

Digger

MARCH 2020

The next genera(tion)

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Protections for your selections

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Scouting for boxwood blight

PAGE 25

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March 2020 Vol. 64 No. 3 Digger



14 The next genera(tion)

Breeders diligently pursue what they hope will strike the market's fancy and become a hot seller.

13 Knowing customer needs before they do

Pivot Group offers marketing advice for getting ahead of customer expectations.

19 Protections for your selections

Breeders and growers looking to protect their work have several available options.

25 Scouting for boxwood blight

These tips make it easier to spot and mitigate this highly infectious disease.

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On the cover: During the last decade, perennials such as *Echinacea* 'Supreme Cantaloupe' have resurfaced as popular picks for gardeners. PHOTO COURTESY OF TERRA NOVA

On this page: **Left:** Wise growers look closely at their products, as boxwood blight symptoms are often hidden under the lowest branches of a plant. PHOTO COURTESY OF OREGON STATE UNIVERSITY **Right:** Afterburner® Tupelo *Nyssa sylvatica* 'David Odom' is a hardy tree with upright branches, making it a good variety to plant near urban streets. PHOTO COURTESY OF J. FRANK SCHMIDT & SON CO.



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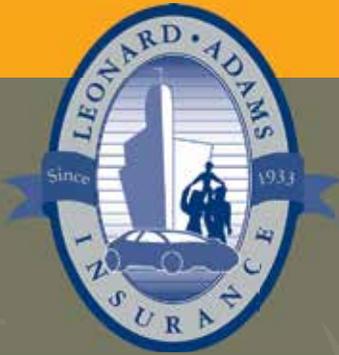


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Our voice matters

In February, I joined a group of the OAN's Government Relations Committee members on a trip to Salem.



Jim Simnitt
OAN PRESIDENT

We met with legislators to talk about the current session and how multiple bills directly relate to, and impact, our nursery industry.

Ten or more years ago, this would have been an “off year” — the legislature would not have been in session, and this group of engaged members would have been at their nurseries working.

In 2010, however, an important change happened. A proposal for annual legislative sessions was referred to the voters and passed. In 2012, the Oregon Legislature started meeting every year. This meant the traditional, long session in odd years and a 35-day, short session in even years.

Originally, the short session was intended for budget and financial fixes, or short-term stopgap measures. The long sessions were still considered the proper venue for more in-depth legislation. That has changed, and major bills with far and wide implications are now being debated in the short session. That's unfortunate, because there is limited time in a short session for public engagement and discourse.

That is why it was so important for our OAN group to meet with legislative leaders last month on Lobby Day. We had to make sure they heard our point of view.

We met with people on both sides of the political aisle and had good discussions. At this writing, the Legislature is still considering several bills we have our eye on, and nothing's been decided yet. I can tell you, however, that several bills have real ramifications for growers.

For example, the proposed cap and trade bill would see our fuel and energy prices increase up and down the supply chain. Meanwhile, a proposed bill to ban the pesticide chlorpyrifos would remove an available tool some Northwest nurseries rely on.

If our voice is not heard, we may not like the outcome. As a group, we are solution-oriented. This means we bring our concerns, but we also bring our fixes.

I'll be honest — the environment is difficult. The last few years in Oregon have seen a shift in political power. It can be referred to as a state government trifecta — a single party controls the governorship, as well as both the House and Senate.

There's a cherry to top it off: supermajorities in both chambers. That is a lot of power to control the conversation, and to determine which bills really have a chance to move forward. It also means one party can pass tax increases without any bipartisan buy-in at all. It doesn't matter which party holds this power — this much control is problematic.

When the party in power stops having electoral consequences, it is a recipe for unchecked agendas. A balanced legislature is a better governing body. Otherwise, stakeholders can come to the table with problems and solutions, and legislators may listen, but they may not feel motivated to help. This is where we find ourselves in today's. We are striving to help representatives who are nursery friendly. We try to be part of a solution to make things tolerable, if not necessarily the best. This is not a good place to be in.

After multiple years of new fees and taxes, and coming off a 2019 Legislature that brought us an annual \$1 billion Corporate Activities Tax, we're seeing many layers of accumulated tax burdens that cut into our bottom line. It is almost like our Oregon economy is being engineered to push us away from agriculture and small businesses, and into large corporations and high tech which can weather these increases.

As the short session ends and we get back to focusing on our businesses, we need to remember what happens in Salem is a direct result of our votes in elections. Elections have consequences. We can't sit on our hands. We need to be engaged. It's worth our time to join our fellow nurseries and advocate for a better small business environment for our Oregon nurseries. ☺



Calendar

Get the word out about your event! Email details to calendar@oan.org by the 10th day of the month to be included in the next issue of *Digger*.

MARCH 1

ONF SCHOLARSHIP APPLICATIONS

Do you know any high school, college or graduate students who are considering a career as a nursery or landscape professional? If so, March 1 is the last day to apply for one of the 19 different Oregon Nurseries Foundation scholarships. Awards ranging from \$500 to \$1,500 are sponsored by individuals and OAN chapters. For more information, log on to www.oan.org/onf, or contact Stephanie Weihrauch at 503-582-2001 or sweihrauch@oan.org.

MARCH 4-6

BIOCONTROLS USA CONFERENCE AND EXPO

This conference focuses on helping growers get the best results out of agricultural biocontrols as part of integrated pest management programs. Manufacturers and experts will share their techniques and inside knowledge to successfully incorporate biologicals, as well as their experience using biostimulants. Registered growers can participate in a pre-conference tour, post-conference workshop, and meet and ask questions of the leading suppliers during the expo. To register, visit www.biocontrolsusa.com. OAN members can receive 15 percent off the full registration price by using a code that was emailed to them.

MARCH 6

PLANT NERD NIGHT

Start your garden season off with Mike Darcy's annual Plant Nerd Night, brought to you through the support of The Hardy Plant Society of Oregon, as well as the Friends of the Rogerson Clematis Garden and the Salem Hardy Plant Society. Six regional specialty nurseries and gardens will offer previews of new or favorite plants, many of which will also be offered for sale at the event. Doors will open at 5:30 p.m. on March 6. Presentations run 7-9 p.m. at Lake Bible Church, 4565 Carman Drive, Lake Oswego, Oregon. Visit www.hardyplantsociety.org/plant-nerd-night for more information.

MARCH 20

NATIONAL AG DAY

Classrooms and communities across the country will celebrate the contributions agricultural producers, associations, corporations, and government organizations make on National Ag Day. The program encourages every American to appreciate the role agriculture plays in our everyday lives, including its essential role in maintaining a strong economy. For more information, please visit www.agday.org



MARCH 31

NEW VARIETIES SHOWCASE SUBMISSIONS

Submissions are due for the 2020 New Varieties Showcase at the Farwest Show, coming in August. Eligible plants must be new to the market for 2019 or 2020, have different attributes than plants currently on the market, and be in production and offered for sale by a 2020 Farwest Show exhibitor. Complete the form online at www.farwestshow.com/nvs. For more information, contact Zen Landis, OAN event and education manager, at 503-582-2011, or zlandis@oan.org.

MARCH 31

OAN NURSERY GUIDE

Listings are due for the 2020-21 OAN Nursery Guide. This 360-plus-page book is the gold standard for finding the plants, products and services you want to buy — and letting people know what you want to sell. Only OAN members may submit listings, and each member receives one free listing and a company profile. To submit listings, log on to www.NurseryGuide.com. If you need your username, password or other assistance, call 503-682-5089 or email nurseryguide@oan.org. For display advertising, contact Blair Thompson, OAN advertising manager, at 503-682-5089 or ads@oan.org.

APRIL 4

GARDEN GALA AT THE OREGON GARDEN

The second annual Garden Gala will be a fun night celebrating the work that takes place at the Oregon Garden. The event will be from 4-9 p.m. in the Grand Hall of the J. Frank Schmidt Jr. Pavilion at the Oregon Garden, 879 W. Main Street, Silverton, Oregon. The evening social event will include a tram tour of the 80-acre botanical garden, as well as the dinner and auction. Proceeds will support The Oregon Garden Foundation, which provides educational opportunities for gardeners of all skill levels and enhances the horticulture collection of The Oregon Garden. Visit www.oregongarden.org for ticket information.

APRIL 4

GARDENPALOOZA

More than 45 local nurseries and garden art vendors will showcase thousands of plants, tools and outdoor décor at the Spring Gardenpalooza, a one-day gardening event. Festivities will take place 8 a.m.-4 p.m. Saturday, April 4 at Fir Point Farms in Aurora, Oregon. Admission is free. For information about exhibiting, contact Jeff and Therese Gustin at 503-793-6804 or www.gardenpalooza.com.

APRIL 11-12

HORTLANDIA

The Hardy Plant Society of Oregon sponsors this annual plant and art sale at the Portland Expo Center, 2060 N. Marine Drive. Vendors from Canada to California will offer the latest plant introductions alongside old favorites. Admission is free. For more information, log on to www.hardyplantsociety.org

APRIL 25-26

OREGON AG FEST

Ag Fest is a family event that shows more than 20,000 visitors an appreciation of where their food, fiber and flora come from. The two-day ag-stravaganza takes place at the Oregon State Fairgrounds (2330 17th St. N.E., Salem). The cost is \$9 to enter. Children under the age of 12 are free to attend. Parking is free. Log on to www.oragfest.com to obtain a \$2 discount adult admission coupon and to download the daily schedule of events.



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.

Farwest Show opens hotel registration

Lodging registration for the 2020 Farwest Show is now open. Farwest attendees and exhibitors receive special discounted rates at select Portland hotels through Travel Portland during the show, which will be held August 26-28 at the Oregon Convention Center, Portland, Oregon.

Travel Portland is Farwest's ONLY housing coordinator. All reservations must be booked through Travel Portland in order to secure the discounted rates.

This year's host hotels are Courtyard by Marriott, Doubletree Hotel, Embassy Suites and the newly opened Hyatt Regency. All are within easy walking distance or light rail access to the Oregon Convention Center. By booking your stay through Farwest's housing coordinator, you will receive reduced room rates and free Wi-Fi. Those staying at Doubletree or Embassy Suites will also receive discounted parking rates.

Be advised that Travel Portland will NOT make outbound calls to solicit reservations for the Farwest Show. Do not give credit card information to anyone calling and claiming to be a Farwest travel agent.

Major airlines serve Portland through Portland International Airport (PDX). Travel to and from the airport and around the city is convenient and cost-effective using Portland MAX Light Rail and the Portland Streetcar. Portland is the largest metropolitan city at the heart of Oregon's favorable and moderate growing region — commonly known as Nursery Country. The city a destination location which is famous for its accessible hiking trails, public transit, excellent dining, microbrews, great coffee and fine wines.

Hotel bookings can be made through the Farwest Show website at: farwestshow.com/hotel-travel/.



The boxwood health workshop presented by Horticultural Research Institute, AmericanHort & OAN brought in experts from across the country to discuss boxwood blight symptoms, best management practices, blight-resistant cultivars and more. PHOTO BY BILL GOLOSKI

GROWERS LEARN BOXWOOD BLIGHT MANAGEMENT TECHNIQUES

A sold-out room of 50 green industry professionals attended a boxwood health workshop, held Tuesday, February 4, at the Oregon State University North Willamette Research and Extension Center (NWREC) in Aurora, Oregon.

Experts presented information on boxwood blight symptoms, best management practices to prevent the spread of the disease, blight resistant boxwood varieties, current research, other pest/disease threats to boxwoods, and Oregon's voluntary Boxwood Blight Cleanliness Program, among other subjects.

Dr. Jill Calabro of HRI and OAN Executive Director **Jeff Stone** opened the all-day workshop and introduced the first speaker, Dr. Fulya Baysal-Gurel, research assistant professor from Tennessee State University. Her session discussed sanitation practices for boxwood production and how good hygiene can improve a nursery's products.

Other sessions covered a range of topics related to preventing an outbreak.

Bennett Saunders of Saunders Brothers Nursery (Piney River, Virginia), who grows boxwoods, explained the best management practices his nursery deploys, as well as its

proactive decision to produce cultivars that are more tolerant of the disease.

Dr. Jim LaMondia, chief scientist at the Connecticut Agricultural Experiment Station, presented on blight resistant cultivars, as well as the use of fungicide programs to manage blight. A research-driven session explained the collaborative results of Karen Suslow's and Dr. Chuan Hong's studies at the National Ornamental Research Site at Dominican University CA, which explored the unique symptom developments that occurred in arid Mediterranean climates.

Judy Macias, assistant trade director with APHIS Plant Protection & Quarantine Phytosanitary Issue Management, gave an overview of the box tree moth (*Cydalima perspectalis*), which poses a threat to U.S. markets. Dr. Jerry Weiland, USDA ARS, shared some tactics for scouting for the disease and how to prevent spreading the pathogens.

Chris Brenemann, lead horticulturist for the Oregon Department of Agriculture (ODA), closed the day by sharing the value of joining the voluntary Boxwood Blight Cleanliness Program. The strength of the program relies on developing a good working relationship between a nursery and their ODA inspector to prevent the spread of the disease. 

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Northwest News

OAN MEMBERS VISIT LEGISLATORS ON LOBBY DAY

Members of the OAN Government Relations Committee spent some quality face time with state legislators and officials Monday, February 10 at the Oregon State Capitol in Salem.

With the Legislature currently engaged in its February short session, OAN members had many topics they wanted to bring up. They ranged from the carbon cap-and-trade proposal, to the confusing implementation of the corporate activity tax (CAT), and on to pesticide policy, water supply planning, employer mandates and much more.

The group visited with House Speaker Tina Kotek (D-Portland), House Minority Leader Christine Drazan (R-Canby), Chief of Staff Nik Blosser, Oregon Department of Agriculture Director Alexis Taylor, Rep. Vikki Breese-Iverson (R-Powell Butte), Rep. Shelly Boshart Davis (R-Albany), Sen. Lynn Findley (R-Vale) and Rep. Daniel Bonham (R-The Dalles).

OAN President Jim Simnitt and OAN Government Relations Committee Chair Kyle Fessler served as the faces of the association, but the discussions were free and open, with some 10 members (plus staff) participating and all giving their input.

“Legislators are always stunned when we have a dozen or so people squeezed into their small offices,” Fessler said. “It shows how passionate our members are and they can have a big impact on decision makers at the capitol. I always encourage our members to be edu-cated on how the legislative process works and to voice their concerns on how legislation can impact their businesses.”

One of the benefits of OAN membership is regular updates on legislative matters when the Oregon Legislature is in session. Members have the opportunity to provide input into the OAN’s political strategy, and be apprised of developments at key points of the process where their input can make the greatest impact.

WOMEN OF OFB HOST RECEPTION FOR LEGISLATORS

The Oregon Farm Bureau (OFB)



OAN Government Relations Committee members pose for a group shot in the House Gallery. From left, Josh Zielinski, Mike Hiller, Jerry Simmitt, Josh Robinson, Leigh Geschwill, Lorne Blackburn, Kyle Fessler, Matt Gold, Chris Robinson and Jeff Stone. PHOTO BY CURT KIPP

Women's Advisory Council hosted a cake-and-coffee reception for lawmakers February 3, to help kick off the 2020 Oregon Legislative Short Session, according to a release from the bureau.

Angi Bailey, owner of Verna Jean Nursery (Portland, Oregon) and OFB first vice president, was available to share the story of how women help produce all of the agricultural commodities the state provides.

"My mom Verna Jean Hale started the nursery in 1967," said Bailey. "She was a woman who worked in agriculture her entire life, who was not bound by any

preconceived notions of what she should be and certainly was not slowed down by any barriers to success. I knew from watching my mother that my gender would not be a disadvantage when I took over the nursery."

Visit <https://oregonfb.org/2020wacreception> for more information.

HRI AWARDS \$345,800 FOR VARIOUS RESEARCH PROJECTS

Horticultural Research Institute (HRI), the AmericanHort foundation, has announced it will award \$345,800

in funding this year to a wide range of research projects.

Funding has been granted to study the public's recognition of pollinator health initiatives and to assess the impact of HRI's Grow Wise, Bee Smart and Oregon Be Projects Bee Plant Picks program. Dr. Andony Melathopoulos, assistant professor and pollinator health extension specialist at Oregon State University, will assess each pollinator health program, which has been adopted and used in grower's management practices and crop selection processes.

Dr. Bridget Behe, professor at Michigan State University and frequent Farwest Show speaker, will study the decision-making process consumers undergo when choosing plants based on their features and benefits. The results hope to discover which cues are more effective on retail signs.

For a complete list of approved >>

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Northwest News

projects, visit www.hriresearch.org. Ken McVicker of **Van Essen Nursery Co.** (Lebanon, Oregon) is a member of the HRI Executive Committee and Leigh Geschwill of **F & B Farms and Nursery** (Woodburn, Oregon) serves on the HRI Board of Trustees.

USCIS UPDATES I-9 EMPLOYMENT ELIGIBILITY FORM

Minor changes have been made to the U.S. Citizenship and Immigration Services (USCIS) Form I-9, Employment Eligibility Verification, according to a release by the agency. Employers may now use this updated form. The prior version will be unacceptable as of April 30. Download the form at www.uscis.gov/i-9.

Announcements

ODA NURSERIES AND GREENHOUSE PROGRAM MANAGER RETIRES

After 20 years of overseeing the licensing and inspection of nurseries and greenhouses across the state, Gary McAninch, program manager at the Oregon Department of Agriculture, has announced he's retiring effective June 30. According to a report by the *Capital Press* agricultural newspaper (Salem, Oregon), a search for his replacement is underway.

McAninch has helped licensed nurseries through everything from the 2008 Great Recession and arrival of sudden oak death, to the 400 percent increase in hemp production made possible with the passing of the 2018 Farm Bill.

Jeff Stone, executive director of the Oregon Association of Nurseries, praised McAninch and the work of the ODA program. "We don't fear inspectors, because we view them as a partner," Stone told the newspaper. "Gary has been my first stop on anything that makes me nervous, sweat and lose sleep at night."

Visit tinyurl.com/w66vmb2 to read the full article. ©



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So, why aren't people buying anything?

Accurately anticipating your customers' needs can sometimes seem like

mind-reading magic, but here are some practical steps you can take to impress your customers by knowing exactly what they want before they do:

Understand what brings a customer in. Maybe you're running a special sale — or the merchandise you're selling is unique or of a higher quality than anywhere else. Perhaps you have a great reputation for providing the best customer experience. The actions you take and the choices you make have a strong influence on what brings people in — and the better you understand the reason they're there, the better prepared you'll be to meet their expectations.

Analyze your sales data. If you've been open for at least a year, your sales history can be an enormous asset in helping you determine your best-selling products for each quarter. What items were your best sellers last spring and summer? Now would be a good time to make sure you've got all you need for the upcoming months. Focusing on what has sold well in the past can be a good clue to managing your inventory going forward.

Study the needs and behavior of current customers. To help you predict what they'll be looking for in

the future, pay close attention to what your customers are doing right now. And remember, returning customers are gold-standard sources of information because they're living representatives of what you've been doing right.

Collect feedback.

Use every tool available to record customer experience, such as satisfaction cards, email surveys, online forums, and phone conversations. Be open to all communication. Use every

opportunity to communicate with your customers (and potential customers) and pay close attention to their responses. Whether they realize it or not, they'll often let you know exactly what you can do to bring them back.

Use social media. Having a good presence on social media platforms, such as Facebook and Twitter, allows customers to stay up to date on what's happening in your store — and to respond. Social media lets them tell you directly what they like, what they want, and what will bring them in the store. Many won't connect what they said online with what you've provided onsite and they'll be stunned that you've *somehow* read their minds.

Stay up to date on current trends. Seizing the moment when a new gardening trend appears can be fun, exciting, and financially rewarding. Great sources for keeping current on hot new trends include consumer magazines, online forums, and popular gardening websites. But keep in mind that what's hot now will almost always cool down eventually as current trends become passing fancies.

In case you haven't noticed, good understanding of your customers is strongly reliant upon good communication



Andy Peterson

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— from putting out the proper message to draw people into your garden center or soliciting direct information that tells you exactly what they'll be looking to plant in the upcoming season.

Other considerations that will convince your customers they've come to the right place:

Give deep thought to who your best customers really are. Are you truly meeting their needs or are you trying to sell to a generic gardener? Maybe it's time to challenge some stereotypes. If you're only focused on older homeowners, you might be missing out on younger apartment-dwelling plant enthusiasts. Customers like to see themselves reflected in your business when they enter your store, whatever their age or ethnicity.

At the same time, remember:

You can't be everything to everyone. Therefore, make intention-based decisions about the products you carry. Some retail shops go down the road of being a quasi-gift shop, which can take up a lot of real estate and distract from the products they have that have a better margin.

There are many ways to determine the needs of your customers. When you pay attention to the information they provide and plan appropriately, the impact can be enormous. Customers feel as if you're reading their minds because the choices you make are relevant to them, which builds trust and comfort, key components of the modern customer relationship. ☺





Quercus x undulata 'Mesa de Maya' PHOTO COURTESY OF HERITAGE SEEDLINGS & LINERS INC.



The next genera(tion)

Breeders diligently pursue what they hope will strike the market's fancy and become a hot seller

BY KYM POKORNY

WHEN THE PERENNIAL craze hit the Northwest 40 years ago, some breeders were front and center with plants to satisfy the gardeners who couldn't wait to create an English garden in their backyard.

The passion for blowsy borders has faded, but the desire for perennials hasn't abated. The palette continues to grow at a swift — some think too swift — rate. Other trends, including layered borders populated with a mix of perennials, shrubs, trees, vines and bulbs, offer wide-ranging opportunities.

But how do breeders know where to turn their concentration in an industry that can take a decade or more to go from R&D to market?

When breeders decide to start a new program, most don't sit down with staff and discuss what will be hot in 10 or 20 years. Not that plant planning is a seat-of-the-pants exercise, but the people in charge admit it's often a hunch based on deeply rooted knowledge of the industry and the plants they've gambled on in the past.

"Nobody can predict if a new plant is going to be a superstar," said Peter van Rijssen, owner of Concept Plants, an independent company that represents 150 breeders. "But as long as *you* know that it is, you need to share it with the world."

That can be a risk, said Dan Heims, founder and co-owner of **Terra Nova Nurseries Inc.**

"Sometimes you lose your pants," he said. "You can have a really good variety

and the market isn't ready. 10 years ago, if you had introduced the coolest new houseplant, people would have laughed at you. They wouldn't be laughing now with the houseplant rerun."

Trends can be fleeting. Sometimes, they don't last long enough to get a new plant on the truck and down the driveway. Are houseplants here to stay? Will succulents continue to take up precious shelf space at garden centers? They certainly will for a while, but then what? That's when instinct, research and open ears come into play. Or, maybe it's just lust.

"There are breeders who focus on a certain genus because they have had a passion about that genus since they were born," van Rijssen said. "But it is important to consider carefully what you want to target."

The oaks of tomorrow

Mark Krautmann, co-owner with his wife, Jolly, of **Heritage Seedlings & Liners Inc.**, sells more Japanese maple seedlings than anyone else in the world, but his most recent passion is oaks.

"It's a very scientific process," he said, smiling. "It's better to make the decision after one beer instead of two."

It was over beers that Krautmann would discuss oaks with Sean Hogan, owner of **Cistus Nursery LLC** and another oak fanatic. "I still get goose bumps. They're totally addictive and exciting."

In all seriousness, though, he said he wouldn't grow oaks just because he loves them. Some he doesn't think will sell

because they won't look like an oak in his lifetime. Market research suggests that unless they look like an oak, customers will walk right by.

That's not stopping him from developing those that he believes will have an audience that opens their wallets. Heritage has been working with oak expert Allan Taylor in Boulder, Colo., to bring out the best. "He's got 50 to 60 selections over the years. We have the production facility and he has the knowledge. I have the feeling these will be really popular if we do our job right."

Already oaks are catching on, showing promise for the future.

Quercus x undulata 'Mesa de Maya' (above), part of Heritage's Southwest Oak line that came from Taylor's selections, was judged Best in Show at the 2017 Farwest Show New Varieties Showcase, an honor Krautmann said wouldn't have happened if the plant didn't speak to people.

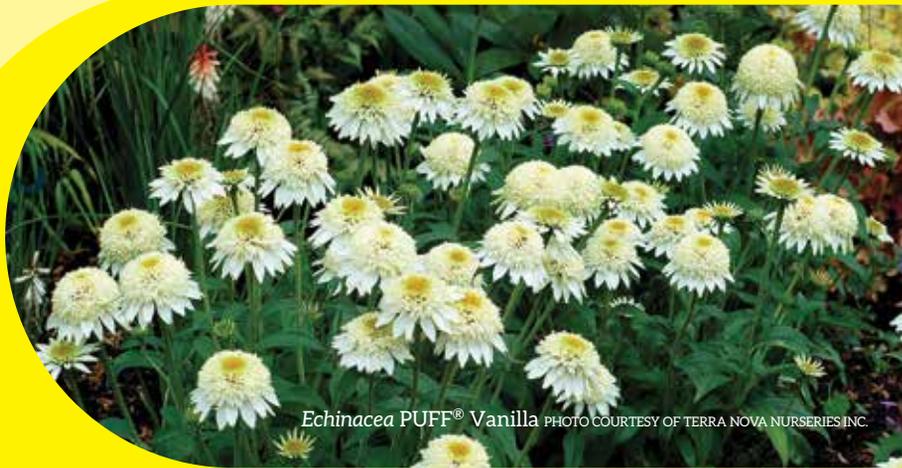
'Mesa de Maya', an oak he calls "achingly beautiful," takes a stance of about 20 to 25 feet with a width to match. This striking tree with blue-gray foliage grows in high pH, salty soils and 120 degrees in Southwest summers. Though drought-tolerant, 'Mesa de Maya' handles irrigation, too, making it an easy choice for urban lots.

Native and hybrid oaks are on the table at **J. Frank Schmidt & Son Co.**, as well. They've introduced nine so far, including **Crimson Spire™** and the new columnar standouts **Skinny Genes®**, **Streetspire®** and **Beacon®**. All are great fits for city streets, especially for parking strips.



Firestarter® Tupelo (*Nyssa sylvatica* 'JFS-red' USPP 26795)

PHOTO COURTESY OF J. FRANK SCHMIDT & SON CO.



Echinacea PUFF® Vanilla PHOTO COURTESY OF TERRA NOVA NURSERIES INC.



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Perennial superstars

Though the *Heuchera* genus is what Terra Nova was known for early on, it was begonias that tickled Heims' first interest in plants 40 years ago. Returning to his first love, he and his band of breeders brought forth a wide-ranging collection, 29 of which are now in the catalog and selling strongly.

Another genus Terra Nova can take credit for improving is *Coleus*, once a dusty, leggy group of houseplants that's turned a breeding corner in dramatic fashion. What were muddled colors are now saturated and brilliant.

No longer leggy, the *Coleus* bred by Chuck Pavlich, director of new plant development for the nursery, doesn't even have to be pinched back. They fill a pot rapidly, don't drop their leaves and resist diseases like powdery mildew.

Echinacea may be the biggest perennial star of the last decade and its popularity shows no signs of slowing. There are yellows and oranges and reds and white and doubles now. Some are fragrant. Customers love them. But you never know what the future will bring.

"It's like a botanical clock," Heims said. "At noon, everybody wants one;

it's the hottest thing in the whole world and sells for \$650. At three o'clock, it's still really cool, but the price comes down and the profit is not as high. At six, interest wanes, you have a huge surplus in the greenhouse and start dumping them. At nine, they're gone. At 10, people say, 'Whoa, what's that' and then it gets super popular again."

The timing can be 20 years, or even 60, he said. Just think of dahlias, which were the "it" plant of the '60s. Then the market collapsed. Tissue culture gave them a shot in the arm and now they are going strong.

Shrubs that shine

If one genus wins Most Popular, it has to be *Hydrangea*. "It's a great success story," said David Roberts, general manager of **Bailey Innovations**. "They have sailed into the stratosphere."

Always a popular garden plant, hydrangeas really hit their stride after plant breeder Michael Dirr, professor emeritus at the University of Georgia, found the first reblooming plant growing randomly in Bailey's fields. From there came the ubiquitous Endless Summer® line of hydrangeas, an improvement that >>

The next genera(tion)



Vitex agnus-castus PHOTO COURTESY OF BAILEY

moved hydrangea from grandma's go-to plant into the slot of best-selling plant in the country.

Hydrangeas, a star of the past and present, is almost a sure bet to be a star of the future, as well. Bailey bought Dirr's breeding company and plans to continue breeding reblooming hydrangeas. With 35 acres for R&D in Athens, Georgia, Roberts said the company has the room to bring new reblooming varieties to market that are improved in some way: disease resistance, stronger stems, more compact plants.

Two other genera Roberts looks to for a potential Cinderella story are *Vitex* and *Distylium*. He likes to call *Distylium* "the best plant you never heard of" and sees it as a potential replacement for blight-infected boxwood, a feat any breeder would want to accomplish. It's evergreen, imminently clippable, tough and disease resistant. "*Distylium* will get popular," Roberts promised.

The best-known of the *Vitex* genus is *V. agnus-castus*, a small tree with extreme

drought and heat tolerance. On the other hand, it also endures water-logged soils.

"Pollinators flock to it," Roberts said. "It's very compact, has a wide window of bloom, long panicles of blue flowers and fragrant leaves. I'd like to see some love for it."

He thinks that's completely possible with the breeding Bailey is doing to find a shrub form that constantly reblooms.

Word on the streets

Though it might appear that someone at J. Frank Schmidt & Son Co. has a crystal ball, the process of developing successful new trees is more practical than magical. Guy Meacham, new plant development manager, explains that selecting nursery-worthy trees that have the best sales potential is a top priority when the company sets out to select improved cultivars from a promising genus.

Led by Meacham's predecessor, Keith Warren, Schmidt's saw the need for improved cultivars of street trees years ago and started developing trees tailored



Echinacea 'Tiki Torch'

PHOTO COURTESY OF TERRA NOVA NURSERIES INC.

for city life, including fastigate trees that leave sidewalks and driveways straight and smooth.

"We're working with over 30 different genera at one time," Meacham said. "We're really not that strategic. When we have something good, we introduce it."

Schmidt's latest success story is Redpointe® Maple (*Acer rubrum* 'Frank Jr.' USPP 16769). It's a runaway hit since its introduction in 2006 because it checks all the boxes for a great maple: pyramidal shape, dark green foliage and intense red fall color, more tolerant of high pH, fast growing with a uniform growth habit that makes it easier for nurseries to grow.

With a goal of offering native trees that perform well in urban settings, Schmidt is developing and introducing cultivars of native trees such as American Hophornbeam (*Ostrya virginiana*), redbud (*Cercis canadensis*), American Hornbeam (*Carpinus caroliniana*) and Black Tupelo (*Nyssa sylvatica*). Not only do they fulfill the public's desire for natives, they also support the native pollinators and birds people want to save.

Native *Nyssa sylvatica* has gotten considerable attention from Schmidt, where breeding is focused on its potential as a street tree. According to Nancy Buley, the nursery's communications director, their improved cultivars of *Nyssa* have it all: a strong central leader, upright branches with open angles, hardness and dependably brilliant red fall color. These include Afterburner® (*N.s.* 'David Odom'), Firestarter® (*N.s.* 'JFS-red' USPP 26795), Gum Drop® (*N.s.* 'JFS-PN Legacy1'), and Red Rage® (*N.s.* 'Haymanred'). Green Gable® (*N.s.* 'NSUHH' USPP 22951), a handsome new introduction of *Athena* Trees, Inc., is also offered by Schmidt.

Others to watch

Heritage agrees natives should be part of any breeding program. Krautmann espe-

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× *Gordlinia* PHOTO COURTESY OF HERITAGE SEEDLINGS & LINERS INC.



Redpointe® red maple (*Acer rubrum* 'Frank Jr.' USPP 16769)
PHOTO COURTESY OF J. FRANK SCHMIDT & SON CO.

cially gives a nod to inter-generic hybrids like × *Gordlinia* (*Gordonia* × *Franklinia*) and inter-specific hybrids such as Rutgers' *Cornus florida* × *C. kousa* varieties.

But for Krautmann, the plant to watch is magnolia, a plant he has almost the same affection for as oaks. As with so many selections, a possible future magnolia came about completely serendipitously. It all started when Krautmann donated a seedling to a school auction. At two years and two feet tall, the tree was easy to overlook. Now, it's a one-in-a-million specimen.

"We went to visit the owner when she was in hospice," Krautmann said. "We

asked where she found *that* tree. 'From you guys,' she said.' What are the odds of that?"

Exceedingly low. But it happened. That's the world of breeders and those who have an observant eye for truly distinctive, market-worthy plants.

Sometimes, like when Durr found a reblooming hydrangea or Krautmann slapped his forehead over a keeper that

started out in his hands, it's all about luck. But, luck or not, you have to know what to look for and what to do with it after you find it. And it's a slow process.

"When we start breeding a product we don't know if you cross x with y that you'll get w," Meacham said. "If you cross enough times, you might get w. That takes a long time." >>



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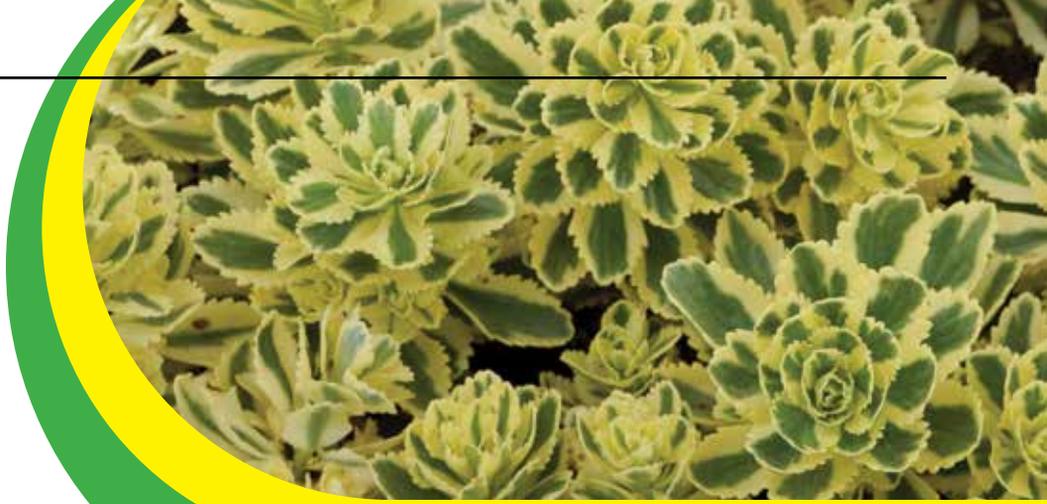


The next genera(tion)

Back in the perennial world, van Rijssen gives a nod to *Delosperma* as a popular plant of the future. Concept Plants first introduced ‘Jewel of the Desert’ and ‘Wheels of Wonder’ and breeding continues for more of these superstar plants.

“I think that is the next petunia,” he said. “They are so easy and perfect for gardeners and non-gardeners. It has constant impact all summer long without any maintenance. They’re waterwise with a high impact of color.”

Already popular *Sedum* is sure to draw even more attention as breeding continues, van Rijssen said. Proving his point is *Sedum* ‘Atlantis’, which took home Plant of the Year from the Royal Horticulture Society’s Chelsea Flower Show for 2019. It’s no wonder. The low-care, drought-tolerant, pollinator magnet has unusual green foliage with light creamy margins and yellow flowers.



Sedum ‘Atlantis’ PHOTO COURTESY OF CONCEPT PLANTS

Achieving the impossible

Why do breeders get so much joy from their careers? As van Rijssen said, “We love to introduce game-changing varieties where the trade will think, ‘How is that possible.’ How cool is that?”

It’s about giving the public something new, something they didn’t know they had to have until they saw it.

“If you don’t have something to capture people’s imagination it will be like

Baskin-Robbins still having the same 31 flavors after 30 years,” Krautmann said. “They wouldn’t be around anymore.” ©

Kym Pokorny is a garden writer with more than 20 years of experience writing for The Oregonian (Portland, Oregon) and other publications. She is currently a communications specialist with Oregon State University Extension Service. Kym can be reached at kym.pokorny@oregonstate.edu.

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Protections for your selections

Breeders and growers looking to protect their work have several available options

THERE ARE A multitude of options for intellectual property (IP) protection for plants and plant-based inventions in the United States. A well-honed IP strategy can result in innovation and growth for just about any nursery stock producer, retailer, landscaper and related companies serving the nursery and greenhouse industry.

The primary sources of IP protection for crop plants in the U.S. are as follows.

Utility patents

One source of protection for plants in the United States is the utility patent. It can protect plants, plant parts (seeds, pollen, fruit, and flowers), physical traits, new inbreds, first-generation hybrids, proteins, genes (with certain exceptions), microorganisms, transformed cells, chemicals, and methods of developing any of the above.¹

The requirements for a utility patent include novelty, utility and non-obviousness. In order to be novel, the invention must not have already been patented, nor should it be described in any printed publication, in public use, on sale or otherwise available to the public before the effective filing date of the invention, although there is a one year grace period for the inventor's own disclosures and disclosures of information by others that was obtained directly from the inventor (and without a non-disclosure agreement in place).²

An issued patent grants the inventor or their assignee the exclusive right to make or use the invention for 20 years following the effective filing date of the patent application. The patent holder can exclude others from making, using, selling or commercializing the plant in the United States for that 20 year period.

In other words, no one can use the patented plant in any crosses or for any experimentation without first obtaining

a license from the patent owner without risking a claim of infringement.

In the case of patents for plant cultivars, the application process normally includes the collection of data on the new plant, comparing that data to closest known varieties, preparing and filing the application with the U.S. Patent and Trademark Office (USPTO), and in many cases making a seed deposit), and making any required assignments and disclosure of known prior art to the USPTO.

Plant patents

Plant patents are unique to the United States and are designed to encourage research and investment in new, asexually produced varieties. A U.S. plant patent grants protection to “whoever invents or discovers and asexually reproduces any distinct and new variety of plant, including cultivated sports, mutants, hybrids, and new found seedlings, other than a tuber propagated plant or a plant found in an uncultivated state.”³

The requirements for a plant patent are similar to those for a utility patent (novelty, utility and non-obviousness) and the term is the same — it's good for 20 years following the application filing date. The plant patent is available for asexually reproduced plants only, some examples of which are strawberry, blueberry, raspberry, other fruits, grapevines, grasses, potted plants and cut-flower plants.⁴

Knowing the difference

What is the difference between plant patents and utility patents? Plant patents



Susan Ford

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apply to asexually reproduced plants except for edible tubers (i.e., buds and cuttings), whereas utility plants apply to sexually reproducing plants (flowers and seeds) and genetically engineered plants.

Plant patents have only one claim, whereas utility patents have multiple claims, averaging 10-60. Therefore, plant patents are significantly less expensive due to their relative simplicity compared to utility patents, and typically require fewer responses to “office actions” from the USPTO prior to issuance.

However, utility patents offer much broader protection than plant patents since they can cover, among other things, trait claims, breeding methods, and food product claims.⁵

Furthermore, and importantly, there is no research exception for utility patented varieties, unlike for plant patents, and a utility patent holder can prevent other breeders from using a patented variety in breeding during the term of the patent.⁶



Plant variety protection

The U.S. Plant Variety Protection Act is another source of intellectual



property protection for plants. However, unlike utility and plant patents, which are granted by the USPTO, the plant variety program is administered by the U.S. Department of Agriculture (USDA).

Similarly to patents, the requirements for plant variety protection include novelty, but they also require uniformity, stability, and distinctiveness.⁷ Similar to patents, the plant variety certificate has a term of 20 years from issuance in most cases⁸. The U.S. PVP certificate certifies “that the breeder has the right, during the term of the PVP, to exclude others from selling the variety, or offering it for sale, or reproducing it, or importing it, or exporting it, or using it in producing a hybrid or different variety therefrom, to the extent provided by this Act.”

However, unlike utility patents, the U.S. PVR has a research exemption that allows for bona fide research without risk of infringement, as well as a saved seed exemption that allows farmers to save seed from protected varieties and to use them in the production of a crop without infringement.⁹

What about trademarks?

Trademarks are another source of intellectual property protection for plants. Trademarks represent a connection in the minds of consumers between the source of a good or service (plants) and its producer (nursery, farm, etc.).

Unlike a varietal name that identifies the specific plant for all plants of a specific variety, trademarks act as brand names and can be used for numerous plants to indicate the source of an entire series of plants.¹⁰ Examples include Endless Summer[®] (for hydrangeas), Bushel and Berry[®] (formerly Brazelberries[®], for berry shrubs), and Knock Out[®] (for roses).

Unlike patents and PVPs, trademarks can be protected indefinitely, so long as they are exclusively and continuously used by their owner in connection with the sale of goods and services.

One benefit of obtaining a federal trademark registration rather than simply relying on common law rights developed

in certain regions of the country, is that the federal registration provides nationwide rights to exclude others from using the same or similar mark in the same or a related class of goods and services. In order to have the best chance of obtaining a federal registration, the trademark – whether it be for a word, phrase, slogan or logo – should be unusual and distinctive, not merely descriptive or generic.

An application for a plant variety name as a trademark will result in a rejection of the application because the varietal name is descriptive or generic as it identifies a specific plant cultivar. Likewise, use of geographic regions in connection with other common terms (i.e., Valencia oranges or Northwest marionberries) is likely to be rejected by the trademark examiner as geographically descriptive.

Trade secrets

Trade secrets protection is also available in the United States for plants, both at the state and federal levels.

Trade secrets are broadly defined at the federal level as “all forms and types of financial, business, scientific, technical, economic, or engineering information, including patterns, plans, compilations, program devices, formulas, designs, prototypes, methods, techniques, processes, procedures, programs, or codes, whether tangible or intangible, and whether or how stored, compiled, or memorialized physically, electronically, graphically, photographically, or in writing.”¹¹

There is no registration or certification process available, as with patents, PVRs and trademarks. Rather, trade secret protection is only available under state and federal law when the owner has taken reasonable measures to keep such information secret and the information derives independent economic value, actual or potential, from not being generally known to or readily ascertainable by another person who can obtain economic value from the disclosure or use of the information.¹²

Copyrights

Copyrights protect artistic or creative

works, such as books, movies, pictures, sculptures, music, and computer programs. More applicable to nursery stock producers and associated businesses, copyright protection applies to instructional materials, designs, online writing such as blogs and articles, as well as maps and graphics. Whoever owns the copyright to a work is allowed to distribute, display, reproduce, perform, or use the work to create derivative works.

Copyright arises upon creation, i.e., once the idea of the creative work has been reduced to tangible form. Under current law, copyrights last for the life of the author plus 70 years for individual works and for 95 years from first publication for corporate works (i.e., works “made for hire”).

Like a trademark, there is no requirement that you register a copyright with the federal government in order to enjoy the legal right to its protection. However, without registering, you do not have the right to sue another for infringing on your copyright, nor do you have the right to recover statutory damages or attorneys’ fees from those that infringe prior to your registration date. Instead, only an award of actual damages (which are hard to prove) and profits earned by the infringer are available to you as the copyright owner.

Contracts

Finally, intellectual property and contracts go hand in hand. Licenses, assignments, co-existence agreements, consent agreements, sale agreements, non-compete and non-solicitation agreements and employee/contractor intellectual property agreements are some of the most common forms of contracts that apply to intellectual property in agriculture, as in other industries. Confidentiality, non-disclosure and non-use agreements are also important, particularly in the realm of patent and trade secret law.

Conclusion

There are multiple ways to the protect intellectual property associated with crop plants in the U.S., and intellectual property is an important asset for most busi-

nesses. At Jordan Ramis we will assist you with the registration of your trademarks and copyrights and with the protection of your trade secrets. We will also help you enforce your rights in your patents, trademarks, copyrights and trade secrets through cease and desist letters, licensing and joint development agreements, and, when necessary, litigation.¹³ ©

The information contained in this article is for the general interest of our readers and should not be regarded as legal advice.

If you have questions, or to obtain more information on this topic, please contact Susan Ford.

Endnotes

- 1 See Current Legal Issues in Intellectual Property Rights and Protection for Crop Plants, Crop Science (www.crops.org), Vol. 55, November-December 2015, at 2497, citing J.E.M. Ag Supply, Inc. v. Pioneer Hi-Bred International, 534 U.S. 124, 143-146, 122 S.Ct. 593, 605-606, 60 USPQ2d 1865, 1874.
- 2 Current Legal Issues in Intellectual Property Rights and Protection for Crop Plants, Crop Science (www.crops.org), Vol. 55, November-December 2015, at 2497.
- 3 U.S. Plant Variety Protection Act of 1970 (PVPA), 7 U.S.C. §§ 2321-2582; see also *In re Beineke* 690 F.3d 1344, 1352, 103 USPQ2d 1872, 1877 (2012).
- 4 Current Legal Issues in Intellectual Property Rights and Protection for Crop Plants, Crop Science (www.crops.org), Vol. 55, November-December 2015, at 2498.
- 5 Trait claims cover those varieties developed and disclosed in the patent application without the need for a seed deposit and can cover those varieties independently developed later that fall within the claim. See <http://perennialpatents.com/plantpatent-v-utility-patents/#> (last visited August 22, 2019).
- 6 Id.
- 7 Current Legal Issues in Intellectual Property Rights and Protection for Crop Plants, Crop Science (www.crops.org), Vol. 55, November-December 2015, at 2499.
- 8 Plant Variety Protection is offered for 25 years for vines and trees. See <https://www.ams.usda.gov/services/plant-variety-protection> (last visited Aug. 28, 2019).
- 9 U.S. Plant Variety Protection Act of 1970 (PVPA), 7 U.S.C. §§ 2321-2582.
- 10 See <http://www.iphandbook.org/handbook/ch11/p06/> at p. 3 (last visited August. 26, 2019).
- 11 The Defend Trade Secrets Act, 18 U.S.C. § 1836, et. Seq.
- 12 Id., see also ORS 646.461(4).
- 13 Additionally, we can refer you to and collaborate with registered patent agents and attorneys for the filing and prosecution of your patent applications and plant variety certificates.



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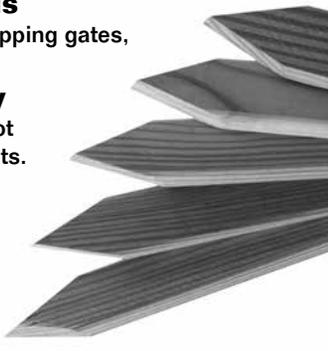
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Wholesale deciduous tree nursery located in Milton-Freewater, OR is seeking a full-time grower with experience in tree production. Applicant must be fluent in Spanish and English, both reading and writing, and have proven supervisory/management skills.

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EMPLOYMENT



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Highland Meadow Nursery in Molalla is looking for a team player to add to our successful nursery operation. Responsibilities:

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- Maintain relationships with vendors
- Provide backup support for customers.

Qualifications:

- Previous nursery or horticulture experience helpful
- Basic understanding of plant names and terms
- Familiarity with Excel
- Ability to build working rapport with colleagues, customers, and vendors
- Detail-oriented
- Bilingual in Spanish a plus
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We're looking for someone who is productive, willing to provide input, and learn and grow in a great industry.

To apply, please email resume to info@highlandmeadownursery.com

EMPLOYMENT

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ACCOUNTING MANAGER

Do you love the nursery industry? Are you ready to be involved with assisting in the reinvention of accounting policies and processes? We are searching for a highly skilled Accounting Manager with exceptional technology skills to manage accounting processes in Cornelius, Oregon for our Rio Verde and Schwoppe Brothers Tree Farm West Coast locations.

If you have a strong sense of urgency and the ability to multi-task with a high attention to detail and accuracy, then we want to hear from you!

Key Responsibilities:

1. Transaction Management: Process and record accounts payable transactions accurately and timely. Manage accounts receivable to include reconciliations, processing

(continued next column)

EMPLOYMENT

credit applications, and collection calls. Reconcile bank accounts, make monthly journal entries, and reconcile all general ledger accounts as part of the month end close. Process payroll through ADP.

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3. Financial Statements and Reporting: Review financial statements to ensure accurate accounting and financial reporting. Perform analytical reviews of the Company's financial statements (vs prior year, budget, trend, etc.) and investigate and provide explanations on identified variances.

Minimum Qualifications:

- BS in Accounting or Finance. CPA or similar designation is a plus
- 3-5 years' experience at a small to mid-size company where you've handled most/all aspects of accounting
- Production or distribution experience required
- Advanced computer skills: previous experience with an ERP with a proficiency in Excel is required
- Prior experience with QuickBooks
- ADP Workforce Now or a similar payroll and HR system
- Proficiency in the use of Microsoft Office products

Application Requirements:

- To submit your application for this position, please visit www.dcaoutdoor.com/careers
- Completion of Culture Index Survey: Without survey completion, your application is considered incomplete and will not be considered. Copy and paste the following into your browser: www.cindexinc.com/c/A550CC



EMPLOYMENT

BILINGUAL HUMAN RESOURCES SPECIALIST

DCA Outdoor, Inc, is a national, vertically integrated green industry organization. Our goal is to streamline the production and distribution of landscape products. We are focused on growth, innovation, and collaboration, and believe these are the keys to our continued success.

We have an immediate opening at our Rio Verde Plantas location in Cornelius, Oregon for an outgoing, highly organized person who likes being relied upon for all things HR-related. You will work in a fast-paced environment and have a wide variety of responsibilities.

This is a highly visible role working with employees that requires self-sufficiency and follow-through. If this sounds like you, we encourage you to apply today!

Key Responsibilities:

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2. Payroll & Benefits Administration – Prepare and submit payroll. Assist with benefits administration processes for all employees.
3. Compliance – Assist with compliance with legal requirements and government reporting regulations affecting the human resources function.
4. Communication – Be the internal bilingual communication source on HR-related issues.

Minimum Qualifications:

- Associate degree in Business Administration, Human Resources
- 3+ years of experience in a high-level generalist role
- Proficient with Microsoft Office, Word, Excel and PowerPoint
- Bilingual in English and Spanish
- Experience with ADP Workforce Now or similar payroll platform desired

Application Requirements:

To submit your application for this position, please visit www.dcaoutdoor.com/careers

- Completion of Culture Index Survey: Without survey completion, your application is considered incomplete and will not be considered. Click on the following link to go to survey: www.cindexinc.com/c/A550CC



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EMPLOYMENT

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Large wholesale nursery is seeking a skilled and self-motivated Journeyman Mechanic to join our team in our repair shop located in Boring, OR.

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Any additional experience in welding and/or fabrication is a plus as well as familiarity with diverse farm/nursery implements or tire repair and replacement on vehicles/tractors.

Candidate will have good communication and organizational skills, be highly motivated and goal oriented as well as being aware of and practicing safety in the workplace. Candidate must also possess knowledge of electronic diagnostic equipment and be open to further training and use of electronic data and labor management software platforms. The ability to maintain accurate records by recording service and repairs completed with parts and product usage is vital to the position. Must be able to handle and carry objects up to 80 lbs.

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EMPLOYMENT

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- Verifying and approving invoices for orders placed
- Developing and maintaining necessary records and files
- Be able to work inside and outside as needed at all times of the year
- Assist Nursery Manager with reports and/or tasks as required

Qualifications and Skills

- Procurement experience in landscaping, construction, plant nursery or related industry
- Ability to add, subtract, multiply, and divide in all units of measure
- Horticulture knowledge/experience is a plus
- Effective oral and written communication skills
- Ability to prioritize and multi-task in a fast-paced environment
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EMPLOYMENT

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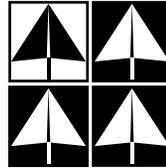
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GROWING KNOWLEDGE

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



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



Fig. 1. Typical leaf spots and linear- to diamond-shaped stem lesions of boxwood blight. Dark brown leaf spots with bright orange halos on Winter Gem (far left), dark bruising on Newport Blue (center left), and spots with tan centers on Common boxwood (center right). Stem lesions of boxwood blight (far right). PHOTOS COURTESY OF OREGON STATE UNIVERSITY

Scouting for boxwood blight

These tips make it easier to spot and mitigate this highly infectious disease

BY JERRY E. WEILAND AND JAY W. PSCHIEDT

THE 2019 GROWING SEASON was a big year for boxwood blight in Oregon. The disease, caused by the pathogen *Calonectria (Cylindrocladium) pseudonaviculata*, has caused substantial damage to boxwood shrubs in U.S. nurseries and gardens since it was first discovered in 2011.

Only two Oregon nurseries found boxwood blight in 2011. That number expanded to 12 by 2019.

So, how do you know if you have this highly infectious disease and what are the best ways of scouting for it? Here are some tips to help.

Scouting dos and don'ts. The best time to scout for signs of the disease is on cloudy days or in the early morning (after any dew has dried) and late afternoon. Scouting when there is bright sunlight directly overhead can make it more difficult to see boxwood blight symptoms, because of the amount of contrast between the highlights and shadows on boxwood plants.

Scout more often after plants start growing during the rainy spring weather and again in the fall when rains return. Scout less often during the summer drought periods. However, frequent irrigation in summer can increase your risk and make the disease more likely to develop.

The disease can be explosive, appearing within a week of warm weather, abundant moisture, and the pathogen being present. The risk for an outbreak event is decreased when plants are kept drier or temperatures are lower.

Use the Boxwood Blight mobile app or USPest.org webpage to help you with disease forecasting. Be careful when scouting wet plants, as this may increase your risk for spreading spores.

Know your boxwood blight symptoms. Leaf spots are circular, oval, or v-shaped at the leaf tip (Fig. 1). Spots appear as brownish-black bruises or as distinct black spots, often with tan centers. A yellow-to-orange halo may also appear.

Blighted leaves that died rapidly may also be completely gray, brown, or black without distinct spots. Diagnostic, black linear-to-diamond-shaped lesions are common on the stems (Fig. 1).

In addition, look for signs of defoliation. This includes bare branches and fallen leaves on the soil or in the pot. In severe cases, entire sections of the plant or the entire plant can be defoliated and killed. Some of the most severely affected cultivars include straight *Buxus sempervirens* (Common or American boxwood) and the cultivars *Suffruticosa* and Justin Brouwers. However, other cultivars may also be severely affected depending on susceptibility and environment.

Mild, but not meek! Be on the lookout for mild or subtle symptoms. Not every plant will necessarily be devastated by boxwood blight, and symptoms can be inconspicuous. For example, there may be one or two bare branches down near the base of the plant. There may also be a few leaves with leaf spots deep inside the boxwood canopy.

These mild symptoms are likely to explode into a severe



Scouting for boxwood blight

Fig. 2. Look alike issues. Left to right. Winter damaged leaves with black spots and bruising look very similar to boxwood blight symptoms (left). Leaf spots from chemical damage often have window-like white to tan centers and may have an orange to red halo (center right and right).

PHOTOS COURTESY OF OREGON STATE UNIVERSITY



outbreak when the plants are moved into a conducive environment with warm temperatures and ample moisture. The sooner infected plants are found, the more likely the problem can be contained and stopped from

Free weather tool

This Boxwood Blight mobile app or this web site (<https://uspest.org/wea/>) will help you determine if and when weather conditions are right for boxwood blight development. Start at the top of the menu by clicking on “Quick Start”. Then check the nursery box, insert your zip code and click “GO”. You will find boxwood blight among the information presented. Change the display dates to include September 2019 to see how favorable that month was for this disease.

spreading to other areas of the nursery.

Look-alikes. Phytophthora root rot, caused by several *Phytophthora* species, can cause branches or entire plants to turn reddish-orange, then die. Leaves due to root rot don’t develop leaf spots, dry to a light tan color, and may be retained for a long time.

Volutella blight, caused by *Pseudonectria buxi*, is a common disease that is often found on the same plants with *Phytophthora* root rot or boxwood blight. Leaves are generally dry, light tan in color, and become covered with salmon-colored spores underneath. Dark blotches may occur towards the center of the leaf or v-shaped lesions may develop at the leaf tip. Leaves are often retained for a long period of time, but may fall off easily.

Winter damage and chemical spray damage can also be difficult to distinguish from boxwood blight and may need laboratory confirmation (Fig. 2). For winter dam-

age, individual leaves are discolored yellow, orange, or brown-to-black, with dark spots or blotchy bruises that appear water-soaked underneath. These frequently produce volutella spores later. Succulent branch tips and leaves become limp, dry, papery-thin husks that may also be covered in volutella spores. Spots due to spray damage often have a papery, window-like white-to-tan center, either with or without orange to red halos.

Break the pattern! The first thing to look for when scouting for boxwood blight is sick plants that break the pattern in an otherwise healthy block of crops. Look for plants that appear off-color, stunted or otherwise unhealthy. Keep a particular eye out for the symptoms most associated with boxwood blight: leaf spots, stem lesions, bare branches, and defoliation.

Get close! Make sure you get up close and personal with plants by conducting a walkthrough. Plants that appear

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Fig. 3. Going low and down under. Boxwood blight symptoms of leaf spot and defoliation occurring underneath the plant on the lower branches of this field-grown Wintergreen boxwood. PHOTOS COURTESY OF OREGON STATE UNIVERSITY



healthy from as little as 10 feet away may show symptoms of boxwood blight upon closer inspection. Drive-by scouting does not work as the disease is often hidden on parts of the plant that are not easily visible from a vehicle.

Go low! Boxwood blight symptoms often occur low in the canopy, regularly within six inches of the ground or container media (Fig. 3). This is not to say that symptoms can't occur higher up, but the low canopy stays humid longer, giving spores more time to germinate and infect. Also, the lower part of the plant is often poorly covered during fungicide applications, which may leave the plant vulnerable and unprotected. Keep an eye out for fallen leaves, bare stems, as well as for characteristic leaf spots and stem lesions.

Go down under! While you are looking low in the canopy for boxwood blight symptoms, take a look underneath some of the lower branches on your boxwood plants (Fig. 3). Overlying branches can obscure leaf spots, stem lesions, and defoliation occurring on branches.

Go all in! Don't forget to look into the interior of the boxwood canopy as well. Larger shrubs have a greater volume of leaves that do not dry out quickly. Fungicides may not protect interior leaves if spray pressure is not sufficient to cover the interior leaves. This strategy also applies to pot-to-pot production or other tight spacing where the canopies merge together and prevent scouts from seeing down underneath the canopy (Fig. 4). What appears healthy from the outside where the environment is drier may be very different from the humid, conducive environment of the interior canopy.

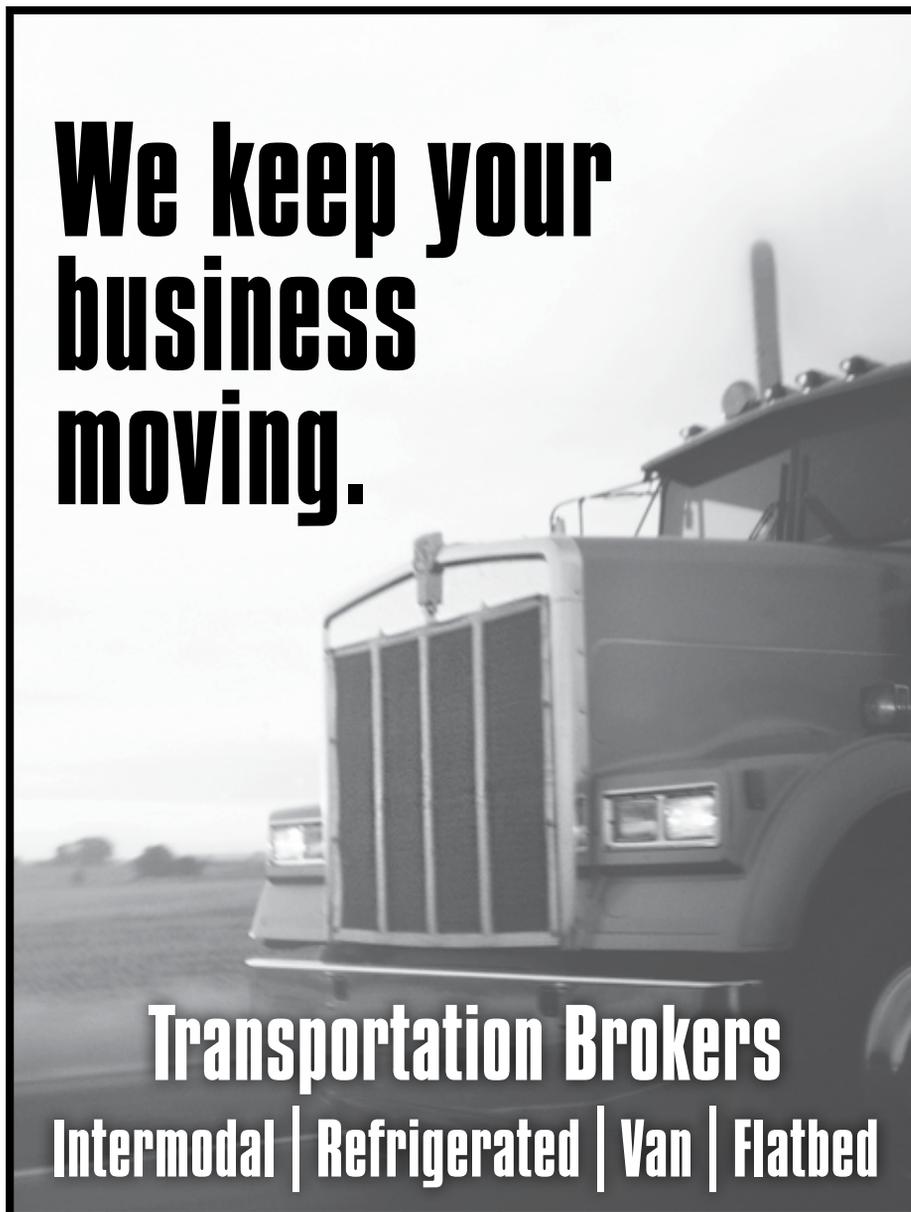
Look around! Because boxwood blight is spread by splashing spores, if one plant is infected, other plants



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Scouting for boxwood blight

Fig. 4. Go all in. This block of rooted Green Velvet cuttings appears healthy from the outside, but shows symptoms of severe boxwood blight (leaf spots, stem lesions, defoliation) when the canopy is parted.

PHOTOS COURTESY OF OREGON STATE UNIVERSITY



around it are likely to be infected as well. Often, there are hot spots of blight within a block of crops, where the plants in the middle are severely infected. So, if a scout sees a plant with suspicious symptoms but is not confident whether it is actually boxwood blight, look around. There is likely another plant nearby that may have more characteristic symptoms.

Don't get blocked! Lastly, be aware of any situations that might prevent effective plant scouting. Large blocks of crops where you can't easily see into the center of the block or down into the canopy will make it less likely that you will discover an infection before it becomes severe. This advice also applies to plants that are too tightly spaced for easy access.

Other common obstructions that make scouting more difficult include plastic, pipes, or other obstructions in the pathways. Weeds

can also obscure symptoms and trap moisture that provides an ideal environment for infection. Leaving boxwood trimmings on the ground may make it more difficult to determine when defoliation from boxwood blight is occurring.

Summary: Finding subtle infections early will help you manage this explosive disease. Scout early, get close, go low and go all in. Breaking up large blocks, spacing plants and removing obstacles for scouting will also help improve fungicide spray coverage. ©

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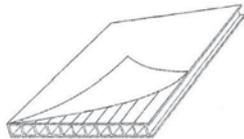
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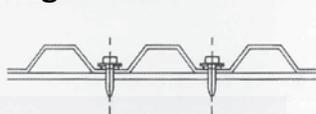
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Sticking together on big pest issues

Nursery and greenhouse operators face an ever-increasing set of opportunities and challenges.

Few are more daunting, or more of a game changer, than pest and disease issues.

Oregon has a stellar reputation of producing quality plant material, which is shipped throughout the Pacific Northwest, the nation and internationally.

Faced with uncertainty regarding the spread of *Phytophthora ramorum*, which causes sudden oak death, the OAN brought together thought leaders to chart a new path to improve the detection of pests and pathogens. To that end in 2012, the United States Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS), Oregon Department of Agriculture's (ODA) nursery program experts and researchers from all over the country worked and developed the *Safe Procurement and Production Manual: A Systems Approach for the Production of Healthy Nursery Stock*.

The book, which was published by OAN, included a first: best management practices that emphasize prevention and can be applied to operations of any size. By adopting these methods, growers could detect pest and disease problems as they arise, then respond rapidly to resolve them. This worked so well that USDA changed its focus to helping operations get clean, rather than adopting a blanket assumption that the industry is shipping bad plant material.

Although the systems approach was built in response to sudden oak death, the model can be applied to ANY threat that emerges — including boxwood blight.

A major producer of boxwood

More than 140 Oregon growers are growing boxwood. They ship 2.5 million plants worth more than \$23 million annually to every corner of the U.S. and abroad (Canada being our largest export market).

Plant health is paramount to trade and market access. The ODA has a boxwood blight cleanliness program which offers voluntary practices to prevent spread of the pathogen. The program results in certification for shipping to other states, particularly those with quarantines.

However, even with adoption of this

forward-thinking model, issues can rise simply due to the way boxwood blight spreads, and the difficulty of initial detection.

The disease spreads through movement of infected plant material. The first North American discovery of boxwood blight was in 2011 in North Carolina and Connecticut. The first Oregon detection was made in November of 2011. Each year since then, a limited number of Oregon nurseries and landscape operations have been found infected with boxwood blight. In concert with ODA, eradication procedures were enacted at each nursery.

Since its first discovery, boxwood blight has been detected in 27 states and the District of Columbia. While we don't know for sure, it's doubtful that boxwood blight has latent infections. It's much more likely that early and very subtle symptoms of the disease go unnoticed. Traditional scouting can be difficult due to dense canopy.

Development of a protocol that enhances visual inspections and resolves confusion over symptoms. Early research has shown that different boxwood varieties respond differently to the disease.

The Oregon Summit in 2020

OAN and the Horticultural Research Institute (HRI) have hit boxwood blight head on. In October 2018, the OAN hosted an informational meeting on boxwood blight at its office in Wilsonville, Oregon. The presenters included representatives from OAN, AmericanHort/HRI, the USDA Agricultural Research Service (ARS) and ODA.

Last month, the OAN teamed up with AmericanHort/HRI to bring an all-day boxwood health workshop to the Willamette Valley. The workshop gave attendees a rare opportunity to hear from a panel of nationwide experts without leaving Oregon.

The panel included Dr. Fulya Baysal-Gurel of Tennessee State University, Dr. Jim LaMondia of Connecticut Agricultural Experiment Station, Judy Macias of the USDA Animal and Plant Health Inspection Service, Dr. Jerry Weiland of USDA ARS Corvallis, and boxwood grower Bennett Saunders of Saunders Brothers Nursery in Piney River, Virginia.

These experts presented information on boxwood blight symptoms, best manage-



Jeff Stone
OAN EXECUTIVE DIRECTOR

ment practices to prevent the spread of the disease, blight resistant boxwood varieties, current research, other pest and disease threats, and Oregon's voluntary Boxwood Blight Cleanliness Program.

Isolation, detection and reporting

The systems approach requires that incoming plant material be isolated for a set time and inspected, so sick plants don't have any opportunity to infect the healthy. This is critical with boxwood. Growers must educate personnel on how to recognize the disease symptoms and react quickly.

If a plant is suspected, contact your state agricultural department or local/regional National Plant Diagnostic Network laboratory (www.npdn.org) to submit a sample.

Unless stock and site are known to be disease-free, growers should avoid treating incoming plants with fungicides that may suppress symptoms and prevent the detection of disease. Place a physical barrier between containerized boxwood and the ground, such as a weed barrier cloth or gravel to facilitate leaf debris cleanup. If the plants are in doubt, continue to keep them separated.

For the full list and extended recommendations, go to tinyurl.com/wnhdf46.

We are in this together

Oregon is walking its talk and investing in research, outreach and collaboration to ensure that our system of pest and disease management is effective and inclusive. We all share an interest in resolving emerging pest and disease issues. As it has before, Oregon will continue to lead the way. ☺

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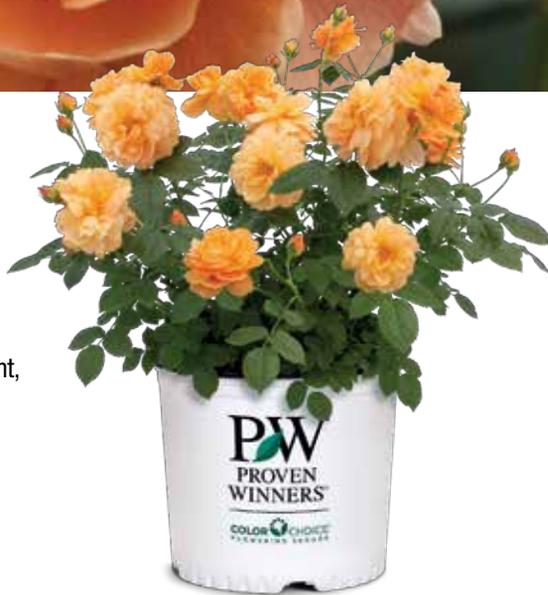
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