRECTOR

This does not even count the uber-geriatric ages in the U.S. Senate, where eight members are older than 80.

Oregon's congressional delegation is a microcosm of the dynamic in Washington, D.C. Three of our freshman legislators are 60 or under (the youngest being 54). Two are in their upper 60s and three are in their 70s.

## How does today compare with the founding of our nation?

I am 60 and feel like I am on the back 9 holes of my career. Watching the State of the Union address, I admit I felt it was a live simulcast of an old folks home. The debate over age and elective office will be discussed in earnest during the 2024 election cycle and the standard bearers for each party are of an age that raises questions.

I think it is fair to say that our founders had not considered that our system of government would be governed by the same people for a lifetime.

So the perception by my two daughters of our founding fathers is that they were old white men. Well truth be told, our founding fathers were not old. Let's run it down: Ages of the Founding Fathers on July 4, 1776: James Monroe, 18; Aaron Burr, 20; Alexander Hamilton, 21; James Madison, 25; Thomas Jefferson, 33; John Adams, 40; Paul Revere, 41; and the old man in the room was George Washington, 44. Heck, Betsy Ross was 24.

So if our nation can endure its defining moment in the hands of young, hard-working, visionaries, perhaps we should stop complaining about ages and start working on making our country the best it can be. ☺

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