

# Digger

MAY 2022



## The Technology Issue

How high tech tools can help green  
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# Digger

May 2022 Vol. 66 No. 5



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## The Technology Issue

Whether it's the web, drones, electric tools or customized equipment, high tech can solve problems for nurseries, retailers and landscapers.

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**On the cover:** Advancements in technology can assist growers with their operations. ILLUSTRATION BY BILL GOLOSKI **On this page: Left:** Greenworks offers electric-powered lawn care tools. PHOTO COURTESY OF GREENWORKS **Right:** An employee paints equipment at GK Machinery. PHOTO COURTESY OF GK MACHINERY

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PH 503-682-5089 PORTLAND  
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FAX 503-682-5099 MAIN OFFICE  
FAX 503-682-5727 PUBLICATIONS  
[info@oan.org](mailto:info@oan.org) EMAIL  
[www.oan.org](http://www.oan.org) WEB  
[www.diggermagazine.com](http://www.diggermagazine.com) NEWS BLOG

## STAFF

Jeff Stone EXECUTIVE DIRECTOR	<a href="mailto:jstone@oan.org">jstone@oan.org</a> 503-582-2003
Heather Cyrus EVENT & EDUCATION MANAGER	<a href="mailto:hcyrus@oan.org">hcyrus@oan.org</a> 503-582-2004
Beth Farmer COMMUNICATIONS & WEB DESIGN MANAGER	<a href="mailto:bfarmer@oan.org">bfarmer@oan.org</a> 503-582-2013
Bill Goloski PUBLICATIONS MANAGER	<a href="mailto:bgoloski@oan.org">bgoloski@oan.org</a> 503-582-2009
Curt Kipp DIRECTOR OF COMMUNICATIONS & PUBLICATIONS	<a href="mailto:ckipp@oan.org">ckipp@oan.org</a> 503-582-2008
Rebekah Mann MEMBER SERVICES & FRONT OFFICE COORDINATOR	<a href="mailto:rmann@oan.org">rmann@oan.org</a> 503-582-2012
Alain Niemi DIRECTOR OF EVENTS	<a href="mailto:aniemi@oan.org">aniemi@oan.org</a> 503-582-2005
Stephanie Wehrauch DIRECTOR OF FINANCE & ADMINISTRATION	<a href="mailto:swehrauch@oan.org">swehrauch@oan.org</a> 503-582-2001

## DIGGER

Curt Kipp EDITOR & DISPLAY ADVERTISING	<a href="mailto:ckipp@oan.org">ckipp@oan.org</a> 503-582-2008
Beth Farmer E-DIGGER PRODUCER	<a href="mailto:bfarmer@oan.org">bfarmer@oan.org</a> 503-582-2013
Bill Goloski ART DIRECTOR & CLASSIFIED ADVERTISING	<a href="mailto:bgoloski@oan.org">bgoloski@oan.org</a> 503-582-2009
Dr. Jay Pscheidt GROWING KNOWLEDGE SERIES COORDINATOR	<a href="mailto:jay.pscheidt@oregonstate.edu">jay.pscheidt@oregonstate.edu</a> Oregon State University
Jon Bell, Mike Darcy, Erica Browne Grivas, Tracy Ilene Miller, Mitch Lies, Emily Lindblom, Kym Pokorny	CONTRIBUTING WRITERS

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## 2021-2022 EXECUTIVE COMMITTEE

<b>Josh Robinson</b> PRESIDENT	Robinson Nursery Inc. P.O. Box 100 Amity, OR 97101 <a href="mailto:josh@robinsonnursery.com">josh@robinsonnursery.com</a> 877-855-8733 FAX 503-835-3004
<b>Todd Nelson</b> PRESIDENT-ELECT	Bountiful Farms Nursery Inc. 17280 Boones Ferry Rd. N.E. Woodburn, OR 97071 <a href="mailto:info@bountifulfarms.com">info@bountifulfarms.com</a> 503-981-7494
<b>Amanda Staehely</b> VICE PRESIDENT	Columbia Nursery 29490 S. Jackson Road Canby, OR 97013 <a href="mailto:amandastaehely@gmail.com">amandastaehely@gmail.com</a> 503-810-2598
<b>Kyle Fessler</b> PAST-PRESIDENT	Woodburn Nursery & Azaleas Inc. 13009 McKee School Road N.E. Woodburn, OR 97071 <a href="mailto:sales@woodburnnursery.com">sales@woodburnnursery.com</a> 503-634-2231 FAX 503-634-2238
<b>Wes Bailey</b> TREASURER	Smith Gardens Inc. 23150 Boones Ferry Road N.E. Aurora, OR 97002 <a href="mailto:wes.bailey@smithgardens.com">wes.bailey@smithgardens.com</a> 503-678-5373
<b>Ben Verhoeven</b> SECRETARY	Peoria Gardens Inc. 32355 Peoria Rd SW Albany, OR 97321 <a href="mailto:benv@peoriagardens.com">benv@peoriagardens.com</a> 541-753-8519
<b>Patrick Newton</b> MEMBER-AT-LARGE	Powell's Nursery Inc. 5054 SW Boyd Rd. Gaston, OR 97119 <a href="mailto:powellnursery@gmail.com">powellnursery@gmail.com</a> 503-357-0631

## BOARD OF DIRECTORS

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<b>Adam Farley</b> CONTAINER GROWER	Countryside Nursery <a href="mailto:aifarley@countrysidenursery.com">aifarley@countrysidenursery.com</a> 503-678-0511
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<b>Jay Sanders</b> FIELD / B&B GROWER	KG Farms Inc. <a href="mailto:jsanders@kgfarmsinc.com">jsanders@kgfarmsinc.com</a> 503-678-3245
<b>Lorne Blackman</b> GREENHOUSE	Walla Walla Nursery Co. Inc. <a href="mailto:lblackman@wallawallanursery.com">lblackman@wallawallanursery.com</a> 509-522-9855
<b>Tyler Meskers</b> GREENHOUSE	Oregon Flowers Inc. <a href="mailto:tyler@oregonflowers.com">tyler@oregonflowers.com</a> 503-678-2580
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# Feeling revitalized

## The mask mandate is over.

It seems like everyone recently has a little extra pep in their step. Life resembles a somewhat normal state again. Combine that with the spring air and return to outdoor activity, and “revitalized” is the proper word for the feeling.

Josh Robinson



Speaking of revitalization, it is time to look at restoring the Oregon Association of Nurseries’ various chapters based on regions or industry segments. Unfortunately, the pandemic reduced and, in some cases, eliminated chapter gatherings. Things are about to change and chapter activity will go back to full steam engagement. I have appointed a new Chapter Revitalization Task Force with Ben Verhoeven of Peoria Gardens as the chair. Under his leadership from the nursery side and Stephanie Weihrauch on the OAN staff side, we will bring chapters back better than ever.

Chapters are vital to our industry’s success. We owe it to the next generation of nurserymen and women to bring this back and offer them the same benefits that we received from it.

When I talk to friends in the industry, I sometimes get the impression that we have all known each other for so long that gatherings aren’t necessary. We could accomplish what the chapters offered by picking up the phone and connecting with people on an individual basis. If we have an issue or an exciting innovation, it’s easy to reach out to a contact that can assist or learn from you.

How was contact initially made, though? From my own experience, I can say it was made through OAN gatherings in most cases. Many of us have been in the industry for so long that we have climbed the networking mountain and stood at the top. We know who to call for what we need, but that also means we can get complacent and lose sight of what got us there.

If that is you — if you wonder, “Why would I need to participate in chapters?” — if you tell yourself, “I have served my time in various association roles” — I challenge you to snap out of that thinking! Fight that apathy. Channel your inner John F. Kennedy and ask not what the association can do for you, but what you can do for the association.

This is a call to action for all nurseries to get involved with their respective chapters. Why? Because we need to continue the amazing Oregon nursery culture and educate the many people new to our industry as to what we are all about.

I have toured various nurseries in the past month. One of the surprising takeaways is the prevalence of youth on staff there. Our nursery alone has brought on 10 people under the age of 25 in the past few years, all rising stars in the nursery business.

We need to get younger nursery professionals engaged in the nursery chapters so that they can continue to nurture and grow the Oregon nursery culture. I know I have talked about this a lot, but what this industry offers from nursery to nursery is a genuine feeling that we all care about each other’s success. That is what makes us different and what I think attracts people to our industry. We love what we do, and we love the people we do it with, no matter if it’s our competitor, family, friend, or neighbor.

Are you a young person in the industry ready to accelerate your knowledge of the industry? When the chapters start up again, get involved. It will be one of the most rewarding things you do.

Are you someone that manages young people? Please encourage them to attend events and even pay them for their time there. What you get back from them will be the best return on a small sum of money you will ever spend. So do it for them, do it for your business, and most importantly, do it for the industry. ☺



# 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*.

## JUNE 25

### DIGGER: FARWEST EDITION

Display ad reservations for the 2022 Farwest Edition of Digger magazine are due June 25. More than 10,000 copies of this extra-large edition will be distributed to Digger subscribers, as well as exhibitors and attendees of the Farwest Show in August. To reserve your space, contact Curt Kipp at 503-682-2008 or email [ads@oan.org](mailto:ads@oan.org).

## JULY 13-16

### CULTIVATE'22

Presented by AmericanHort, Cultivate offers educational and networking opportunities and exhibits featuring technology, new products, services and plant varieties. Cultivate'22 will take place at the Greater Columbus Convention Center in Columbus, Ohio. For more information, visit [www.cultivate22.org](http://www.cultivate22.org).

## JULY 21-25

### APLD 2022 INTERNATIONAL DESIGN CONFERENCE

The Association of Professional Landscape Designers (APLD) offers a range of garden tours, sessions with CEU credits, and networking opportunities at their APLD International Design Conference, held in Chicago, Illinois. More details will be released as they become available. For more details, visit [www.apld.org](http://www.apld.org).

## AUGUST 1-5

### PERENNIAL PLANT SYMPOSIUM

Presented by the Perennial Plant Association and held in conjunction with All-America Selections and National Garden Bureau, the 2022 National Symposium will be at the Lancaster Marriott at Penn Square, 25 South Queen Street, Lancaster, Pennsylvania. This event is the largest educational and trade show program devoted solely to herbaceous perennials in North America. Visit [perennialplant.org](http://perennialplant.org) for more information.

## AUGUST 9-11

### THE GARDEN CENTER SHOW

The first Garden Center Show for independent garden centers will be held at the Wisconsin Center, 400 W. Wisconsin Ave, Milwaukee, Wisconsin. The trade show and networking event includes an education program sponsored by Garden Centers of America (GCA). Exhibitors and attendees will be able to meet face-to-face and network with leaders in the industry. For more information, visit [www.gardencentershow.com](http://www.gardencentershow.com).

## AUGUST 10-12

### NURSERY/LANDSCAPE EXPO

San Antonio, Texas will host this year's showcase of the latest nursery and landscape products. Gain a new perspective by meeting face-to-



## JUNE 9

### DUFFERS CLASSIC

Registration is live for the Oregon Nurseries' Political Action Committee (ONPAC) annual golf tourney, which will tee off at Stone Creek Golf Club in Oregon City, Oregon. The event is a great way to reconnect with friends while supporting a strong nursery industry voice in Salem and Washington D.C. Sponsorships are available. Take advantage of a \$10 discount by registering before Thursday, May 31. Sponsorship packages begin at \$250 and many include complimentary playing spots. Check the OAN website, [www.oan.org/duffers](http://www.oan.org/duffers) for updates.

face with industry experts and participating in dozens of education sessions and notable keynote presentations. For more information, go to [www.nurserylandscapeexpo.com](http://www.nurserylandscapeexpo.com).

across the country and the world. For more information, log on to [www.farwestshow.com](http://www.farwestshow.com).

## AUGUST 18

### CNGA 2021 BUYERS EXPO

The Colorado Nursery and Greenhouse Association (CNGA) is hosting an outdoor Buyers Expo on Adams County Fairgrounds 9755 Henderson Road, Brighton, Colorado. The Expo is designed for buyers and specifiers who are interested in purchasing or sourcing plant material. This includes retail nurseries, garden centers, landscape contractors, municipal parks and recreation departments, landscape architects, property management companies and other relevant industry buyers. Go to [www.coloradonga.org](http://www.coloradonga.org) to register.

## SEPTEMBER 12-14

### ISA INTERNATIONAL CONFERENCE

The International Society of Arboriculture (ISA) will host its annual conference and trade show in the Malmö, Sweden. Join industry leaders from around the world and learn about the latest developments in equipment, technology and research. For more information, log on to [www.isa-arbor.com](http://www.isa-arbor.com).

## AUGUST 24-26

### FARWEST SHOW

The biggest green industry trade show in the West will take place at the Oregon Convention Center, 777 N.E. Martin Luther King Jr. Blvd. in Portland, Oregon. The show, produced by the OAN, attracts exhibitors and attendees from

## SEPTEMBER 14-15

### GROW WEST COAST

The BC Landscape & Nursery Association's CanWest Horticulture Expo has been rebranded as the Grow West Coast. Western Canada's premier horticulture show will be presented as an outdoor market trade show experience at the Surrey Civic Plaza, 13450 University Drive, Surrey, British Columbia. Landscape professionals, municipalities, garden centers, suppliers and wholesale nursery and greenhouse growers from across the region will exhibiting, following provincial and health guidelines. To register, go to <https://growwestcoast.com>. ☺



# 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).

## UN climate panel says nations aren't doing enough

The Intergovernmental Panel on Climate Change, a body of the United Nations, warned the world is not going to meet its goals to prevent global warming unless drastic action is taken, the Associated Press reported.

In 2015, governments promised to keep global temperatures from rising 2° C (3.6° F) by 2030. However, reliance on fossil fuels has already increased temperatures by 1.1° C since pre-industrial times. Emissions in 2019 were about 12% higher than they were in 2010 and 54% higher than in 1990, according to James Skea of Imperial College London. "If we continue acting as we are now, we're not even going to limit warming to 2°, never mind 1.5°," Skea said.

The report notes that the top CO<sub>2</sub> emitters include Europe, East Asia, China and the United States. To avoid catastrophe, citizens of the world need to drop fossil fuels in favor of renewable energy. Solar and wind energy is already available and affordable, and underdeveloped countries need the resources to pay for such measures. Visit [tinyurl.com/3huc4x95](http://tinyurl.com/3huc4x95) to learn more.



Studies have found that hundreds of acres of trees are disappearing from residential areas in the Portland Metro area. PHOTO COURTESY OF WIKIMEDIA

## TWO STUDIES SHOW TREE LOSS IN PORTLAND METRO AREA

Two studies found unique findings but came to the same conclusion that the city of Portland, Oregon has lost a lot of its tree canopy in recent years, according to a report by the *Portland Tribune* (Pamplin Media).

Portland Parks & Recreation researchers reported the city's tree canopy has diminished between 2015 and 2020. The largest loss — 524 acres — took place in residential zones. Despite the tree canopy increasing by 3,112 acres between 2000 and 2015, the coverage decreased by 823 acres over the following five years. Portland City Council adopted new rules to preserve and increase the city's tree canopy in 2015, but the study shows the objective failed.

Portland State University (PSU) conducted

a similar study, which will not be available for complete publication for several months. It uses more data sources than the Parks & Recreation report, with most of the findings based on satellite images and government database property records. Professor Vivek Shandas noted that Southwest Portland neighborhoods lost as much as 5.7% of their canopy. After looking at tax parcels, the PSU report claims single-family zones (lower-income areas) where housing sales are the highest consistently lost tree shade in five years.

Tree shade is essential as climate change continues to affect daily life. During last summer's heat dome, Shandas measured temperatures as high as 125 F in Lents, which has relatively few trees, as compared to 90 F in Northwest Portland near Forest Park. Log on to [tinyurl.com/4rij836m](http://tinyurl.com/4rij836m) to read the full story.

## More COVID-19 coverage online

Further updates on how the COVID-19 virus is impacting the greenhouse and nursery industry is online at [www.diggermagazine.com/category/coronavirus](http://www.diggermagazine.com/category/coronavirus). We are reporting on the most current information as of press time, but please check online for the most up-to-date information.



### ENERGY GOALS BOOST AG EQUIPMENT MANUFACTURERS

Regulations requiring energy-efficient tractors, harvesters, and attachments are leading to the growth of the global agricultural equipment market. The industry's value will hit \$225 billion by 2028, according to release by Global Market Insights Inc., a market research and consulting firm focused on chemicals, advanced materials, technology, renewable energy, and biotechnology. Companies like **Kubota Corporation**, Deere & Company, Escorts Limited, as well as China National Machinery Industry Corporation, Mahindra & Mahindra Limited, SAME Deutz-Fahr Group, Valmont Industries, and others are key players in this market.

Lawmakers in India, South Korea and Australia have launched plans to support farmers develop high-quality food prod-

ucts. Rising populations have increased the demand for food products, and advanced farming technologies are needed to speed up production. For example, in October 2021, groups such as the Union Ministry of Agriculture and Farmers Welfare of India will distribute 820,600 seed mini kits to 343 identified districts.

The report also concluded that high horsepower tractors — more than 200 horsepower — are highly efficient for most difficult operating situations; planting and fertilizing machines are critical for precision farming; and hay and forage producers need equipment with advanced software integration. Read more at [tinyurl.com/yusw5k5d](http://tinyurl.com/yusw5k5d).

### OREGON FLOWERS INVESTS IN ROBOTIC TECHNOLOGY

Family-owned-and-operated

**Oregon Flowers Inc.** has invested in new European-made robotic equipment called a mobile stacking unit, the *Capital Press* (Salem, Oregon) newspaper reported. It arranges plant trays in the greenhouse with minimal employee effort and is the latest of all its new equipment.

The company, owned by the Meskers family, has been investing in automation technology for the past seven years to help them produce millions of flowers annually. This past March, they installed a top cleaner robot that paints latex whitewash on their greenhouse's sunroofs. It used to take eight employees about a week to do the same job. The robot only requires two or three workers to monitor and completes the job in two days.

Oregon Flowers also uses automated conveyor belts, referred to as harvest belts, to cut and stack flowers on carts.

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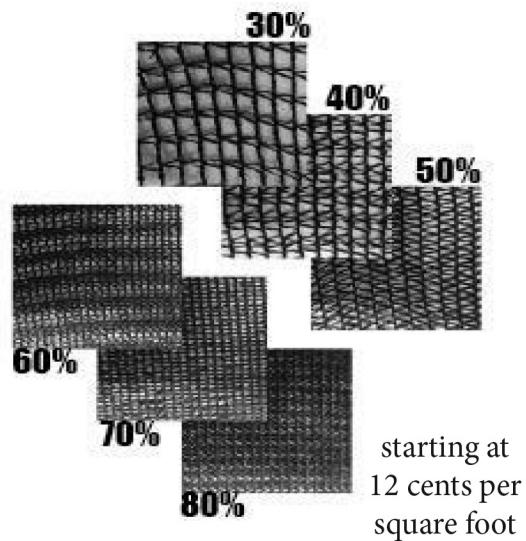
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Oregon Flowers Inc. has made several investments in automation technology to mechanize production. PHOTO COURTESY OF OREGON FLOWERS INC.

Additionally, an automated spray boom allows workers to apply chemicals or beneficial insects and fungi to plants from a distance — limiting the need for close-contact safety gear. There is also a de-bulber that crushes and peels bulbs off tulips, resulting in longer tulip stems, and an automated buncher to bound bouquets of flowers. Visit [tinyurl.com/3c4pbwd](http://tinyurl.com/3c4pbwd) to read the story.

## HIGH FREIGHT, LABOR COSTS IMPACT GROWER DECISIONS

Nursery profit margins are getting squeezed by higher shipping costs and supply shortages, the *Capital Press* newspaper (Salem, Oregon) reported. As a

result, many buyers are foregoing doing business with growers west of the Rockies, due to freight prices.

Brothers Noah and Kyle Fessler of **Woodburn Nursery & Azaleas** noted that shipping costs continue to escalate more than ever. The company faced an unusually high bill of \$6,000 to send a truck to the East Coast in 2019, and now this spring, it's up to \$10,000–\$12,000.

Amanda Staehely of **Columbia Nursery** reported similar experiences, with her average freight price increasing 45–55% between 2019 and 2021 to ship to the east. Her company's Northwest freight rates increased 60–80%.

International shipping is also high. Brothers Josh and Chris Robinson of

**Robinson Nursery** reported that bringing in a 40-foot container from China cost \$3,000–\$5,000 a few years ago, but it now costs \$16,000–\$25,000. Woodburn Nursery faced a near \$15,000 increase in shipping fees for a container of coconut coir.

Columbia Nursery faces fertilizer costs that are three times higher than in the past. Some chemicals have quadrupled in price over the past year. Todd Nelson of **Bountiful Farms** noted that there is also a supply shortage. It took six months for his shipment of bulk fertilizer to be delivered.

Bountiful has also invested in pruning robots to automate some farm labor, but it's not a cost many operations can afford. The supply shortages are forcing growers to spend money for bulk supplies and keep higher inventories on-site — splitting where their investments are going. Log on to [tinyurl.com/595tm5pu](http://tinyurl.com/595tm5pu) to read more. ➤

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## Northwest News

The box tree moth (*Cydalima perspectalis*) has infested parts of New York. PHOTO COURTESY OF APHIS



## NEW YORK QUARANTINES FOR BOXWOOD TREE MOTH

The USDA's Animal and Plant Health Inspection Service (APHIS) has issued a quarantine for the box tree moth (BTM) in Erie, Niagara, and Orleans Counties of New York. The federal agency and New York State Agriculture and Markets (NYSAGM) confirmed a breeding population of the pest exists in Niagara County and they have documented its life cycle in all stages. It is the first known official infestation in the nation.

BTM originates from East Asia and is a destructive pest of all *Buxus* species. Infestations have caused significant damage to European landscapes that use boxwoods.

All plants, plant parts, pieces, cuttings, clippings, debris, and any other portion of a plant — dead or alive — are considered regulated articles in the area. The federal orders are available on the APHIS website to download and reference at [tinyurl.com/4h4uy2t4](http://tinyurl.com/4h4uy2t4).

## Announcements

### BAILEY HIRES TWO BRANDING EXPERTS

Bailey has announced two internal appointments which will help build and enhance their current brand team and sales objectives for their consumer brands.

Lisa Swast has been hired to serve as the retail and landscape program coordinator. She will work to connect garden centers and landscapers with the company's network of licensed wholesale growers. Swast previously served Bailey for five years as an inside sales representative and then a brand and licensing representative. She can be reached at [lisa.swast@baileynurseries.com](mailto:lisa.swast@baileynurseries.com) and 651-768-3306.

Kelly Becker has been appointed brand and licensing sales representative. She will support overall brand sales and assist Licensee Account Representative Nick Stevens. Becker has been with Bailey for nearly five years, previously serving as assistant foreman inventory control at the Nord Farm in Minnesota. She can be reached at [kelly.becker@baileynurseries.com](mailto:kelly.becker@baileynurseries.com) and 651-768-3168. ☺

# Protect your business against cybercrime

**O**VER THE LAST FEW years, the green industry has rapidly pivoted to online sales and customer service. Growers and retailers were increasingly forced to interact with clients without face-to-face contact as they switched to online ordering and delivery, curbside pick-up, and virtual or socially-distanced landscaping services.

From wholesale growers to garden centers and landscape technicians to designers, every business had to shift quickly.

Unfortunately, some moved so fast that they overlooked or deemphasized the importance of protecting their online presence.

Web-based cybercrime is a lucrative and growing business. Cyberattacks to disrupt the American economy are now commonplace, often launched by foreign actors sitting comfortably behind a keyboard far, far away. The main goal of cybercrime is usually to disrupt business activity. These attacks can cost opportunity, revenue, clients, and prospects.

Cybercrime does not discriminate; any business can be targeted. According to the Hiscox Cyber Readiness Report, nearly one-quarter of U.S. small businesses fell victim to cyberattacks during the previous year, costing an average of \$25,000 each. What's more, the smallest businesses often sustained the most significant losses relative to company size.

Website security breaches accounted for 30% of cyberattacks and were more likely to cause the website to fail. There are often hundreds of intrusions or hacking attempts every day on a website. Unfortunately, as these attacks are not visible if they are not being monitored, decision makers can often have a false sense of security.

Most cyber criminals or hackers are attempting to load malware, a malicious type of software. Malware performs various tasks in the background to capture critical information from a website, such

as contact information for clients or prospects. A common example of malware is a keystroke logger. It is used on unsecured websites where hackers can upload their malicious software. Once the software is installed onto the server, it automatically proceeds to try and download malware onto visiting systems.

From there, it will try to gather credit card numbers, passwords, Social Security numbers and other sensitive information. This confidential information is then regularly transferred back to the attacker.

## Keeping them out

Many agricultural businesses disregard this risk, citing the size of their operation. The reality is that virtually all cyberattacks are automated, and these attackers know that smaller, unmaintained websites are the best targets. These scripted attacks do not discriminate. They attack everyone, looking for any opening to get in.

To install malware, cybercriminals look for holes in website security. Out-of-date security patches and software often create these openings on a website. Failing to update and secure the website content routinely makes the company more vulnerable to attacks. Performing updates and installing patches for any plug-ins or extensions will help thwart these attacks. So, make sure to perform regular security updates when they become available.

As there is a potential for more credit card or account information on an e-commerce site, small and large businesses are high-risk and often the most targeted. To stay up to date, schedule the following updates weekly or at least bimonthly:

Put up a wall and actively guard the site. For extra protection, businesses should also consider an active firewall — a digital wall against intruders — with malware scanning. This software protects



Ron McCabe

**Ron McCabe**, president at Everbearing Services in Portland, Oregon, has been a technologist for over 35 years and an expert digital marketer for 13 years. Visit his website and subscribe to his newsletter at [www.everbearingservices.com](http://www.everbearingservices.com), or reach him at [rmccabe@everbearingservices.com](mailto:rmccabe@everbearingservices.com).

websites from outsiders attempting to monitor online activity 24/7.

While this software is actively detecting intrusions, it performs malware scanning. This is like an antivirus scanning a computer, constantly searching the website to detect and eliminate malware. Many of these website firewalls have active security monitoring to alert administrators if an attempt or breach of information has been made.

## An opportunity and a risk

Entering a website through the contact form is also a common tactic. If a company updates and monitors the website, this exploit usually does not provide access. In cases when a cyber attack is successful, these intrusion attempts most often break in through a contact form.

It is not usually noticeable when a contact form is broken. However, a simple way to make sure this has not happened is to manually check that the contact form is working correctly. Do this monthly. This helps facilitate a quick repair and ensures leads continue to come through.

## Use a secure, knowledgeable host

We are long past the days that allowed companies to throw up a web-server and ignore it. Self-hosting a website is not recommended unless a business has a talented IT staff on-site to maintain hosting actively. Securing and protecting a website is a separate specialty and skill.

As a result, most companies elect to use a dedicated web hosting compa-



## Protect your business against cybercrime

ny. Unfortunately, like anything else, not all web hosting companies are the same. One of the areas where some of these companies cut costs is security.

An unsecured web host can cause vulnerability to intruders, who often try to break in through hosting like a burglar goes through the back door. They can break into an entire website, cause damage and corruption, or even shut it down. Hackers may also elect to load malware and leave it undetected.

Use a web host that stays on top of the most current cybersecurity practices and knows how to efficiently and effectively respond to an attack.

### Look into insurance

Cyber insurance, which is also referred to as cyber liability insurance, protects companies against direct and

indirect (third-party) liability. These policies deal with data breaches, malware, ransomware attacks, and online compromises of business accounts. As the extent and the sophistication of these attacks increase, more and more small businesses are affected.

The green industry is particularly susceptible as there is a general attitude in horticulture that we are either too small or too new to online and digital to have any real liability. The recent pivot to online plant sales and payment has also increased risk levels higher than previously assumed.

Purchasing cyber insurance is a relatively inexpensive way to protect against the unseen and unknown. In addition, this type of insurance is a good umbrella to cover loose ends on the overall website security practices.

The good news is that by following

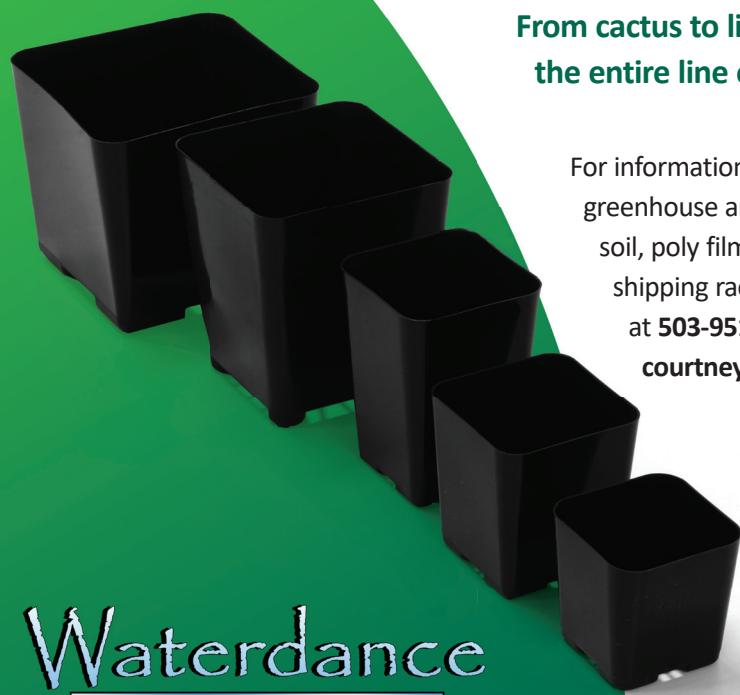
these practical, actionable steps, business owners can improve their website's cybersecurity and reduce the risk posed by cyberattacks.

As the well-known saying goes, "The best defense is a good offense." Taking these proactive steps to enhance your website security now will be a solid defense of your time, money, and brand. We all need to work together to protect our green gold as we innovate and shift digitally. ©

**Editors Note:** Ron's column on marketing and technology debuts in this issue and will appear periodically.

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# GK Machine Inc.

**Founded: 1976 by Gary and Keith Grossen**

**F** YOU OWN A nursery or agricultural business, chances are **GK Machine** makes at least one piece of branded equipment that may help your operation.

And if the machine for your unique needs doesn't exist, the Oregon-based equipment design, manufacturing and repair firm can probably design, create or adapt something based on ideas or needs you may have.

"It could be anything from a small implement costing a couple thousand dollars, to a million dollar custom harvester," senior equipment salesperson Mike Mader said.

With the burgeoning needs of labor-starved agriculture and accelerating employer costs, the ever-expanding manufacturer is so busy it can hardly keep up with demand. GK currently employs about 180 people, but according to company management, they could easily employ at least 20 more once they find the right people with the right skills.

"We're adding engineers all the time, just to keep up with the new projects people throw at us," said Scott Grossen, a senior engineer with the company who is the son of co-founder Keith Grossen. "Often, we have to say, 'We can do your project, but it may be six months before we get to it.'"

About a fourth of GK's business is in branded equipment the company manufactures. For nurseries, these products include

GK 3-15 Pot-in-Pot Planter, the GK-1710-1 Root Ball Lifter, and the TR6 Sprayer, as well as a variety of general-purpose trailers and even portable restrooms.

But the company's nursery mainstay would be the H7 and H9 tree diggers. These accept a variety of implements that GK also manufactures — a tree top chopper, a bed lifter, a bed digger, a root pruner, and even a nose cone to move branches out of the way.

GK also makes machines for hazelnut growers and berry farms, such as an orchard leveler, nut sweepers, nut harvesters, nut carts, and a "berry ferry" for harvesting berries.

However, the vast majority of the company's business — better than two thirds — involves custom-designed, custom-made equipment for various clients. Some of the clients are companies that want to take equipment to market and need someone to design and manufacture it. Others are agricultural companies that need something special for their own operation. And of course, the company will repair and service equipment as well, whether made by them or someone else.

"There's at least 1,000 jobs on the floor at any one time," Scott Grossen said. "We ➤



Gary Grossen

## GK Machine Inc.

A large team of about 180 people drives the innovation at GK Machine.

PHOTO COURTESY OF GK MACHINE

wrote our own software just to manage and track all of these different jobs."

### Starting small and growing big

The cliché among certain world-beating companies, most famously Hewlett-Packard but also Apple, Amazon and others, is that they got started in a garage.

For the smaller but still innovative GK, not quite. It was a barn.

Two brothers, Gary and Keith Grossen, grew up on a Willamette Valley, Oregon dairy farm their parents operated for many years. In the early 1970s, they started fixing old farm equipment in an old barn near the small town of Donald.

Growing a reputation for completing quick repairs, they formed GK Machine in 1976, using their first initials to make the name. They soon moved to a machine shop on Main Street in Donald. "The vision, in the beginning, the goal was to support local Oregon farmers and the nursery industry with great ag equipment," Gary Grossen said.

At the time, some of the key industries GK would serve — like vegetable farming, grass seed, and nurseries — were just beginning to take off.

In the 1980s, growth continued and GK needed more room. They built a new 50,000 square foot shop on Donald Road, on the edge of the city. By this time, the company had 40 employees. They added a parts counter, a greenhouse department and a machining department.



But the turning point of the company came in the 1990s, when the company added engineers to the staff. This allowed them to design and manufacture their own agricultural equipment, designed expressly for Oregon farmers. Their proprietary machines included agricultural sprayers, harvesters, scrapers and choppers. The company's size grew to more than 100 employees in this decade.

The company then had its largest expansion yet in 2015, adding a whopping 175,000 square feet to its facility on Donald Road.

"Now we build ag equipment for customers all over the world," Gary said.

There've been no particular mentors who showed the two brothers how to do this. They pieced it together as they went. Listening has been key.

"I've worked with bankers, attorneys, business consultants, and others who gave me advice along the way," Gary said. "Over the last 45 years, I've attended hundreds of trade shows all over the world to learn about the various industries. I just kind of figured things out as I went along."

GK is well known for its adaptability. When the Great Recession hit in 2007, the company experienced no downturn. It was able to repurpose existing equipment for new industries.

The COVID-19 pandemic in 2020

resulted in new sanitation rules. Farmers had to provide more restrooms and wash stations in the field.

"That then spurred a significant spike in sales on our restroom trailers, and led us developing some new hand-washing stations and things like that that were required in the field," Mader said.

More recently, Oregon Occupational Safety and Health Administration has imposed heat safety requirements. GK makes a shade trailer to keep workers out of direct sunlight and keep employers in compliance with the law.

### Family and the future

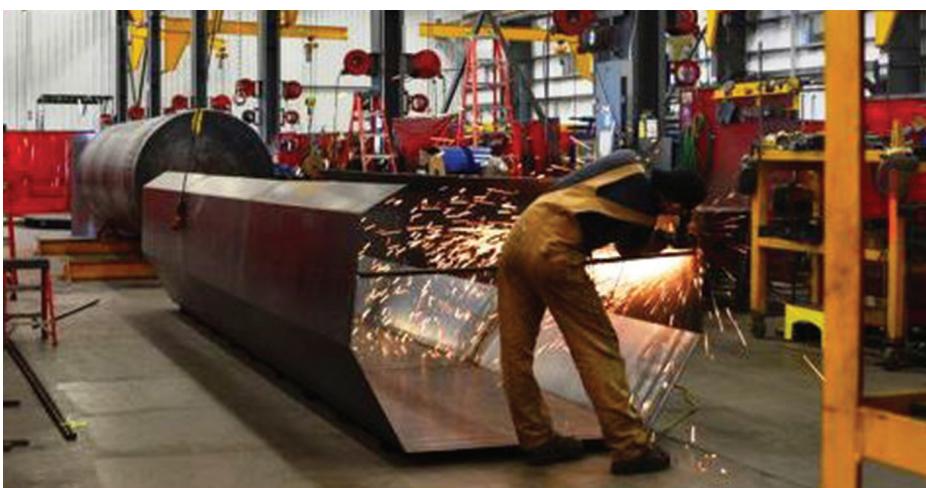
Although cofounder Keith Grossen retired a few years back, GK Machine continues to be very much a family company. In addition to Keith's son Scott working there as an engineer, Gary's son, Derrick, serves as a technical specialist in robotics, hydraulics and electronics. Gary's daughter, JoAnn Agee, is the company's chief financial officer.

The company also regards employees as family. As an inducement to retain them, co-owner Gary has purchased nearby housing to rent to them so they can spend more time with family and less time commuting eight miles or more from the nearest towns. Some now walk home for lunch.

And because housing is scarce in Donald, his next step is to develop new housing. Ground recently was broken on Harvest Garden Homestead, a 373-unit development that, roughly, will double the population of Donald once complete in about 10 years.

Gary's guiding principle is to "invest in employees and create a great working environment to help your customers win," he said. "And, remember to look for new opportunities along the way."

Asked if there's anything he would have done differently, he says nothing comes to mind. His philosophy is, "One way or another, no matter what, it always works out." ☐



J. Frank Schmidt & Son Co. tested a drone at its Milton farm location.

PHOTO COURTESY OF J. FRANK SCHMIDT & SON CO.



# Growth from above

Nurseries explore new uses for drones, from inventory to scouting to spray treatment

BY KYM POKORNÝ

**I**NITIALLY A TOOL for the military and aviation hobbyists, unmanned aerial systems — better known as drones — have a wide range of applications. Filmmakers, search and rescue, farmers and ranchers, surveyors, even archeologists find uses for them.

Will the nursery industry be next?

So far, adoption has been slow, but **J. Frank Schmidt & Son Co.** in Boring, Oregon, started looking at ways to undertake inventory from above as far back as the mid-2000s. They performed an experiment using a helium balloon with a camera attached.

“It was a total failure,” said Sam Doane, production horticulturist and drone advocate who has been in charge of experimentation and use at the nursery. “It was a crazy idea, but it got people excited about going forward with drones. We try it and if it doesn’t work, we keep on trying.”

In 2010, a few years after the balloon fiasco, Doane worked with Joe Mari Maja, now an assistant professor at Clemson University, and James Robbins, a now-retired Extension special-



ist and professor at the University of Arkansas. Mari Maja built the drone and the group did the first demonstration. Schmidt needed a more efficient way to count 6 million trees that grow on hundreds of miles of fields — from Boring to the Bay Area, they like to say. Robbins and Mari Maja, both well-known in the drone world, wanted to experiment.

They flew a drone above the trees taking photos. The photos were transferred to a computer and software “read” the photos and “stitched” them together for an overall view. At least, that’s what it was supposed to do.

“Software didn’t exist then to capture large areas,” Doane said. “We set points on the ground and programmed the ➤

## Growth from above

The M6E-X2 crop spraying drone is an efficient tool with dual-pumps and three different nozzle options for spraying.

PHOTO COURTESY OF HOMELAND SURVEILLANCE & ELECTRONICS

drone with GPS to fly from point to point. We had to do the math of where we wanted the drone to fly and how much overlap was needed between images. We literally held a ruler up to the monitor and drew points to figure out how to do it. It was very exploratory."

### Scouting, counting and more

Software, and everything about drones, has changed since then. Drones can be an exciting — and labor-saving — tool for the nursery industry. Together, a drone, camera and software setup can estimate the number of trees per acre; gauge the height of nursery stock; and assess the health of field-grown trees by identifying areas of poor soil conditions, disease, die-off, and moisture problems.

A study by Michigan State University, working with Remote Sensing and GIS Research and Outreach Service in 2017, involved flying over Christmas tree and arborvitae fields. The studies showed when the drone flew within 200 feet above the Christmas trees, the inventory was over 97% accurate. The heights of the arborvitae were accurate to within 4 inches.

Before committing to drones, however, any business must be aware of Federal Aviation Administration (FAA) regulations. To fly a drone, the operator must be certified by taking a test biennially. If the drone is over 55 pounds, a special license is required when flying in the "gray zone" near airports, and a special waiver is needed.

Some people find the requirements onerous, but Brian Scott, department chair of the School of Agricultural Sciences at Mt. San Antonio College in Walnut, California, sees it both ways.

"There are two camps," he said. "One side wants to move as fast as it can. Pilots and the FAA want to regulate it and slow it down. We need to be safe but need progress moving forward. I'm somewhere in the middle."

Kristine Buckland, **Oregon State**

**University** (OSU) Extension Service vegetable and seed crops specialist and assistant professor in the College of Agricultural Sciences, said it's not dif-

ficult to get a license. Local airports usually have the training and there's a class through OSU's Professional and Continuing Education program.

"You can get a license with no problem," said Buckland, who has been researching the use of drones in agriculture since 2018. "The FAA has training documents on its website. You have to spend time learning about airspace. You can take the test at your local FAA testing center. I've seen people go through it no problem. It's not a big obstacle."

There are two types of drones: multi-rotor, which have more than one motor, are the easiest and usually the cheapest; and fixed-wing drones, which fly faster and are lighter, so they don't use as much battery power.

Multi-rotor drones hover like helicopters to offer more control — an advantage when taking photos or streaming video. However, they take more energy to stay in the sky. They can get to places fixed-wing drones can't. The more rotors, the heavier the drone is and the more batteries needed to keep it up for any length of time, usually topping out at 40 minutes, maybe 60 in excellent conditions.

Fixed-wing drones fly faster and are lighter, so they don't use as much battery power. They glide through the sky, similar to an airplane. This type of drone only needs the energy to move forward and not to hold itself in the air, making it energy efficient. They can stay in the sky longer, depending on weight, but can be expensive.

Most commercially used drones feature high-performance cameras offering impressive quality. They range from familiar SLR (single lens reflex) still or video cameras to photogrammetry. Cameras using photogrammetry take photos from different angles and piece them together like a puzzle to create 3D photos, according to Jay Perez, professor of photography and drone technology at Mt. San Antonio College in Walnut, California.



"We can take flat photos and make them 3D," Perez said. "We can see how high is that tree. As soon as you mass that data, you can use it in so many ways. It's the future."

### Spotting the symptoms

Scott often goes to Perez with a problem he thinks a drone might solve in less time than people on the ground — things like early detection of diseases and pests. For instance, they've used drones to search for areas of sudden oak death and problems on golf courses. It's easily transferable to nursery stock.

Drones don't uncover which disease or pest is present, but show the symptomology, Scott noted. For example, if plants are off-color, more than likely there's something wrong. Is fertility off? Not enough moisture in the soil? Disease? Once the photos indicate a problem, workers can go out in the exact area of the field and examine the plants. With rising labor costs and worker shortages, it makes sense to look from above rather than walking row by row inspecting trees.

There is one problem for some nurseries. If they grow a lot of plants with a variety of foliage colors, drones will show possible problems that aren't really problems, said Doane of J. Frank Schmidt and Son.

"The biggest limitation is the whole index is based on green is healthy," he said. "We don't live in a world of green. We have chartreuse, blue, variegated. Some will show up as unhealthy when they aren't."

That's when operators switch to multispectral cameras that use multi-colored infrared wavebands to capture both visible and invisible images of crops and vegetation. But that's expensive, Doane noted.

A grower can spend anywhere from

\$1,500 to \$30,000 or more on a drone, which includes all its necessary accessories. The price also depends on how big it is, how much it weighs and what type of add-ons are included, such as the camera, sensors and batteries. The bigger the drone, the bigger the battery it needs, and the less time it can spend in the air. J. Frank Schmidt spent \$8,000 on its drone and \$2,000 on the battery, which has to be replaced every few years.

At OSU, a grant bought them a robust system that costs \$8,000–\$10,000 for the drone and \$10,000–\$15,000 for each camera. And technology is moving very fast, Buckland said. A new camera has almost twice the resolution of their current one, a significant improvement. The higher the resolution, the better the ability to capture images that tell the story of the crop on the ground.

### Investment vs. return

Scott of Mt. San Antonio College is somewhat skeptical that drones will save money at the present time, but admits if a nursery saves 10%–20% in labor, that's significant.

"In an industry where you have a lot of plants, that percentage is a big deal," he said. "You pay up front but in the long run it will eventually start saving you a lot of money."

Buckland of OSU agreed. "How much can you save?" she said. "You can calculate it the easy way or the more truthful way. It's not just about going out to the field and flying over it. You have to learn how to do it, you've got to figure in the time and money. There's the set up and you've got to learn the software. Maybe you scout the field in a third of the time and spend another hour with the

software. Theoretically, you can detect before the human eye can and intervene earlier so you wouldn't have the yield damage, the loss or the cosmetic damage. That's the idea, but to get to that point, it takes a long time."

However, Buckland admits, "I feel like the crop value is so high in nurseries that I can agree it's a good investment. No one is going to buy a plant that doesn't look good."

For smaller nurseries and even some larger ones, it makes more sense to hire someone to fly the skies above your property, gathering valuable information.

Marion Ag Service, Inc., in St. Paul, Oregon, takes it a step further, said Anne Iskra, technical services manager for the company. They fly drones to troubleshoot problems for customers and then consult on how to solve them. They use a ➤

The advertisement features the Nelson logo at the top left. Below it, there are several images of irrigation equipment: a R2000WF Rotator spraying water, a S10 Spinner sprinkler, a Big Gun Traveling Sprinkler with a retrofittable arc timer, and a TWG mobile app interface on a smartphone. The main headline reads "Irrigation Solutions for the Green Industry". A descriptive text block highlights Nelson's products for greenhouse, can yard, and field irrigation. A separate box for the TWG system emphasizes the use of 1000 Series Valves for zone control and remote monitoring via the mobile app.

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## Growth from above

large fixed-wing drone with a 3-foot wing-span. It takes off vertically and flies like an airplane for 45 minutes on one battery.

In another application for drones, Homeland Surveillance & Electronics, a company in Casselberry, Florida, deals in spraying fields with pesticides and sells, leases, trains, and maintains drones for those who want to do it themselves. According to Bryan Sanders, president of the company, it's a precise job that relies on the correct nozzles, which has sprayed over 1 million acres in 18 countries fighting pests, diseases, and weeds.

"For us it's all about the science," said Sanders, who anticipates expanding his business into the nursery industry. "It doesn't matter how great the drone is. If the nozzle isn't the right size, if it can't put out enough chemical but not too much that it causes drift, then who cares how great the drone is?"

The drones are programmed by the operator, who hits a button and the drone lifts off and goes to the end of the row, then slides over to the next row and flies back to the beginning and does it over and over. It takes minutes rather than hours — usually 20 acres in an hour — cutting down on labor and adding efficiency.

"On the ground people have to walk between rows, wearing PPE and it's 80 or 90 degrees," Sanders said. "They get burned out, so accuracy and consistency on every plant goes downhill after a couple of hours. They're exhausted. No one wants to do it. With a drone, no one has to put on PPE and walk for hours and hours and hours."

But everyone can agree on one thing.

"Drones are part of the future," Iskra said. "I don't know if they'll completely replace what boots on the ground can do, but they definitely enhance it." ☈

Kym Pokorny is a garden writer with more than 20 years' experience writing for The Oregonian (Portland, Oregon) and other publications. She is currently a communications specialist with Oregon State University Extension Service.



The Land Care Robot has attachments that will allow for towing, mowing, trimming, grading and more.

PHOTO COURTESY OF DIRECTED MACHINES

## Power pact

Nurseries and landscapers look at electric alternatives to traditional equipment

BY EMILY LINDBLOM

MANY GARDEN RETAILERS and nursery owners are starting to turn away from gas-powered equipment as technological advancements make it possible to go all-electric.

In California, all new landscaping equipment will be required to be zero-emission by 2024 or as soon as the California Air Resources Board deems it achievable, according to a law signed in October 2021.

But this transition doesn't stop outside of California. Growers that aren't in areas that restrict gas use are still choosing to go with battery-powered tools, according to Matt Gold, director of continuous improvement for national plant supplier **Everde Growers**.

Gold is based in Forest Grove, Oregon, and visits all the company's farms in multiple states. Everde Growers uses electric

trimmers, blowers and more in nursery production and is looking into the possibility of autonomous tractors.

"In my tenure in the nursery industry, I've seen that battery power didn't last as long, so we also looked at gas-powered tools, which were more realistic options because the battery life wasn't there," Gold said. "But what we're seeing now is that electric tools are lasting longer than in the past."

Compared to gas-powered tools, electric tools are typically quieter, lighter to carry and don't pollute the air the farmworkers breathe.

"If it's more comfortable for the employee we see that as a win for morale, and their ability to use it longer if it's more ergonomic and prevents injuries," Gold said.

Everde Growers also made the switch from pneumatic nail guns to battery-powered nail guns. Compared with the



## Power pact

**Top:** A solar-powered Land Care Robot helps moves carts on a nursery. PHOTO COURTESY OF DIRECTED MACHINES **Bottom:** Greenworks produces an electric-powered chainsaw. PHOTO COURTESY OF GREENWORKS

airline, compressor, generator and power cords that go with the pneumatic guns, the battery-powered nail guns are less of a hassle to move around a worksite.

Gold is currently looking into the opportunity of using electric autonomous robots from a company called Directed Machines to do pruning and spacing.

### Electric robots

Dan Abramson, co-founder and COO of Directed Machines, likened his company's fully electric, solar-charged Land Care Robots to smartphones because of all the functions they're capable of performing.

Instead of having a separate alarm clock, calculator and telephone, people can use a single device to do all those tasks and more. The Land Care Robot can tow, mow, trim, grade and more depending on which attachments it's using.

"It adapts easily to perform hundreds of different tasks," Abramson said.

The machine is autonomous, so it could help out a nursery or orchard that's finding it difficult to hire enough qualified workers.

Outside of nurseries and orchards, the Land Care Robot has been used at golf courses, solar farms, parks and soccer



fields. Its two main tasks are mowing and towing, but it is also useful for spraying, tilling, snow plowing and warding off predators, according to Abramson.

"Birds love eating blueberries, so we attach a sky puppet like you'd see at a car wash to the back of the robot and use it to patrol through the rows of the blueberry farm to scare away the birds," he said.

It can pull more than 8,000 pounds and is compact enough to fit in the back of a Ford F-150 pickup truck. When it comes off the pickup truck, it's able to connect to the vehicle and pull it up a hill.

The robot itself, without any additional pieces attached, sells for \$16,800.

"We've been able to do that through

exceptionally smart engineering choices," Abramson said. While competing companies are using sophisticated, more expensive computers to run their robots, the Land Care Robot uses an inexpensive Raspberry Pi that requires less power.

"We are only using a small amount of power with the Raspberry Pi so we are able to do more per charge," Abramson said.

Directed Machines was founded in 2018 and began selling these robots across North America in 2020.

### Transitioning to electric

Ryan McLennan, commercial maintenance manager for **Dennis' 7 Dees Landscaping and Garden Centers**, oversees the mowing, trimming and weeding for commercial clients and facilities in the Portland Metro area.

He said he's been slowly transitioning to electric equipment over the last two seasons with one work crew at a time, starting with blowers, trimmers and edgers. He said the change has mostly been customer-driven.

"This is what they want, so let's give it a try," McLennan said. "It's kind of our responsibility to do everything we can to reduce our carbon footprint while providing for customers."

Commercial landscaping can be very fuel-intensive, which is a point of frustration to McLennan.

"I don't think any landscaper feels good about burning \$10,000 per month of diesel or gas," he said. "The market has brought us to this point and if we can get to all-electric and running off of solar power and have our carbon footprint





Improved battery capacity has allowed Greenworks to develop more powerful lawn maintenance equipment. PHOTO COURTESY OF GREENWORKS

catch up in performance and reliability before they invest.

"Every year the batteries are better, which is good and bad," McLennan said. "The technology is improving but that means the investment I made last year is now obsolete." Gas-powered equipment has been consistent for decades, but since electric tools are relatively new, they are changing and improving quickly.

McLennan said he's been working with one of his main equipment suppliers, Horizon Distributors, which is selling a new line of electric equipment from a company called Greenworks.

Jeff Vachter, zone manager at Horizon Distributors in Vancouver, said he's starting to see his customers inquire about battery-powered tools. While the mandate to outlaw gas-powered equipment is for California, Vachter believes Oregon ➤

close to zero, that's a dream of ours. It's not that far away with this investment."

One consideration for McLennan is the infrastructure required in going electric. While solar-charged equipment can stay outside, battery-charged tools need more planning involved.

"I need to think about how many hours of power I need for a day, and

make sure the batteries will be charged before I leave," McLennan said, adding that it could involve adding in charging stations as well.

#### **Improving technology**

While Dennis' 7 Dees is going for it now, McLennan said many of his peers are holding back to let the technology

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## Power pact

and Washington tend to follow California.

Up until now, the electrical products his company has been distributing over the last five years haven't been well received because the power, battery life and cost didn't meet the standards of industry professionals.

"But due to current world events and gas prices almost doubling what it was last year at this time, people are starting to inquire about it now," Vachter said.

His company began researching different manufacturers to see if there was something better to offer in the marketplace.

"Greenworks is probably the furthest ahead as far as battery equipment goes," Vachter said.

While most manufacturers he researched have a few electric options, Greenworks has a complete line from 60-inch sit-on riding mowers to standing mowers. It also offers utility vehicles and snow throwers.

According to Greenworks, the riding mowers last 14 acres before they need to be charged and its 82-volt hedge trimmer is advertised to be able to run for two hours at a time. Greenworks claims its commercial products can recharge in less than one hour.

So, Horizon Distributors decided to order mowers, line trimmers, edgers, backpack blowers, hedge trimmers and more from Greenworks to sell to their customers, including Dennis' 7 Dees.

"We're taking a gamble here because we haven't had much luck with the other products we've tried," Vachter said. "But as the gas bill is over \$10,000 per month for one of our customers, if they can convert to battery they'll have more initial upfront cost but in the long term they can save money by not having to buy fuel." ☐

*Emily Lindblom is an Oregon-based freelance journalist covering business, environmental and agricultural news. She has a background in community reporting and a master's degree in multimedia journalism. Visit her website at [emilylindblom.com](http://emilylindblom.com) or reach her at [emily@emilylindblom.com](mailto:emily@emilylindblom.com).*

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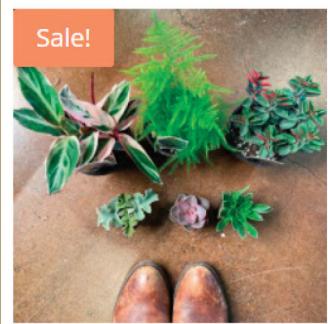
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# Meeting online customer expectations

**Prepare before jumping into online retail, lest the opportunity become a pitfall**

BY TRACY ILENE MILLER

**C**OVID-19 PUSHED many garden centers to catch the growing wave of online shopping. E-commerce sales are forecasted to account for nearly a fifth of all U.S. retail sales by 2025, according to Statista.

Total retail e-commerce sales in 2021 increased 17.9%, according to U.S. Census Bureau data. That includes a 25% surge in the fourth quarter over third-quarter sales, and a 9% increase over fourth-quarter 2020 numbers. In 2022, U.S. e-commerce sales will cross \$1 trillion, which is two years earlier than previous predictions, according to eMarketer.

In-store shopping is already rebounding as the pandemic wanes, and it will remain the core way customers interact with independent garden centers. Customers like to browse, explore, and see plants in a garden setting or among other plants.

Nevertheless, online retail selling has arrived as a convenience for customers with busy lives.

Here we explore what's necessary to successfully sell online.

## Wrangling your inventory

Before the pandemic, the only thing **Portland Nursery** (Portland, Oregon) sold online was gift cards.

"That was it," said Troy Dunsmuir, one of four co-owners.

But the nursery had a solid point-of-sale (POS) system in place, Magento, and a service provider, Xsitra, which had been working with the nursery for 10 years. That gave them a leg up.

When COVID hit in March 2020, the nursery had already been exploring online sales casually. They rapidly shifted to a concerted, months-long implementation plan to create an integrated online customer-service experience.

By January 2021, Xsitra had developed a complete POS and e-commerce system for them. It launched a live inventory, pay, and order-processing portal.

As Portland learned, the biggest challenge for online retail sales is maintaining an accurate, live inventory. "Anyone can get a Shopify page up in a matter of hours, and create any number of items," Dunsmuir said. "When you have a physical store and customers are picking up things and walking out, [the challenge is] to keep things updated."

When COVID-19 caused lockdowns, **The Garden Corner** (Tualatin, Oregon) had already been through that struggle. They had launched an online store in 2009. It began as an experiment with a select number of plants and products. Now it has grown to offer 95% of the store's inventory online.

"We did this push forward, without being perfect,



## Meeting online customer expectations

which is a bit dangerous if you get online reviews,” said owner Jonn Karsseboom. “But, we didn’t want it to prevent us from moving forward.”

Part of that push involved testing several POS systems until settling on Lightspeed, a cloud-based POS system that integrates all aspects of the retail and the online shopping experience.

“When I sell a pansy, the inventory of that particular pansy is subtracted from the inventory,” Karsseboom said. “It is instantaneous. There is no batching at the end of the day. It’s critical that the online and the in-store system see the same thing.”

Wholesale grower **Little Prince of Oregon Nursery** (Aurora, Oregon) also had built an online store before the pandemic hit in April 2019. This established setup foundationally supported its ability to debut online retail store, Little Prince To Go, by 2020. Little Prince worked with its service provider, **Everbearing Services** (Portland, Oregon), which built its website that uses the highly customizable WooCommerce, an open-source e-commerce plugin for WordPress sites.

### Limit the online inventory

Putting together an inventory system doesn’t happen overnight and is not necessarily inexpensive. If specific product quantities aren’t tracked, and sales aren’t monitored at the size and variety level for plants, it’s hard to sell online.

Timothy Howard serves as president of Clarity Connect (Holly Springs, North Carolina), a marketing company and website builder serving the nursery and horticulture industry. He cautions against launching an e-commerce site with one’s full menu of products and merchandise. A more modest upload, equal to 20% of what you carry, is a better idea. Then you can focus on the merchandise and plants customers want most — the ones that are sure to sell.

“It’s still a little bit risky,” Howard said. But, with this model, businesses establish a layer of protection against selling something they don’t have.

One way to create a pool of plants to draw upon is to group them under one head-



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ing. For instance, a garden center might sell five or six different varieties of red begonias in the store that would add up to 200 units. If all of those varieties are listed online under a generic “Red Begonia” category, the shop can price the item at the cost of the most expensive variety. Following this example, Howard would then pull orders based on any red begonias in stock — without ever committing to send a particular variety.

“For the average gardener, a red begonia is a red begonia,” Howard said. The goal is to have high fill rates, which is crucial for keeping online customers happy.

### Months of prep to go live

Putting up an e-commerce site is labor-intensive. Your developer should ask detailed questions, then provide a precise, clear, defined scope, with realistic deadlines and an activity timeline for the entire process. It’s possible to put up a website in a few weeks, but the results could fall short of customer expectations and your own.

“Online sales are literally running another store; it is not adding a small feature,” said Karsseboom. “You have to have the grit and aptitude for it.”

Online retail sales need the same analysis for every step of operations as you do with your brick-and-mortar store. That includes mapping the supply chain, packaging of plants and goods, shipping (if that’s done in-house) or pick-up, labor, and training so the company meets the demands and expectations of customers at each stage.

Ron McCabe, owner at Everbearing Services, recommends starting with documenting all the processes and realistic expectations — with an eye to time and

financial commitment — to successfully launch a site. Start by asking questions. Are there photographs that need to be collected, and who will create the plant descriptions? Is there a standardized naming system for plants and items?

On the technology side, a garden center or nursery with a customized accounting system will also require custom code for the e-commerce side, so the two accounting systems speak to each other. Other technical issues McCabe points to include system security, backups, recovery plans, and the process for accepting online payments, so that points of friction are minimized. The harder it is to complete a purchase, the more likely your customer will peel off and quit your site.

The order process, the staging, the shipping, the quality of the plants and how they arrive or are handed to the customer, even the timing of all those steps — all these things have to be predictable.

“There is a difference between getting the website up and being done,” McCabe said.

All systems and processes should be tested before launch.

The goal, in the end, is to create predictability for site visitors. It’s bad if the website says something is in stock after you’ve run out.

“Online is built for the message of ‘always in stock, always available,’” Karsseboom said. “We always have to weigh availability versus online store consistency. If you can’t get it consistently, you may not want it listed.”

There may be a surge in popularity of some obscure plant. As we’ve seen with the recent “houseplant hysteria” hits, there are



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rushes on plants of a particular type.

"There's nothing particularly predictable about those surges, except our response has to be extremely predictable," Karsseboom said.

The kinks and the hiccups require continuous oversight; it never stops — more so than for in-store sales.

Online shoppers are an unforgiving audience, according to Karsseboom.

"There is immediate feedback," he said. "Because it's not a physical store, trust is your main currency, and trust is very thin online, and it's built over time. You're always nurturing trust. That goes for local pick-up too."

The big box stores have tight inventory processes and can have an online order ready for pickup in 90 minutes. They might send a text message with specific driving or on-site directions, and may offer reserved parking and other amenities explicitly geared toward curbside pick-up. That's the kind of service garden centers are competing against.

"Those are the experiences, the expectations, that people have," Howard said. "They're probably not going to adjust it significantly for the local garden center."

And those expectations will probably continue to sharpen over time for what is commonly now called click-and-collect sales. The coronavirus pandemic accelerated the implementation of this type of buying that was in early adoption before 2020. Nonetheless, forecasts are that this convenient form of shopping is expected to experience annual growth of at least 15% by 2024, according to Business Intelligencer. The trend is so ubiquitous it earned its own new marketing acronym — BOPIS (Buy Online, Pick-up In Store).

Consider how the BOPIS customer experience has been perfected at this point by stores like Best Buy, Walmart or Safeway. These stores are creating expectations. Howard warns that if

customers have to wait 30 minutes for their order, or half the merchandise isn't available online, and it seems the plants have been picked over or are leftovers, the company's brand is going to take a hit. "If you can't deliver, you will spoil your reputation," Howard said. "If you can't do it well, consider not doing it at all."

### Build your buffers

Digital e-commerce has its advantages. For one, the experience is customizable and programmable. There are several little tricks to protect your brand, improve your reputation and build consumer trust. One is to create cut-offs for items, so you're not in danger of being short of inventory.

Here's a math problem Howard used as an example. Suppose 50 20-inch hanging baskets are in the POS on a busy shopping weekend. 15 people walk in to your store and put two each of the baskets into their rolling shopping cart. That leaves 20 on the benches, but the system still thinks 50 are available. Even a reasonably accurate inventory system can get tied up with the calculation. To limit this problem, an item can be programmed as out-of-stock, and unavailable for sale, once it dips below a particular threshold.

Another idea is to limit cart checkout time. Suppose three online shoppers select six 4-inch red begonias. That's 18 plants to subtract from inventory. The first online customer gets a phone call from a long-lost friend; the second gets up to walk the dog; the third is pulled by the sudden need to take a nap. To avoid the snarl on inventory for items languishing in carts, have the system clearly display a time limit for checkout before the attempted order will be voided, and the inventory released back to the public. Build buffers for pick-up times, similar to the way garage sales have a 8 a.m. start and a 4 p.m. end time, but people are there ➤

### A quick checklist for a sane adoption of online sales

- Make sure processes are in place.
- Keep the technical aspect as clear as possible.
- Customize to make the process easier.
- Expect a months-long process to go-live.



## Meeting online customer expectations

30 minutes before and after. To limit negative encounters, create pick-up times that allow you to be truly flexible and tolerant with customers.

Plan for no-shows. “People will not show up, even if they’ve already paid,” Howard said.

An important step then is to build into your pick-up process a way to maintain the health and good looks of pulled plants, so they’ll stay that way when the customer shows up.

### How you pack and ship matters

One aspect both The Garden Corner and Little Prince investigated extensively was packaging and shipping. The process included sending plants to staff and friends, testing boxes with or without heat packs, and occasionally throwing in some durability tests — literally. The staff at Little Prince sometimes pitched the packed boxes across the office at each other to see how plants fared, according to Joan Dudney, marketing manager at Little Prince.

To create a shortcut for the shipping crew, she notes that the custom coding automatically determines the size box to use for shipping orders based on customers’ selection of particular plant combinations. For instance, if someone orders three 3.5-inch *Acaena inermis* ‘Purpurea’ and two 4.5-inch *Ugni molinae* (Chilean guava), the system automatically generates the appropriate size box without requiring the packing crew to ever weigh the order. “We want to make it as easy as possible for the crew,” Dudney said.

Pre-planned box selection is also efficient. To maximize the energies of a set number of crew members, Little Prince limits shipping to two days per week. Retail orders are exported, batched, tagged and put on one master pull slip for shipping on Mondays and Tuesdays. Those days jive with shipping company delivery schedules. The goal is to have plants land at customers’ doorsteps no later than three days from their package date, “healthy and happy,” Dudney said.

This limited shipping schedule requires clear communication to cus-

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ters during the online ordering process, and of course, there are always those who will overlook these messages. But, that’s all part of the continuous customer service that any product-based sales operation can expect, according to Dudney.

Portland Nursery used their new online sales system almost immediately to launch a houseplant sale in January 2021. People were able to buy ahead of time and pick up the plants in store.

“It was fairly popular,” Dunsmuir said. He supported the idea of running the sale through spring. “I see online sales growing in the future, even when COVID is over. It’s a different stream to get plants to people.”

Currently, online sales at Portland Nursery are completed curbside, with customers picking up their products. But Dunsmuir sees that changing in the future, with local delivery and shipping available once the kinks are worked out. “We want to get in-store pick-up worked out and then figure out how to do justice with delivery and handling,” he explained.

### Be prepared to wait — or pay

If a goal for your site is immediate recognition, the first necessary step is to write copy with good search engine optimization (SEO).

The second step is paid advertising. When you launch an e-commerce branch of your business, you’re basically nonexistent in the eyes of the internet.

“Just like when you open a shop, it takes time for people to get aware of you. Your sales will grow every year,” McCabe said. “The go-faster button then becomes advertising, either online or through social media.”

But, not everyone wants to be found or enjoys a surge of sales overnight. Once cus-

tomers find the company, the company has to deliver — which can be overwhelming. Little Prince has chosen to gain its retail sales customer base organically through word of mouth and a slowly growing email list.

“We are not being super aggressive,” Dudney said. “We have enough customers for us,” especially given the upsurge in attention during the spring.

It begs the question of how many sales are needed online. The answer determines the amount of energy devoted to the endeavor and how quickly it’s scaled up. If a company moves too fast in hiring people and an inevitable seasonal dip in sales happens, they need something to do — or be prepared to lay them off.

For an operation like Little Prince, whose primary business is wholesale, online sales are another outlet for keeping staff on year-round. Boxing plants is a specialized skillset, but when those staff are not boxing, they are redirected to other tasks around the nursery. For many garden centers and nurseries, online retail sales will become important in the near future. If you have your sights set on e-commerce, this spring season is off the table, but to start somewhere, look ahead toward fall, Howard recommended.

“Work out the kinks when orders have less volume,” Howard said, to be ready for spring 2023. By implementing during the fall, you’re dabbling, and you’ll walk before you run. This way, you make your investments, and your mistakes, without them snowballing out of control during your busiest season. ☺

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Tracy Ilene Miller is a freelance writer and editor who covers several topics, including gardening. She can be reached at tmillerwriter@gmail.com.

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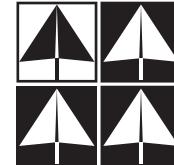
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# GROWING KNOWLEDGE

Series content is coordinated by Dr. Jay Pscheidt, professor of botany and plant pathology at Oregon State University in Corvallis, Oregon.



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**Figure 1:** Effects of a 2" (left), 1.25" (center), and 0.625" (right) mowing height on annual bluegrass populations within stands of perennial ryegrass (annual bluegrass plants are the lightcolored spots). PHOTOS COURTESY OF OREGON STATE UNIVERSITY

## Keeping lawns healthy

Research points to certain practices for minimizing invasive annual bluegrass

BY ALEC KOWALEWSKI, CLINT MATTOX, AND ALYSSA CAIN

DESIRABLE TURFGRASS SPECIES in western Oregon include, but are not limited to, perennial ryegrass and tall fescue. Perennial ryegrass will produce a dense, dark green lawn when regularly mowed, irrigated, and fertilized. Tall fescue, on the other hand, will persist with minimal fertilization and irrigation.

Annual bluegrass is an invasive weed that plagues perennial ryegrass and tall fescue lawns in western Oregon. The cool, wet weather in this part of the state from October to May is conducive to the growth and development of this weedy grass species.

Historically, herbicides have been used to manage annual bluegrass in western Oregon lawns. However, in recent years, annual bluegrass herbicide resistance has become a growing concern. There has also been increased social pressure to reduce the use of pesticides, including herbicides, in the landscape.

In response to these concerns, researchers within the Oregon State University (OSU) Turfgrass Program have been exploring the optimum mowing, fertilization, and irrigation practices for annual bluegrass mitigation in stands of perennial ryegrass and tall fescue. These research projects are currently ongoing at the Oregon State University Lewis-Brown Horticulture Farm in Corvallis, Oregon.

While the proper implementation of these practices will not provide complete annual bluegrass control, they will help to reduce annual bluegrass pressure, thereby providing tools for an integrated management approach.

### Mowing

As early as 2014, OSU research found that raising the mowing height on stands of tall fescue will reduce annual bluegrass populations (Figure 1). For instance, research evaluating four different perennial ryegrass cultivars determined that a mowing height of 2 inches had the lowest annual bluegrass population (13% annual bluegrass cover) four years after establishment. This was followed by a 1.25-inch height, which had an annual bluegrass population of 22.7% cover, and finally a height of 0.625 inches which had 41.2% annual bluegrass cover after four years.

Subsequently, research initiated in 2020 suggests that raising the mowing height from 2 inches to 3 inches will produce a slight decrease in annual bluegrass populations observed in tall fescue. These preliminary findings are further supported by research conducted from 2017 to 2020 at Oregon State University, which documented reduced broadleaf populations when mixed stands of cool-season turfgrass (tall fescue and perennial ryegrass) were mowed at 4 inches in comparison to stands mowed at 2 inches (Braithwaite et al., 2021).

### Fertilization

Research initiated on perennial ryegrass in 2019 has determined that increasing nitrogen (N) rates from 0 to 6 pounds of N per 1,000 square feet annually will increase annual bluegrass pressure. However, if nitrogen rates are reduced to low levels, >>



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**Figure 2:** Irrigation being applied at 0.25" to a stand of perennial ryegrass at the OSU Lewis-Brown Farm in Corvallis, Oregon.

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the combined encroachment of moss and broadleaf weeds will overtake the perennial ryegrass, resulting in lawns that look worse than those with annual bluegrass.

Considering the dynamics between annual bluegrass, moss, and broadleaf weeds, a moderate nitrogen program is recommended (3 pounds N per 1,000 square feet annually). These preliminary findings are supported well by research conducted from 2017 to 2020 at OSU, which found that no nitrogen resulted in the highest broadleaf weed populations (17% weed cover) when compared to 2 and 4 pounds of N per 1,000 square feet annually, which resulted in 1.4% and 0% weed cover, respectively (Braithwaite et al., 2021).

Preliminary findings from research initiated in 2020 suggests that avoiding late fall (after September) applications of nitrogen to tall fescue will reduce annual

bluegrass infestations by as much as 50%, when compared to fall heavy tall fescue fertilization programs. Current fertilization recommendation for tall fescue are applications in the spring and early fall months (before October) totaling 2 to 4 pounds N per 1,000 square feet per year.

### Irrigation

Research conducted on perennial ryegrass in 2019 determined that irrigation applied four times per week resulted in heavy annual bluegrass populations (23% annual bluegrass cover) compared to irrigation applied once per week, which resulted in very little annual bluegrass cover (7%) (Figure 2).

While infrequent irrigation reduces



annual bluegrass cover, it also produces significant perennial ryegrass drought stress between irrigation events. Considering this research and other recent projects completed at OSU, current irrigation recommendations for perennial ryegrass are  $\frac{1}{4}$  inches per application applied two to four times per week depending on weather conditions, with the more frequent applications being made during periods of peak drought stress (August).

Preliminary research on tall fescue has determined that minimal amounts of irrigation applied once per week can keep tall fescue green while reducing annual



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## Keeping lawns healthy

Figure 2: Evapotranspiration replacement irrigation being applied to stand of tall fescue at the OSU Lewis-Brown Farm in Corvallis, Oregon. PHOTO COURTESY OF OREGON STATE UNIVERSITY



bluegrass populations (Figure 3). Current irrigation recommendations for tall fescue are 0.3 inches applied twice a week during the summer months. Early findings from this research also suggested that minimal irrigation of tall fescue will limit encroachment of summer annuals like wood sorrel, spurge, and crabgrass.

### Conclusion

Preliminary findings from this collection of projects suggest that perennial ryegrass and fall fescue stands will have less annual bluegrass when mowed at taller heights (2 to 3 inches), fertilized with moderate levels of nitrogen (2 to 4 pounds N per 1,000 square feet annually), and irrigated a few times per week. Irrigation applied at two to four times per week at 0.25 inches was best for perennial ryegrass, while tall fescue has done well with 0.3 inches applied twice a week.

Funding for this project was provided by the United States Department of Agriculture (USDA) National Institute of Food and Agriculture grant titled “Research and Extension to Address Herbicide Resistance Epidemic in Annual Bluegrass in Managed Turf Systems” (Grant Number: 2018-51181-28436). ©

### Reference

Cain, C., E. Braithwaite, B. McDonald, A. Kowalewski, and M. Elmore. 2021. Irrigation frequencies and reference evapotranspiration replacement affecting annual bluegrass encroachment in perennial ryegrass in western Oregon. International Turfgrass Society Research Journal. <https://doi.org/10.1002/its2.70>

Braithwaite, E., T. Stock and A. Kowalewski. 2021. Integrated pest management effects on weed populations managed without herbicides in the Pacific Northwest. International Turfgrass Society Research Journal. <https://doi.org/10.1002/its2.51>



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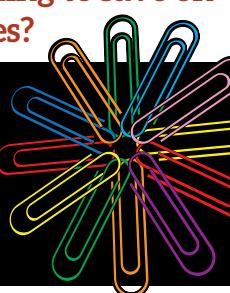
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## Show your primary colors by voting

### Going back years, most of my Director's Desk columns have focused on the evergreen topic of nursery and greenhouse labor — or more precisely, the lack thereof

Every year, the U.S. Congress proves its consistent, even surgical failure to put politics aside and pass a sensible and sustainable immigration visa system. Agriculture needs it, but Congress never delivers. Both parties have failed the industry. None of their excuses pass muster.

That's why agriculture needs something more now — you. We need you to vote in Oregon's Primary Election, where ballots are due on May 17.

Primary elections serve one purpose. They cull a political party's herd in the run-up to the general election. That's important. Some districts are so heavily partisan that the primary winner will waltz in the general.

Oregon does not have an open primary system. Only registered party members can participate. Winners in Oregon primary elections are determined via plurality. This means the candidate with the highest number of votes wins, even if he or she did not win a majority of votes cast.

Don't let doubt count you out. You can check your voter registration status at the state's My Vote page ([bit.ly/or-check-voter-reg](http://bit.ly/or-check-voter-reg)). My Vote also lets people quickly update their registration if they have moved, changed their name, or want to update their party affiliation.

### Lower turnout creates opportunities

The political nerd in me takes joy in breaking down non-presidential primary years. Much of the attention is cast on the general election, and justifiably so. The 2022 election will be critical. The balance of power in Congress will be decided and Oregon will decide whether one-party domination will continue.

I have seen polls where 78% of Oregon voters, of all political stripes, believe the state is on the wrong track. Some 86% believe

that business has been over-regulated and a pause is needed. But all this will mean nothing unless you vote, for the primary election will determine where our die is cast.

In 2020, more Oregonians voted in an election than ever before — 2.3 million of us. That's a 78% turnout, not far from the 86% high water mark in 1960, when Kennedy defeated Nixon. The fact our friends and neighbors used their voting rights two years ago is something to celebrate, but consider that the turnout in the 2018 primary was a paltry 34%, even with vote-by-mail aiding the turnout. That's appalling, but it points to an opportunity for our industry.

### The electorate has changed a lot

For the first time ever, nonaffiliated voters in Oregon outnumber Democrats, with Republicans left in the dust behind both.

Oregon is a state that allows someone to register to vote while registering their vehicle. Since 2016, nonaffiliated voters have exploded in number. As of December 2015, there were 825,282 registered Democrats, 642,552 Republicans, 527,302 nonaffiliated voters, and just 2,169,258 voters total. Since that time, Oregon has added nearly 800,000 new voters, almost 500,000 of whom are not registered with any party!

With a plurality of voters outside of the party system, those within the party system are under pressure. The parties can go pure and risk defeat in November, or find the best, most qualified candidate and roll the dice. As of March 2022, the tale of the tape for the 2.9 million registered voters stands as this: nonaffiliated voters 34.46%, Democrats 34.36%, Republicans 24.39%, and other/minor parties 6.8%.

### The stain of the last election cycle

The 2020 presidential election had the highest turnout of the 21<sup>st</sup> century, with 66.8% of U.S. citizens 18 and older voting in the election. Over 158 million Americans overcame a pandemic and one of the most visceral and divisive campaigns in history. This was simply remarkable.

There is no shortage of opinions about election integrity. The cacophony of opinions

chokes the daily news cycle, but Congress and the Supreme Court will sort all of that out. The electorate was primed and pumped for the 2020 general election. The 2022 midterms will certainly lose luster by comparison. Voters will likely regress to the norm and stay on the sidelines. This is our opportunity to make a difference.

### Use the power of your voice

We have seen firsthand how policy and common sense can take a backseat to one-party control in Oregon. During the last several years, the association and its volunteer leaders brought forward sensible alternatives to policies that impact your business and your bottom line. That's why we're here.

I am not advocating for a new form of one-party control with the Republicans in charge. Look at the voter registration numbers — that's not happening. The boat is farther from the dock than two years ago.

What is needed is balance in Salem. We need balance in Washington, D.C. We need balance at the Bureau of Labor & Industries.

Agricultural overtime taught the association a valuable lesson: our engagement on the political level moves the needle. Despite various opinions about agricultural overtime, our members used their voice, and it was effective. Ag has never been more united. We spoke with a clear and resolute voice. That voice will only get more effective if we use it at the ballot box.

Nursery and greenhouse operators are trusted by the public and respected politically. Common sense and problem solving is still part of the equation.

Take the time. Dig deep into the candidates and vote. It is the only way we can change our future. ☺

A handwritten signature in black ink, appearing to read "Jeff Stone".

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