Significance to the Horticulture Industry

Agave Mites

UV Light and Parafilm: Methods for Inoculation and Quantification with Agave Mites (*Oziella sp.*). Eric G Middleton and Gerardo Spinelli. *Journal of Environmental Horticulture 42(4):141–147*

Agave mites cause significant cosmetic harm to ornamental agave in both commercial production and landscaping. However, almost nothing is known about agave mites. Some of the biggest challenges are determining how to quantify agave mites due to their small size and hidden feeding locations, and how to inoculate plants for future curative experiments. Based on our results, we found that using commercially available UV flashlights (365 nm wavelength) was an effective way to find and quantify agave mites. For researchers, UV light is more reliable for counting both agave mites and eggs than using white light or washing mites off plants using established methods from Monfreda et al. 2007. Lesions from active agave mite feeding can also be seen with the naked eye under UV light as light stippled sections, and researchers can use this either as a metric to determine if agave mites are present, or to estimate agave mite abundance. For growers or pest scouts, looking for lesions with UV light is a useful tool for determining if agave mites are present, and we strongly suggest using UV light to see if preventative treatments are working or when determining if plants may be infested before symptoms appear. Finally, researchers should wrap plants in parafilm when inoculating them to achieve better agave mite abundance and have a reliable source of infested plants for curative studies. Our results provide methods that will be useful to anyone studying this pest or trying to manage it.

Butterfly Bush Cultivars

Relative Fecundity and Ploidy of 34 *Buddleja* Cultivars. Cara Still and Ryan Contreras. *Journal of Environmental Horticulture 42(4):148–164*

There are several ways regulatory bodies are addressing the spread of invasive ornamental plants, including banning species from commerce. This poses a threat to the nursery industry, as many of these species remain popular landscape plants among consumers. Advances in plant breeding now offer cultivars of invasive species that present little or no ecological threat, but the evaluation process and regulation of these exceptions remains unclear. The current regulation of *Buddleja* L. in Oregon attempts to balance the needs of growers with protecting wild areas from invasion but has thus far de-regulated interspecific hybrids. This study showed that testing all cultivars of an invasive species is necessary, regardless of its hybrid status. The pedigree exemption is a loophole in regulation that was a well-intentioned attempt to strike a balance but has the potential to negatively impact the nursery industry by endangering future exceptions to species bans. Our work documented reliably low fecundity cultivars and provides clarity regarding which cultivars among those evaluated may be deemed "ecologically safe". This provides an example of what data regulators should consider and will help strike the balance of commerce and protecting Oregonian ecosystems. The methods in our study could also inform testing of purportedly low fecundity cultivars of other ornamental species with high invasive potential.

Economics Boxwood Blight

Costs Associated With Mitigating Boxwood Blight During Nursery Production in the U.S. Charles R. Hall. *Journal of Environmental Horticulture 42(4):165–172*

The green industry remains an important contributor to the U.S. economy and to individual states and regions. The green industry is extremely broad-based, with the landscape services and wholesale-retail trade sectors existing in virtually all communities in the nation. Boxwood shrubs represent an important genus within the evergreen shrubs category and boxwood blight threatens to undermine its economic importance. The findings of this research are critical to our understanding of the boxwood market and issues affecting the green industry from boxwood blight. Participants in the green industry now have access to data to assist them in making strategic decisions regarding future investments to mitigate the effect of boxwood blight in their respective businesses. In addition, policymakers have better information to inform their decisions regarding efficient allocation of resources in combating this disease.

Online and Instor Buyers

Comparison of Online and Instore Plant Buyers. Alicia L. Rihn, Melinda J. Knuth, Patricia T. Huddleston, and Bridget K. Behe. *Journal of Environmental Horticulture 42(4):173–180*

Online sales of many products, including live plants, have increased more since the COVID-19 pandemic. Some estimates report that 25% of all retail sales now happen online. Most consumers make purchases both instore and online (omnichannel) rather than favoring one channel over the other. When considering selling plants online, there are some unique challenges to sellers including plant fragility and perishability; this may mean online sales may work for some firms and not others. Understanding how plant purchases and purchasers differ can better inform the marketing strategies of horticultural professionals as they consider their online plant sale options and whether to sell products through different channels. A greater percentage of men purchased plants or flowers online, different from the core customer group of garden retailers who are predominantly female. Colors, backgrounds, fonts, and images in communication materials might be changed to have greater appeal to a more male customer group. The seller's reputation positively influenced online purchases for all three plant/flower types, so staying vigilant regarding both positive and negative online reviews, and addressing both, could

positively influence online sales. Online flower/plant sales are nearly twice the amount, on average, of instore sales. Higher margins may be more possible online (versus instore) considering the online shopper may be more willing to pay for the convenience of browsing and purchasing plants/flowers at their convenience. Products purchased through each channel were somewhat different and product mix should be scrutinized before selling online.

Plug Cultivation

The Assessment of Different Growth Mediums for Plug Cultivation in a Controlled Environment. George Paul Buss, Paige Ann Carroll, Mya Alexandria Catherine Griffith, John L. Griffis, Galen Papkov, Sarah Bauer, and Ankit Kumar Singh. *Journal of Environmental Horticulture 42(4):181–187*

The utilization of plugs in the horticultural industry offers significant advantages. These young seedlings, grown in individual cells, enhance uniformity, thereby streamlining planting and cultivation processes. They enable precise control over plant spacing and density, optimizing land usage and improving crop management efficiency. Furthermore, plugs foster healthier root development, leading to better establishment and overall plant health. Their compact size facilitates easier handling and transportation and reduces transplant shock. Overall, the adoption of plugs represents a pivotal advancement in modern horticulture, fostering enhanced crop quality, yield, and sustainability. Plug growth mediums play a crucial role in the horticultural industry for several reasons. Initially, they provide a controlled environment for seed germination and early plant growth, ensuring optimal conditions for root development while minimizing transplant shock. Additionally, they enable efficient handling and transportation of young plants and ensuring uniformity in plant size and quality. Moreover, plug media can be tailored to specific plant species' requirements, promoting healthier growth and higher yields. Plug growth media are essential for efficient production processes and for enhancing the overall productivity and profitability of horticultural practices.

Streetscape Horticultural Elements

Measuring the Benefits of Plants: Visual Exposure and Human Well-being Impacts of Lush Streetscapes. Maria Christofi, Justin B. Hollander, Sara Folta, and Lisa Carlson-Hill. *Journal of Environmental Horticulture 42(4):188–200*

This paper demonstrates how green landscape elements draw attention and gaze. Studying the preconscious response to trees, shrubs, and plants helps us understand how we process our surroundings. The green industry can educate stakeholders regarding potential health impacts on healthy behavior by promoting more Lush streetscape design.

Wildlife Attraction

Into the Wild – U.S. Consumer Preferences for Residential Landscape Wildlife, Alicia Rihn, Susan Barton, Ariana Torres, and Bridget K. Behe. *Journal of Environmental Horticulture 42(4):201–209*

Native plant use in landscapes enriches biodiversity, enhances sustainability, and enriches ecosystem functions including pollinator and wildlife habitats. One key understudied dimension to biodiversity in the landscape literature is wildlife attraction (versus deterrence). Marketing plant benefits can be a powerful motivation to purchase. Nature relatedness promotes positive well-being and happiness. Our objective was to understand consumer preferences for attracting specific types of wildlife and the influence of native plant knowledge and nature relatedness on preferences. Understanding consumer preferences can ground marketing messages and enhance their effectiveness. Greater native plant knowledge and higher nature relatedness ratings improved the probability of participants wanting to attract all 10 types of wildlife. Since study participants wanted landscapes that attracted songbirds, butterflies, pollinators, and bees, we recommend that marketing communications include images and text for plants that entice these types of wildlife. Study participants were neutral about attracting gamebirds, deer, and chipmunks to their landscapes and wanted to deter insects, bats, and snakes, which suggests these entities should be avoided in marketing communication materials.

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