

GROWING KNOWLEDGE

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



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Highlights from the 2024 Oregon Nursery Science Summit



Dr. Lloyd Nackley of Oregon State University and Dr. Jerry Weiland of the USDA present to attendees at the 2024 Oregon Nursery Science Summit at the North Willamette Research and Extension Center. PHOTO BY DALYN MCCAULEY

Participants get update on research, insect and pest management and plant selection and production

BY LLOYD NACKLEY

Earlier this year, Dr. Lloyd Nackley of Oregon State University, and Dr. Jerry Weiland of the USDA, hosted the 2024 Oregon Nursery Science Summit at the North Willamette Research and Extension Center. The summit offered a deep dive into the forefront of nursery science and brought together experts from across the nursery industry to share their

latest insights and innovations.

Plant pathology

Dr. Jay Pscheidt and Dr. Luisa Santamaria kicked off the summit by exploring the realm of nursery pathology Extension. Drawing on their extensive experience, they illuminated the history and diverse programming of agricultural Extension, showcasing the myriad ways individuals can engage with and benefit from these resources.

Agricultural Extension, often seen as the outreach arm of the scientific community, serves as a bridge between researchers and stakeholders, disseminating valuable

knowledge and resources to farmers, gardeners, and enthusiasts alike. At its core, plant pathology at a high school level introduces students to the fascinating world of plant diseases, instilling an appreciation for the intricacies of ecosystem health and the vital role of scientific inquiry in combating agricultural challenges.

In the realm of sophisticated modeling, Dr. Brittany Barker and Dr. Nik Grunwald captivated attendees with their groundbreaking research.

Barker, a trailblazer in national-level efforts to predict disease and pest outbreaks based on climate data, exemplified how epidemiology in plant pathol- ➤

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Propagation at NWREC of drought-tolerant ground covers for Professor Neil Bell and Heather Stoven's collected plants. PHOTO BY HEATHER STOVEN

ogy parallels both detective work and fortune-telling. Like skilled detectives piecing together clues, researchers analyze vast datasets and environmental factors to anticipate and mitigate disease threats before they escalate.

Grunwald, a global authority on the distribution and evolution of *Phytophthora* pathogens, unveiled the intricate tapestry of microbial life, where genetic insights unlock secrets of evolution and adaptation, offering glimpses into the future of disease management.

As the summit progressed, Weiland shed light on the vital role of the USDA IR4 program in horticulture. Established to facilitate the registration of pest control products for specialty crops, including nursery plants, the IR4 program serves as a lifeline for growers, providing access to essential tools for pest management. Through extensive research and collaboration, Weiland and his colleagues work tirelessly to evaluate new control products and expedite their approval, ensuring a sustainable and resilient nursery industry.

Insect and pest management

Following a brief coffee break, the

summit delved into insect pest management with presentations by Dr. Silvia Rondon, Dr. Jana Lee, and Dr. Man-Yeon Choi. This session underscored the importance of integrated pest management (IPM) strategies in fostering sustainable nursery practices.

Rondon opened the session by highlighting the diverse projects at the Oregon Integrated Pest Management Center. She emphasized that the center, staffed with dedicated experts working across various crops, has become the go-to resource for nursery IPM since the retirement of renowned entomologist Robin Rosetta in 2019.

The breadth and depth of the center's projects demonstrate its pivotal role in supporting the nursery industry through research and innovation.

The Oregon IPM Center promotes and supports integrated pest management for Oregon and the Northwest region across both agricultural and non-agricultural sectors.

The center collaborates with Oregon's university researchers, Extension agents, producers, and state and federal agencies to protect Oregon's natural resources. Its primary goal is to serve as a one-stop hub

of information regarding IPM research and Extension activities in the region.

By fostering communication, participation, and engagement among IPM researchers, practitioners, and partners, the center aims to achieve economically sustainable pest management practices while reducing risks to human health and the environment.

Next, Lee, widely known for her research in developing biologically based solutions for pest management in small fruits and ornamental nurseries, introduced attendees to innovative pest management methods.

Lee's program has made significant strides in recent years, focusing on the biology and biological control of the brown marmorated stink bug. Additionally, her work on azalea lace bug phenology, cultivar preferences, and non-toxic controls has provided valuable insights for nursery pest management.

One of her recent focuses includes using a mint-based product that emits a sweet wintergreen aroma while being detrimental to insects. This sweet-smelling solution offers a novel approach to pest control, combining effectiveness with a

pleasant scent, thus enhancing the nursery environment while protecting crops.

Dr. Man-Yeon Choi concluded the session with a captivating presentation on his lab's meticulous work with western flower thrips. Given the tiny size of these insects, Choi has developed cutting-edge technology to handle them with extraordinary precision. By using air to hold the thrips in place and employing the finest microscopic needles, his team can syringe individual thrips without causing harm.

This groundbreaking technique allows for detailed study and identification of biological targets, showcasing the incredible scale and sophistication of projects undertaken by the nursery insect group leaders.


Plant selection and production


The summit continued with a focus on plant selection and production, featuring presentations by Dr. Ryan Contreras, Nackley, Prof. Neil Bell, and Dr. Marcelo Moretti. Attendees gained insights into recent developments in cultivar development, long-term landscape evaluations of drought-tolerant groundcovers, and innovative alternatives to conventional practices such as the use of Pulse Electric Field as a substitute for Methyl Bromide.

Bell, a world-renowned plant collector, brought his characteristic warmth and wit to the summit. Bell, who has presented at the International Society of Horticultural Science in France and regularly at the Oregon Hardy Plant Society, has been conducting hardiness trials for decades at NWREC. He is credited with introducing numerous hardy landscape plants to the Oregon trade.

Bell's current trial focuses on drought-tolerant groundcovers, which he loosely defines as plants that are wider than they are tall. He and esteemed colleague Heather Stoven have embarked on plant collection adventures that would make any plantsperson green with envy, traveling to far-off places to find the hardiest specimens.

Bell highlighted the best performers in his trial, which faced significant challenges from sub-freezing temperatures during recent ice storms.

Contreras discussed the latest 



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Professor Neil Bell and colleague Heather Stoven collect drought-tolerant Mediterranean plants at a nursery in France. PHOTO COURTESY NEIL BELL

releases from the Oregon State University Ornamental Plant Breeding program, showcasing his prolific year. He introduced new hardy hibiscus, nativar huckleberry, and philadelphus varieties. These accessions complement his existing cotoneaster line and are available for commercial production.

Nurseries interested in growing these varieties can reach out to the Contreras Lab. Contreras also shared promising new selections, including a purple weeping *Styrax* and continued validation on his sterile Norway maple work.

Moretti shocked the audience — literally and figuratively — with his electric weed control research. He has imported a cutting-edge machine from Europe and has been testing its efficacy in organic horticulture systems like grapes and blueberries. Moretti sees great potential for this technology in nurseries and orchards too, promising a jolt of innovation in weed management practices.

Nackley kept it cool while discussing his lab's recent research on both above-

ground and belowground heat mitigation. For belowground temperature control, Nackley's team is investigating methods to manage root zone temperatures in containers, enhancing plant health and the efficacy of controlled-release fertilizers.

Aboveground, his research into misting techniques and biostimulants aims to keep red maples and other plants cool under the collar. Nackley's lab has been hosting regular workshops and field days at the North Willamette Research and Extension Center for those interested in collaborating and learning more about climate change adaptation and labor-saving technologies.

Post-summit discussions and future directions

The NWREC Nursery Science Summit was the first of its kind for the nursery working group. OAN and ODA leadership were in attendance as well.

Scientific engagement plays a crucial role in sustaining agriculture by fostering innovation, improving crop resilience, and ensuring food security. Engaging with

scientific research allows growers to adopt cutting-edge technologies and practices that enhance productivity while minimizing environmental impact.

As the challenges facing agriculture continue to evolve—ranging from climate change to pest pressures—ongoing collaboration between researchers, Extension agents, and the agricultural community is essential. This synergy not only drives the development of effective solutions but also empowers growers with the knowledge and tools needed to navigate an increasingly complex landscape.

After the talks, attendees enjoyed lunch and participated in an open discussion about the challenges and opportunities in nursery research. The conversation, while contentious at moments, revealed a shared commitment among the Oregon Association of Nurseries, Oregon State University, the USDA, and the Oregon Department of Agriculture to sustain and advance Oregon's vibrant nursery industry.

In this open space created by the summit, frustrations about the status quo were

candidly shared. Academics highlighted the disproportionately low level of engagement and financial support for nursery research compared to other agricultural commodities. An OAN member pointed out that often the same individuals have attended these workshops for the past 10–20 years, emphasizing the need for broader involvement.

From the industry side, there was an appreciation of the basic science, but a strong desire for more on-farm trials and research focused on solving immediate issues faced by growers. The discussions underscored the necessity for practical, applicable science that can directly benefit nursery operations.

Despite the tensions, the dialogue was ultimately fruitful. A positive outcome of the meeting was the creation of a list of specific research topics desired by the industry, which was shared with the academic community. This collaboration highlights the potential for future research that is closely aligned with the industry's needs.

Oregon Association of Nurseries Executive Director Jeff Stone concluded the summit with encouraging remarks, emphasizing the importance of continued collaboration and innovation. Buoyed by the strong attendance and eagerness to share ideas, the organizers plan on hosting a similar summit next winter.

By staying informed and involved in scientific advancements, the nursery industry can continue to thrive, adapting to new challenges and seizing emerging opportunities for growth and sustainability. Stay tuned to OAN member updates, or email Nackley directly to be added to the workshop announcement email list. ☺

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